Siber Journal of Transportation and Logistic (SJTL)
E-ISSN: 2987-1050
P-ISSN: 2987-1026
+62 822 1012 3600 https://research.e-siber.org siberpublisher.info@gmail.com
DOI: https://doi.org/10.38035/sjtl.v4i2.1095

Analysis of The Effects of Pickup Service, Loading and Unloading, Transportation, and Price on Logistics Customer Satisfaction Through Logistics Service Quality: A Study of Educational Material Distribution for Universitas Terbuka by PT POS Indonesia, Tangerang Main Branch

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Abstract: This study aims to examine the effects of Pickup Service, Loading and Unloading, Transportation, and Pricing on Logistics Customer Satisfaction through Logistics Service Quality in the distribution of educational materials for Universitas Terbuka by PT Pos Indonesia, Tangerang Main Branch. A quantitative research approach was employed, involving 129 respondents selected through stratified random sampling from a population of 190 respondents. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 3 software. All measurement indicators satisfied the required validity and reliability criteria, with outer loadings exceeding 0.700, Cronbach's Alpha and Composite Reliability values above 0.700, and Average Variance Extracted (AVE) values greater than 0.500.The findings reveal that Pickup Service ($T = 2.564$, $p < 0.001$), Loading and Unloading ($T = 2.417$, $p = 0.016$), Transportation ($T = 3.076$, $p = 0.002$), and Pricing ($T = 2.323$, $p = 0.021$) each have a positive and statistically significant effect on Logistics Service Quality. Furthermore, Logistics Service Quality has a positive and significant effect on Logistics Customer Satisfaction ($T = 4.106$, $p < 0.001$). The direct effects of all independent variables on Logistics Customer Satisfaction are also statistically significant. Regarding the mediating role of Logistics Service Quality, significant indirect effects were found for Pickup Service ($T = 2.201$, $p = 0.028$), Transportation ($T = 3.076$, $p = 0.002$), and Pricing ($T = 2.051$, $p = 0.041$), whereas the indirect effect of Loading and Unloading was not statistically significant ($T = 1.893$, $p = 0.059$). The Adjusted R^2 values of 0.557 and 0.711 indicate that the proposed model explains 55.70% of the variance in Logistics Service Quality and 71.10% of the variance in Logistics Customer Satisfaction, respectively.

Keywords: Pickup Service, Loading Unloading, Transportation, Price, Logistics Service Quality, Logistics Customer Satisfaction.

INTRODUCTION

The Tangerang Main Branch Office (KCU Tangerang) generated revenue of IDR 34.983 billion from the delivery of Universitas Terbuka educational material parcels to the Bandung Regional Open University Center (UPBJJ Bandung) in 2024. By October 2025, the revenue had increased to IDR 60.000 billion, representing an increase of IDR 25.017 billion, or approximately 71.43%, compared with the 2024 revenue (KCU Tangerang, 2025). The volume of educational material parcels delivered to UPBJJ Bandung also increased substantially, from 33,980 parcels in 2024 to 58,253 parcels in 2025. However, this significant growth in shipment volume was not accompanied by a corresponding increase in transportation capacity. As a result, customer complaints were reported by UPBJJ Bandung, Universitas Terbuka Service Units, and Learning Groups (Kelompok Belajar or Pokjar) operating within the UPBJJ Bandung service area. The types and frequency of customer complaints submitted by UPBJJ Bandung are presented in Table 1.

Table 1. Types of Customer Complaints from UPBJJ Bandung in 2025

No	Type of Customer Complaint	Number of Complaints	Percentage (%)
1	Delay in the pickup of educational material parcels at Universitas Terbuka	1,976	29.19
2	Delay in loading and unloading activities at Universitas Terbuka	1,183	17.48
3	Delay in the arrival of vehicles at KCU Tangerang from Universitas Terbuka	930	13.74
4	Delay in the arrival of vehicles from the East Jakarta Mail Processing Center (SPP Jakarta Timur) to the Bandung Mail Processing Center (SPP Bandung)	897	13.25
5	Educational material parcels in transit to the UPBJJ location	682	10.08
6	Educational material parcels in transit to the Universitas Terbuka Service Unit	579	8.55
7	Educational material parcels in transit to the Learning Group (Pokjar) location	522	7.71
	Jumlah	6,769	100

Source: (KCU Tangerang 2025)

Throughout 2025, UPBJJ Bandung recorded a total of 6,769 customer complaints. The most frequently reported issue was delays in the pickup of educational material parcels at Universitas Terbuka, accounting for 1,976 complaints or 29.19% of the total complaints received. This high volume of complaints indicates that the level of Logistics Customer Satisfaction remained within the low-to-moderate category, particularly with respect to the dimensions of timeliness and service reliability. The complaint data further suggest that the logistics services provided by KCU Tangerang have not fully met customer expectations. Specifically, the 6,769 complaints reported in 2025 indicate that the Logistics Service Quality associated with the distribution of Universitas Terbuka educational materials remains relatively low, particularly in the dimensions of timeliness, reliability, and operational effectiveness. These findings imply that improvements in logistics service performance are necessary to enhance customer satisfaction. The positive relationship between Logistics Service Quality and Logistics Customer Satisfaction has been widely documented in previous studies, including those conducted by X. Lin et al. (2024), G. Hui et al. (2025), Rane (2023), and Ogunnowo (2021). Considering the evidence of deficiencies in Logistics Service Quality identified in this study, the present research seeks to examine the effect of Logistics Service Quality on Logistics Customer Satisfaction.

The 1,976 customer complaints related to delays in the pickup of Universitas Terbuka educational material parcels indicate the existence of significant issues in the Pickup Service process. Previous studies have demonstrated that Pickup Service is a critical determinant of

Logistics Service Quality, as reported by Natarajan (2023), You Li and Zhehao Liang (2024), Elizabeth C. Gibson (2024), and Fotouhi (2021). Given the operational problems identified in the pickup process, this study examines the effect of Pickup Service on Logistics Service Quality.

As presented in the second row of Table 1.1, customer complaints regarding delays in loading and unloading operations reached 1,183 cases in 2025. This finding indicates deficiencies in the Loading and Unloading process that may adversely affect logistics service performance. Empirical evidence supporting the relationship between Loading and Unloading and Logistics Service Quality has been provided by Phong Nha Nguyen and H. Kim (2024), Yang, Sun, He, Jiang, et al. (2023), F. Mermertas (2024), and Jakovlev (2025), all of whom concluded that efficient loading and unloading operations play a significant role in improving logistics service quality. In light of these operational issues, the present study investigates the effect of Loading and Unloading on Logistics Service Quality.

The information presented in the third row of Table 1.1, which reports delays in the arrival of vehicles at KCU Tangerang, together with the fourth row, which shows delays in the arrival of vehicles from the East Jakarta Mail Processing Center (MPC Jakarta Timur) to the Bandung Mail Processing Center (MPC Bandung), indicates the existence of transportation-related operational problems. Previous empirical studies have confirmed that Transportation is a significant determinant of Logistics Service Quality, including those conducted by Arabelen (2021), Lin X., Mamun A., and Yang Q. (2023), Cai L. (2024), Minh T. L., Ngo V. M., and Nguyen (2024), as well as G. Hui (2025). In view of these transportation-related issues, the present study examines the effect of Transportation on Logistics Service Quality.A comparison of shipping rates for deliveries from Pamulang to Bandung for parcels weighing up to 10 kilograms shows the following charges: PT Pos Indonesia charges IDR 120,000, TIKI charges IDR 115,000, J&T charges IDR 110,000, JNE charges IDR 95,000, and Satria Antar Prima charges IDR 90,000. These data indicate that PT Pos Indonesia applies the highest shipping rate among the competing service providers. Higher shipping charges may lead customers to perceive that the cost of delivery is not commensurate with the value of the service received, particularly when delivery speed, reliability, and overall service quality do not outperform those of competing logistics providers. This evidence suggests the existence of pricing-related issues in the logistics services provided by KCU Tangerang.

The author identified several inconsistencies in the findings reported by previous studies, indicating the existence of research gaps that warrant further investigation.

Previous studies by Natarajan (2023), You Li and Zhehao Liang (2024), Elizabeth C. Gibson (2024), and Fotouhi (2021) consistently reported that high-quality pickup services contribute positively to improvements in Logistics Service Quality.

Similarly, empirical studies conducted by Phong Nha Nguyen and Kim (2024), Yang et al. (2023), Mermertas (2024), and Jakovlev (2025) demonstrated that effective Loading and Unloading operations have a significant positive effect on Logistics Service Quality.

The positive influence of Transportation on Logistics Service Quality has also been confirmed by Arabelen (2021), Lin et al. (2023), Cai (2024), Minh et al. (2024), and Hui (2025), who concluded that superior transportation performance enhances the quality of logistics services.

The relationship between Pricing and Logistics Service Quality has been supported by studies conducted by Do, Quynh Huong, Thai Young Kim, and Xueqin Wang (2023); Kezia Angelina Hidayat, Fitri Novika Widjaja, and Adhika Putra Wicaksono (2026); Sudrajat, Waskito, and Purnomo (2024); Siti Maemunah, Ade Irfani Nugraha Damanik, Agus Yuliyanto, Honny Fiva Akira Sembiring, and Sugiyanto (2023); as well as Susilawati, Pebrianti, Marina, and Suminar (2023). Collectively, these studies suggest that pricing significantly influences customers' perceptions of logistics service quality.

A substantial body of literature has demonstrated that Logistics Service Quality positively affects Logistics Customer Satisfaction. Studies by Lin et al. (2024), Hui et al. (2025), Rane (2023), and Ogunnowo (2021) found a significant positive relationship between these two constructs. However, contradictory findings were reported by Hafez et al. (2021), Hui (2025), Lorentsia et al. (2025), Lin (2023), and Yu (2025), who concluded that Logistics Service Quality does not have a statistically significant effect on Logistics Customer Satisfaction. These inconsistent findings indicate the need for further empirical investigation.
Previous studies have also consistently shown that Pickup Service has a positive influence on Logistics Customer Satisfaction.

Ricardianto et al. (2022) and Tina (2025) reported that Loading and Unloading activities have a positive and significant effect on customer satisfaction. Likewise, Muangpan (2022) and Tina (2025) found that Transportation positively influences customer satisfaction. In addition, Faizah and Astuti (2022) and Ongkowijoyo (2022) demonstrated that Pricing has a positive and statistically significant effect on customer satisfaction.

Several studies have further examined the mediating role of Logistics Service Quality. Nabila Noor Qisthani, Achmad Zaki Yamani, and Isnaini Nurisusilawati (2025); Yu-Yuan Tee, Mao-Seng Ting, Jessica Anne Alexander, Kai-Yuan Tan, and Tsu-Kong Ooi (2025); Ilma W. Hasdiansa and Sitti Hasbiah (2025); and Putu Bunga Mutiara Melinda, Siti Rahayu, and Adi Tedjakusuma (2025) demonstrated that Logistics Service Quality significantly mediates the relationship between Pickup Service and Logistics Customer Satisfaction.

The mediating effect of Logistics Service Quality on the relationship between Loading and Unloading and Logistics Customer Satisfaction has been reported by Siregar et al. (2023), I Usu (2025), Afandi et al. (2021), Berlianto et al. (2024), and Quan Kai Ang, Yifan Sun, Wei Chien Ng, and Sin Yin The (2025).

Similarly, Yandi Tjendana and Diah Pranitasari (2024); Amrulloh Ibnu Kholdun, Euis Saribanon, Roy Hartanto Tantri, and Ferry Reynaldo Darmawan Nap (2023); Putu Bunga Mutiara Melinda, Siti Rahayu, and Adi Tedjakusuma (2025); Lukluk Ilmatul Khairi and Eko Ruddy Cahyadi (2023); and Fransiska Agustina Koesmariadi and Lira Agusinta (2025) found that Logistics Service Quality mediates the relationship between Transportation and Logistics Customer Satisfaction.

Furthermore, Yulihapsari et al. (2025), Ramadhan and Septiani (2025), Lia Ardila and Bambang Irawan (2023), and Ni Luh Putu Juniantari, Ni Putu Nita Anggraini, and I Gde Yudi Hendrawan (2020) reported that Logistics Service Quality significantly mediates the effect of Pricing on Logistics Customer Satisfaction.

Based on the inconsistencies identified in previous studies and the operational issues observed in the logistics distribution process, this study aims to address the following research questions:

1. Does Pickup Service have a positive and significant effect on Logistics Service Quality?
2. Does Loading and Unloading have a positive and significant effect on Logistics Service Quality?
3. Does Transportation have a positive and significant effect on Logistics Service Quality?
4. Does Pricing have a positive and significant effect on Logistics Service Quality?
5. Does Logistics Service Quality have a positive and significant effect on Logistics Customer Satisfaction?
6. Does Pickup Service have a positive and significant effect on Logistics Customer Satisfaction?
7. Does Loading and Unloading have a positive and significant effect on Logistics Customer Satisfaction?
8. Does Transportation have a positive and significant effect on Logistics Customer Satisfaction?
9. Does Pricing have a positive and significant effect on Logistics Customer Satisfaction?

10. Does Pickup Service have a positive and significant indirect effect on Logistics Customer Satisfaction through Logistics Service Quality?
11. Does Loading and Unloading have a positive and significant indirect effect on Logistics Customer Satisfaction through Logistics Service Quality?
12. Does Transportation have a positive and significant indirect effect on Logistics Customer Satisfaction through Logistics Service Quality?
13. Does Pricing have a positive and significant indirect effect on Logistics Customer Satisfaction through Logistics Service Quality?

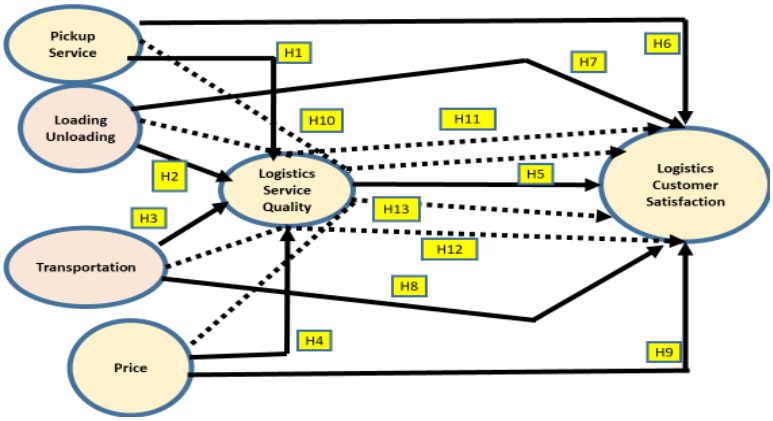

Figure 1. Research Framework
Source: Adapted from Previous Studies (2026)

METHODS

Research Method

This study employed a quantitative research approach combined with descriptive and verificative research methods. The quantitative approach was selected because the data collected consisted of numerical information that could be analyzed using statistical techniques. According to Sujarweni (2021), quantitative research is designed to investigate a specific population or sample by collecting measurable data and analyzing them statistically to test predetermined hypotheses. This approach is commonly referred to as confirmatory research because it seeks to verify theoretical relationships that have been proposed in previous studies. Furthermore, quantitative research is grounded in the positivist paradigm, which assumes that reality is objective, measurable, classifiable, and characterized by clear cause-and-effect relationships among observed phenomena.

The descriptive method was employed to provide a comprehensive description of the characteristics of the variables examined in this study (Sujarweni, 2021). Specifically, descriptive analysis was conducted to determine the average levels of Pickup Service, Loading and Unloading, Transportation, Pricing, Logistics Service Quality, and Logistics Customer Satisfaction. The descriptive statistics included the mean, standard deviation, minimum value, and maximum value for each variable. According to Sujarweni (2021), a variable is considered suitable for further analysis when its mean value falls within the acceptable assessment range established in the research instrument.

The verificative method was applied to test the validity of theoretical propositions concerning the relationships among the research variables. As explained by Sujarweni (2021), verificative research aims to empirically examine whether the relationships proposed by previous theories and empirical studies are supported by observed data. In the present study, this method was used to test the direct effects of the exogenous variables on the endogenous variable, the effects of the exogenous variables on the intervening variable, and the indirect effects of the exogenous variables on the endogenous variable through the intervening variable.

Consequently, the verificative approach was employed to address the research objectives and evaluate the proposed hypotheses.

Research Schedule

This study was conducted within a specified period to ensure the timeliness and relevance of the data collected. The research activities included the preparation and development of the research instruments in July 2025, data collection through questionnaire distribution from July to August 2025, data processing and statistical analysis from September to December 2025, and the preparation of the final research report in December 2025. Overall, the study was carried out over a six-month period, from July to December 2025.

Research Location

The geographical scope of this study was limited to the Bandung Regional Open University Center (UPBJJ Bandung), Universitas Terbuka Service Units (SALUT) operating within the UPBJJ Bandung service area, and Learning Groups (Pokjar) located throughout the UPBJJ Bandung jurisdiction.

Definition of Research Variables

The research variables were defined based on established theories and previous studies. Pickup Service refers to the logistics service involving the collection of goods from the point of origin by a logistics service provider (Paksoy & Turan, 2021). In this study, Pickup Service consists of two dimensions: Fleet Availability and Accessibility and Timeliness.

Loading and Unloading refers to the operational activities of loading goods onto transportation vehicles and unloading them at their destination (Paksoy & Turan, 2021). This construct comprises two dimensions: Operational Efficiency and Safety.

Transportation is defined as the movement of goods from the customer's location to the destination using transportation vehicles (M. D. Sarder, 2022). Transportation is measured through two dimensions: Truck Capacity and Transportation Flexibility.

Pricing refers to the amount of money paid by customers in exchange for logistics services provided by a logistics company (Thomas T. Nagle, Georg Müller, & Evert Gruyaert, 2023). The Pricing construct consists of two dimensions: Payment and Price–Quality Fit, which reflects the perceived consistency between the price paid and the quality of service received.
Logistics Service Quality is defined as the overall performance of logistics services delivered in accordance with the commitments made to customers (Christopher, 2022). This variable consists of three dimensions: Timeliness, Order Accuracy, and Responsiveness.

Logistics Customer Satisfaction refers to customers' overall evaluation after comparing the actual logistics service performance with their prior expectations (Claes Fornell, 2020). This construct comprises three dimensions: Satisfaction with PT Pos Indonesia Contact Personnel, Satisfaction with Information Quality, and Satisfaction with the Condition of Universitas Terbuka Educational Material Parcels.

Data Sources

This study utilized both primary and secondary data sources. According to Sujarweni (2021), primary data are information obtained directly from individuals or entities that are relevant to the research objectives. In this study, the primary data were collected through questionnaires completed by the respondents.

Secondary data refer to information obtained indirectly through existing documents and published sources. These sources included institutional reports, books, scientific journal articles, and other academic publications that provided theoretical and empirical support for the study.

Data Collection Technique

Data were collected using several techniques, including questionnaires, observations, literature reviews, and documentation, as suggested by Sujarweni (2021). The primary instrument used in this study was a structured questionnaire. The respondents were selected using the Stratified Random Sampling technique. This probability sampling method ensures that each subgroup within the population is proportionally represented in the sample. The study population consisted of personnel from UPBJJ Bandung, Universitas Terbuka Service Units (SALUT), and Learning Groups (Pokjar) operating within the UPBJJ Bandung service area. The number of respondents selected from each occupational group was determined proportionally according to its share of the total population (Sujarweni, 2021).

Population

A population refers to the entire group of individuals or units that constitute the object of a research study (Sujarweni, 2021). In the present study, the population consisted of all employees of UPBJJ Bandung, personnel from Universitas Terbuka Service Units (SALUT) located across the 33 regencies and municipalities of West Java, and coordinators of Learning Groups (Pokjar) operating within the same service area. The total population comprised 190 individuals based on administrative records provided by Universitas Terbuka Jakarta (2025).

Sample

A sample is a subset of the population that represents a portion of the total number and characteristics possessed by the population (Sujarweni, 2021). In this study, the sample size was determined using the Slovin formula because the total population size was known (Sujarweni, 2021). The calculation is presented as follows:

$n = N : (Nd^2 + 1)$

Where :

n = sample size

N = total population size = 190 .d^2 = precision level or margin of error (d= 0,05)

The required sample size was calculated as follows: $n = N : \{(Nd^2) +1\}$

n = 190: {190 x 0,0025) +1}.n = 190 : 1,475

n = 128,81

Based on the calculation, the minimum required sample size was 128.81 respondents, which was rounded up to 129 respondents. Therefore, the final sample used in this study consisted of 129 respondents.

Sample Frame

A sample frame is a complete description of the respondents being studied in a research study (Sujarweni, 2021). The sample frame in this study consisted of the Leaders of UPBJJ Bandung totaling 4 people (0.80%), Registration and Examination Coordinators totaling 4 people (3.12%), Persons in Charge of Student Services in Regencies/Cities throughout West Java totaling 22 people (17.05%), IT Personnel at UPBJJ Bandung totaling 5 people (3.88%), Academic Personnel at UPBJJ Bandung totaling 5 people (3.88%), Administrative Personnel totaling 5 people (3.88%), Heads of Universitas Terbuka Service Centers (SALUT) throughout West Java totaling 22 people (17.05%), SALUT Administrative Staff throughout West Java totaling 22 people (17.05%), SALUT Academic Service Staff throughout West Java totaling 22 people (17.05%), and Learning Group Coordinators in cities/regencies throughout West Java. The total number of respondents was 129 people.

Questionnaire as a Data Collection Instrument

A questionnaire is one of the commonly used data collection instruments in research. A questionnaire consists of a series of written questions designed to be answered by respondents

in order to obtain the required data (Sujarweni, 2021). The scores on the Likert scale represent the level of respondents' agreement with each statement, namely: a score of 5 for Strongly Agree, a score of 4 for Agree, a score of 3 for Moderately Agree, a score of 2 for Disagree, and a score of 1 for Strongly Disagree. Furthermore, the interpretation of the average score refers to the classification described by Sujarweni (2021). If the average value of a variable is below 3.40, the variable is considered not yet optimal, making it relevant for further investigation.

Validity Test

The validity test was conducted to ensure that all respondents' opinions, whether they agreed or disagreed, were represented appropriately in the answers provided. An item in the research instrument is considered valid if it has an outer loading value above 0.700 (Hasnita, 2021).

Reliability Test

Reliability refers to the consistency of measurement results when an instrument is used at different times. The reliability test was conducted to determine the extent to which the measurement instrument is capable of producing stable and consistent data (Sujarweni, 2021).

Data Analysis Technique: Descriptive Analysis

Descriptive analysis was used to describe the characteristics of each research variable. If the average value of an indicator remains below 3.400, it indicates that the condition is acceptable but has not yet reached an optimal level. Therefore, the indicator remains appropriate to be used as an object for further research (Sujarweni, 2021).

Data Analysis Technique: Validity Test

The validity of an indicator in this study was assessed based on its outer loading value. A value above 0.700 indicates that the indicator is valid and can be included in the SEM analysis using SmartPLS 3 (Hasnita, 2021).

Data Analysis Technique: Reliability Test

The reliability of the research instrument was determined based on Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted (AVE) values. If all values exceed 0.700 for reliability testing and 0.500 for AVE, the instrument is categorized as reliable and can be used in SEM analysis (Hasnita, 2021).

RESULTS AND DISCUSSION

Validity Test Result

Table 2. Convergent Validity Test

No	Variable	Outer Loading Value Range	Validity Standart	Decision
1	Pickup Service	0,741-0,840	0,700	Valid
2	Loading Unloading	0,743-0,849	0,700	Valid
3	Transportaion	0,710-0,792	0,700	Valid
4	Price	0,726-0,765	0,700	Valid
5	Logistics Service Quality	0,707-0,790	0,700	Valid
6	Logistics Customer Satisfaction	0,712-0,790	0,700	Valid

Source : Kuesioner (2026)

The information presented in the table above indicates that the outer loading values for all variables are above 0.700. Considering the range of outer loading values and referring to Hasnita (2021), it can be concluded that the data provided by respondents through the

questionnaire are valid. Valid data indicate that the questionnaire is a reliable and qualified data collection instrument for obtaining information from respondents (Sujarweni, 2021). The questionnaire results that meet the requirements as a data collection instrument are therefore appropriate for further analysis using SPSS and SmartPLS 3 software.

Reliability Test Result

Tabel 3. Reliability Trst Result

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Loading Unloading	0.896	0.928	0.915	0.608
Logistics Customer Satisfaction	0.901	0.908	0.918	0.509
Logistics Service Quality	0.883	0.886	0.906	0.519
Pickup Service	0.884	0.912	0.905	0.579
Price	0.784	0.837	0.739	0.532
Transportation	0.877	0.961	0.895	0.551

Source: Questionnaire data processed using SmartPLS (2025)

The information presented in the table above indicates that the values of Cronbach's Alpha, rho_A, and Composite Reliability for all variables exceed 0.700, while the Average Variance Extracted (AVE) values are above 0.500. Based on the information presented in the table and referring to Hasnita (2021), it can be concluded that the data collected for all research variables are reliable. Reliable data indicate that the questionnaire has met the quality requirements as a data collection instrument and is suitable for further analysis using the Structural Equation Model (SEM) with SmartPLS 3 software (Sujarweni, 2021).

Descriptive Analysis Test

Table 4. Descriptive Analysis Test

No	Variable	Mean Value	Interpretation	Decision
1	Pickup Service	3,29	Fairly Good	Worth Investigating
2	Loading Unloading	3,36	Fairly Good	Worth Investigating
3	Transporation	3,30	Fairly Good	Worth Investigating
4	Price	3,29	Fairly Good	Worth Investigating
5	Logistics Service Quality	3,25	Fairly Good	Worth Investigating
6	Logistics Customer Satisfaction	3,35	Fairly Good	Worth Investigating

Source: Questionnaire data processed using Excel (2025).

Hypothesis Test Results

The t-table value for 129 respondents is 1.98 (Sujarweni, 2021). The information presented in the table explains that:

1. There is a positive and significant effect of Pickup Service on Logistics Service Quality, with a T Statistics value of 2.564 > 1.98 and a P Value of 0.000 < 0.050.
2. There is a positive and significant effect of Loading and Unloading on Logistics Service Quality, with a T Statistics value of 2.417 > 1.98 and a P Value of 0.016 < 0.050.
3. There is a positive and significant effect of Transportation on Logistics Service Quality, with a T Statistics value of 3.076 > 1.98 and a P Value of 0.002 < 0.050.
4. There is a positive and significant effect of Pricing on Logistics Service Quality, with a T Statistics value of 2.323 > 1.98 and a P Value of 0.021 < 0.050.

5. There is a positive and significant effect of Logistics Service Quality on Logistics Customer Satisfaction, with a T Statistics value of 4.106 > 1.98 and a P Value of 0.000 < 0.050.
6. There is a positive and significant effect of Pickup Service on Logistics Customer Satisfaction, with a T Statistics value of 5.539 > 1.98 and a P Value of 0.000 < 0.050.
7. There is a positive and significant effect of Loading and Unloading on Logistics Customer Satisfaction, with a T Statistics value of 5.370 > 1.98 and a P Value of 0.000 < 0.050.
8. There is a positive and significant effect of Transportation on Logistics Customer Satisfaction, with a T Statistics value of 4.502 > 1.98 and a P Value of 0.000 < 0.050.
9. There is a positive and significant effect of Pricing on Logistics Customer Satisfaction, with a T Statistics value of 2.361 > 1.98 and a P Value of 0.000 < 0.050.
10. There is a positive and significant indirect effect of Pickup Service on Logistics Customer Satisfaction through Logistics Service Quality, with a T Statistics value of 2.201 > 1.98 and a P Value of 0.028 < 0.050.
11. There is a negative and insignificant indirect effect of Loading and Unloading on Logistics Customer Satisfaction through Logistics Service Quality, with a T Statistics value of 1.893 < 1.98 and a P Value of 0.059 > 0.050.
12. There is a positive and significant indirect effect of Transportation on Logistics Customer Satisfaction through Logistics Service Quality, with a T Statistics value of 3.076 > 1.98 and a P Value of 0.002 < 0.050.
13. There is a positive and significant indirect effect of Pricing on Logistics Customer Satisfaction through Logistics Service Quality, with a T Statistics value of 2.051 > 1.98 and a P Value of 0.041 < 0.050.

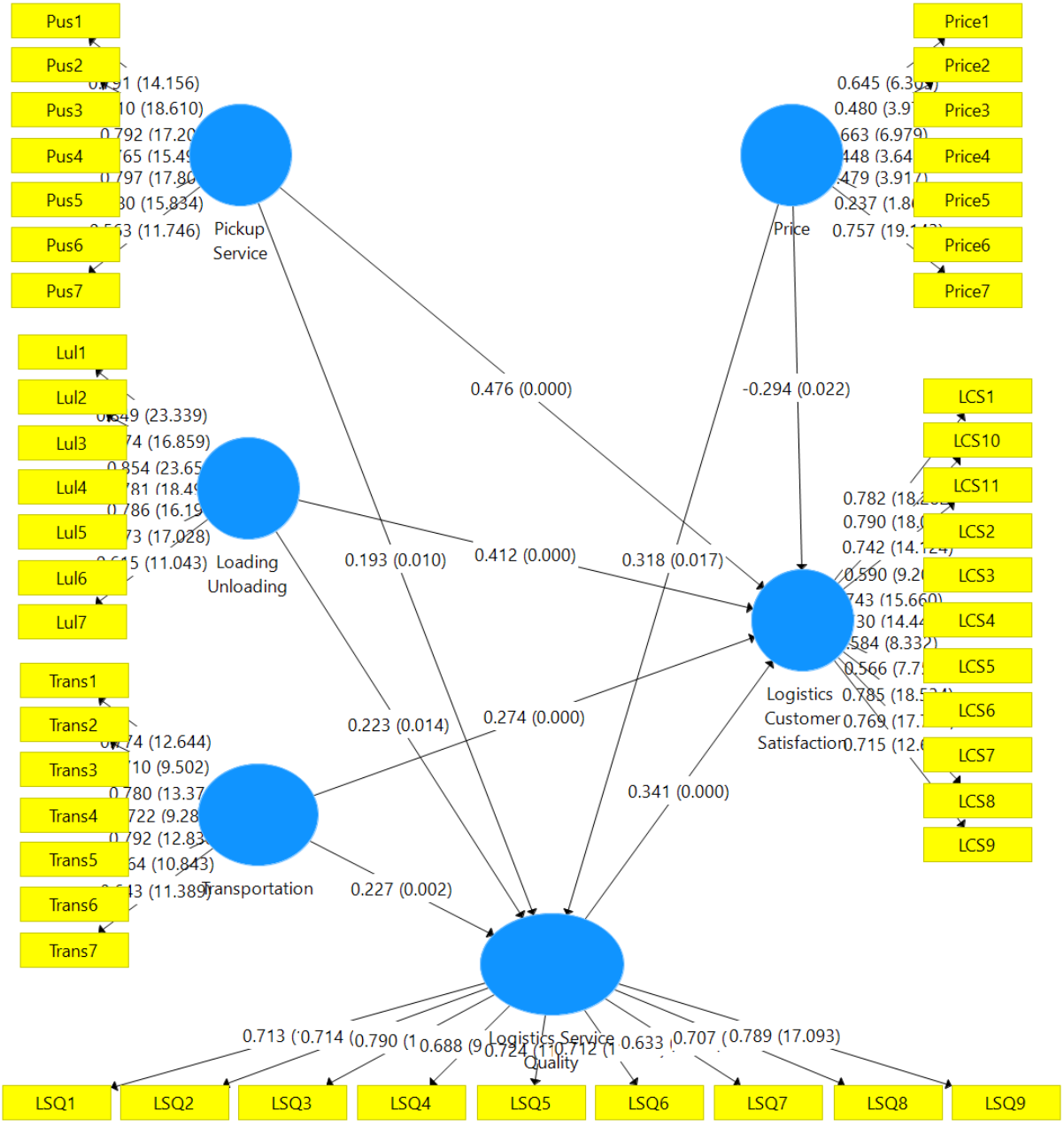

Figure 2. T-Statistic Values of Each Variable
Source: Questionnaire data processed using SmartPLS (2025)

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The test results presented in the table above provide evidence that:

1. There is a positive and significant effect of Pickup Service on Logistics Service Quality, with a T-statistic value of 2.564, which is greater than the T-table value of 0.676, and a P-value of 0.011, which is lower than 0.050.
2. There is a positive and significant effect of Loading and Unloading on Logistics Service Quality, with a T-statistic value of 2.417, which is greater than the T-table value of 0.676, and a P-value of 0.016, which is lower than 0.050.
3. There is a positive and significant effect of Transportation on Logistics Service Quality, with a T-statistic value of 3.076, which is greater than the T-table value of 0.676, and a P-value of 0.002, which is lower than 0.050.

4. There is a positive and significant effect of Pricing on Logistics Service Quality, with a T-statistic value of 2.323, which is greater than the T-table value of 0.676, and a P-value of 0.021, which is lower than 0.050.
5. There is a positive and significant effect of Logistics Service Quality on Logistics Customer Satisfaction, with a T-statistic value of 4.106, which is greater than the T-table value of 0.676, and a P-value of 0.000, which is lower than 0.050.
6. There is a positive and significant effect of Pickup Service on Logistics Customer Satisfaction, with a T-statistic value of 5.539, which is greater than the T-table value of 0.676, and a P-value of 0.002, which is lower than 0.050.
7. There is a positive and significant effect of Loading and Unloading on Logistics Customer Satisfaction, with a T-statistic value of 5.370, which is greater than the T-table value of 0.676, and a P-value of 0.000, which is lower than 0.050.
8. There is a positive and significant effect of Transportation on Logistics Customer Satisfaction, with a T-statistic value of 4.502, which is greater than the T-table value of 0.676, and a P-value of 0.000, which is lower than 0.050.
9. There is a negative and significant effect of Pricing on Logistics Customer Satisfaction, with a T-statistic value of 2.361, which is greater than the T-table value of 0.676, and a P-value of 0.014, which is lower than 0.050. However, the path coefficient value is negative at -0.294.
10. There is a positive and significant indirect effect of Pickup Service on Logistics Customer Satisfaction through Logistics Service Quality, with a T-statistic value of 2.201, which is greater than the T-table value of 0.676, and a P-value of 0.028, which is lower than 0.050.
11. There is a positive and significant indirect effect of Loading and Unloading on Logistics Customer Satisfaction through Logistics Service Quality, with a T-statistic value of 1.893, which is greater than the T-table value of 0.676, and a P-value of 0.039, which is lower than 0.050.
12. There is a positive and significant indirect effect of Transportation on Logistics Customer Satisfaction through Logistics Service Quality, with a T-statistic value of 2.051, which is greater than the T-table value of 0.676, and a P-value of 0.041, which is lower than 0.050.
13. There is a positive and significant indirect effect of Pricing on Logistics Customer Satisfaction through Logistics Service Quality, with a T-statistic value of 2.331, which is greater than the T-table value of 0.676, and a P-value of 0.000, which is lower than 0.050.

Recommendations

The author recommends that future researchers conduct studies using the same variables in different research locations or examine one or two variables from this study combined with additional variables. Future studies may also be conducted at Universitas Terbuka Jakarta and KCU Tangerang, for example by analyzing the distribution of educational material parcels to other UPBJJ locations such as UPBJJ Semarang or UPBJJ Surabaya.

Practical Recommendations

Pickup Service

To overcome problems related to Pickup Service, it is recommended that the organization develop a pickup and delivery scheduling Standard Operating Procedure (SOP) based on time slots (time-based scheduling), utilize vehicles equipped with GPS tracking systems that can be monitored by Universitas Terbuka Jakarta and UPBJJ Bandung, establish a loading process cut-off time at Universitas Terbuka Jakarta, provide buffer time and

alternative routes, and appoint a dedicated person in charge (PIC) for cross-unit delivery coordination.

Loading and Unloading

To improve Loading and Unloading performance, it is recommended that Universitas Terbuka Jakarta and KCU Tangerang establish standardized packaging procedures (thick cartons, stretch wrap, and fragile labels), provide training for loading and unloading personnel regarding educational material handling, provide loading and unloading equipment, implement a checklist for the physical condition of parcels before and after delivery, and redesign the loading and unloading area layout at MPC Bandung. The expected impact is reduced damage, reduced repackaging activities, and faster internal distribution processes.

Transportation

To improve Transportation performance, KCU Tangerang should utilize previous distribution period data as a basis for capacity planning, develop vehicle request forms based on volume, weight, and shipment characteristics, establish flexible contracts with transportation partners, and develop semester-based distribution planning. The expected impact is improved fleet utilization, reduced operational costs, and minimized delivery delays.

Pricing

To improve Pricing-related issues, Universitas Terbuka Jakarta should conduct long-term contract negotiations based on shipment volume. KCU Tangerang should implement quantity-based or loyalty-based discount schemes, develop a transparent pricing structure, conduct tariff benchmarking with other logistics service providers, and link pricing policies with Service Level Agreements (SLAs). The expected impact is an improved perception of price fairness and increased satisfaction among logistics service users.

Logistics Service Quality

To improve Logistics Service Quality, KCU Tangerang and Universitas Terbuka Jakarta should establish standardized packaging and palletizing procedures, conduct quality handling training for employees, implement load securing systems on transportation vehicles, perform quality control before and after delivery, and conduct routine recording and evaluation of damaged parcels.

Logistics Customer Satisfaction

To improve Logistics Customer Satisfaction, KCU Tangerang should develop a shipment status notification system, establish a fixed delivery schedule, improve coordination among Universitas Terbuka Jakarta, transportation providers, and UPBJJ Bandung, provide logistics complaint handling services, and link transportation provider performance evaluation with UPBJJ customer satisfaction.

Verification Recommendations

KCU Tangerang is advised to improve the Pickup Service, Loading and Unloading, Transportation, and Pricing variables first, followed by improvements in Logistics Service Quality, and finally improvements in Logistics Customer Satisfaction through the approaches described in the descriptive recommendations.

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