



ASSESSING SUPPLY-SIDE DETERMINANTS OF PASSENGER SATISFACTION IN LONG-DISTANCE EXPRESSWAY BUS SERVICES IN SRI LANKA: A CASE STUDY OF SOUTHERN EXPRESSWAY

K L S Abeywickrama * and C T Danthanarayana

Department of Economics, University of Colombo, Sri Lanka.

* Correspondence should be addressed to sandamali@econ.cmb.ac.lk

ABSTRACT

The transportation sector plays a vital role in fostering economic growth, societal connectivity, and individual mobility. Long-distance bus services have emerged as a prominent mode of transportation, offering an efficient and cost-effective means of travel for both urban and intercity commuters. This study aims to comprehensively assess and elucidate the supply-side determinants that significantly impact passenger satisfaction with long-distance expressway bus service in Sri Lanka. To ensure the collection of detailed and relevant insights from frequent users of the Southern Expressway's long-distance bus services, a purposive sampling technique was employed. Data collection was guided by variables identified in the literature review, and exploratory factor analysis was used to analyse the sample data. The study identified six salient supply-side factors affecting passenger satisfaction: service quality, comfort, accessibility and convenience, safety and security, cost, and customer service. These factors explained 74% of the total variance, with service quality being the most influential, accounting for 18% of the total variance. The findings recommend upgrading the bus fleet, maintaining cleanliness, optimising scheduling, enhancing reservation systems, implementing staff training, improving safety measures, ensuring fair pricing, enhancing customer service, raising passenger awareness, and encouraging innovation to improve expressway bus services, attract more passengers, and build a reliable public transport system.

Keywords: *Supply-side factors, factor analysis, long distance bus service, passenger satisfaction, southern expressway*

1. INTRODUCTION

Transportation is a fundamental element of human society, playing a crucial role not only in historic contexts but also in contemporary times. It serves as a critical component of the economy: facilitating trade, enhancing mobility, and improving the overall quality of life. The scope of transportation is extensive, encompassing land, rail, air, and sea sectors, each contributing uniquely to the connectivity and efficiency of human activities.

In the context of developing countries like Sri Lanka, land transportation emerges as the most prevalent mode of transport among the general public. This preference is due to various factors, including accessibility, affordability, and the existing infrastructure. Sri Lanka's reliance on road transport is particularly significant, and it reflects the country's transportation dynamics and economic structure. The current demand for passenger travel in Sri Lanka is estimated at approximately 80 billion passenger kilometres per year, with road transport accounting for 93% of this demand [1]. This heavy reliance on road transport underscores the importance of maintaining and enhancing the road network to support the nation's economic and social activities. Effective road transportation systems facilitate the movement of people and goods, thereby driving economic growth, reducing regional disparities, and improving access to essential services. In developing regions, efficient land transportation is vital for connecting rural areas with urban centres, promoting inclusive development, and fostering social cohesion.

An Expressway is a Class 1 Highway, which is a divided arterial highway for through traffic with full or partial control of access and generally with grade separations at major intersections [2]. The Southern Expressway in Sri Lanka is a major transportation artery that connects various cities and towns in the southern region of the country. Along this expressway, long-distance bus services operate, providing an important mode of transport for both residents and visitors. Southern Expressway is the first link of a planned network of expressways in Sri Lanka. It travels from Kottawa to Mattala (200.451 km). The maximum operating speed for this section is 100kmph. Southern Expressway ultimately links Mattala Airport (and Hambantota Harbour from Andarawewa-Hambantota Rd -E06) to the commercial capital, Colombo [3]. Accordingly, the construction of this expressway yielded several benefits, including reduced travel time from Colombo to Mattala/Hambantota, decreased traffic congestion, and lower delay and fuel costs; thereby contributing to the national economy. Additionally, the expressway is anticipated to attract private investors, thereby expanding the job market and enhancing tourism, which is currently confined to the coastal belt along the Colombo-Galle-Matara-Hambantota corridor.

Demand for bus transport is a derived demand. Passengers should be satisfied with the service to use any mode of transport. Passenger satisfaction is the main component that affects the demand for public bus transport. Customer feedback and satisfaction are taken seriously in any organisation that provides products or services to the public [4]. If they are not satisfied with the service, they will leave it. The satisfaction of passengers using these bus services on the Southern Expressway is a key factor in evaluating the quality and effectiveness of the service.

This study identifies supply-side factors that significantly impact passenger satisfaction with long-distance expressway bus services on the Southern Expressway in Sri Lanka. The primary objective is to comprehensively assess and elucidate the supply-side determinants influencing passenger satisfaction with these services, with a particular focus on the Southern Expressway. Furthermore, by identifying and analysing these factors, the study aims to provide actionable insights and recommendations for service providers and policymakers to enhance the quality and efficiency of expressway buses. One may infer that this is because there have been no comprehensive studies on the supply-side factors affecting passenger satisfaction in long-distance buses, especially those travelling towards the Southern Expressway. Previous research has either concentrated on various modes of transportation or has been limited to certain bus types or geographical areas, thus creating an open space for understanding the supply-side determinants of expressways in the southern region.

2. LITERATURE REVIEW

The recently introduced Southern Expressway facilitates rapid travel from western to southern destinations in Sri Lanka [5]. According to Subbaih and Praveena,[6] Omnibus bus service has played an important role in society in rural and urban areas. The bus fare is fixed based on cost and other social factors. One main feature of bus service is that it provides better service to the general public. The main goal of the omnibus bus service is to be effective and efficient, which benefits everyone involved. Transport services are vital for the development of a country's economy, as they help the mobility of labour and contribute to its development. In numerous countries, bus transport systems have implemented diverse value-added services accompanied by adjusted pricing discrimination. This enables passengers to select services according to their fare affordability [7].

Public transport plays a social role in the urban environment; both public authorities and transport operators are involved in policy formulation and implementation concerning transport services. Vehicle safety, cleanliness, and complaint handling have significant influences on passenger behavioural intentions. Bus traffic safety

record is the most influential service segment and determinant of overall service quality. Public transport can be evaluated by measuring customer satisfaction [8]. The condition of roads and bridges significantly impact customer satisfaction [9]. In the context of Malaysian highways, accessibility is a key determinant in shaping the role and effectiveness of the highway service provider, as it directly influences the ease with which users can access and utilise the highway system. This includes providing timely information on changes in road conditions, which is highly valued by road users and is a significant aspect affecting customer satisfaction [10]. It's crucial to have urban connections to the National Expressways Network or any inter-city expressway constructed by state governments [11]. The toll charges on highways play a significant role in determining customer satisfaction, recognised as a prominent factor in assessing highway agency operations, cost savings to users are highly valued [12]. Londenius mentioned [13] the findings from passenger satisfaction measurements indicate that drivers prioritise traffic safety above all else. Factors such as inadequate lighting and poor visibility have been identified as key drivers of customer satisfaction [14].

The pivotal service quality attributes that significantly impact passenger satisfaction. These essential quality dimensions encompass fare competitiveness, cleanliness standards, comfort levels, infrastructure condition, regulatory discipline, travel duration, occupancy level, privacy assurance, service availability and safety standards [15]. The evaluation of passenger satisfaction with the long-distance bus service introduced by SLTB for expressway transportation in Sri Lanka focuses on four key dimensions; the quality of terminal facilities, the effectiveness of bus services, the standard of bus amenities and the behaviour of drivers and conductors [16]. The findings indicate that passenger satisfaction with terminal-related attributes is relatively low compared to other features. Ranawana and Hewage [17] conducted a study on various factors influencing service quality in public bus transportation and their impact on the sector's development. The study assessed service quality based on several criteria, including vehicle safety, station design, vehicle condition, timetable information, travel time and delays, departure frequency, and ticketing system. Ticket price, fare structure and platform layout emerge as key determinants of customer satisfaction. These factors are especially prioritised by frequent public transport users, as opposed to occasional passengers [18]. Redman et al. [19] conducted an extensive analysis of the various attributes that define the quality of public transport. These attributes are systematically categorised into physical and perceptual dimensions. The physical attributes encompass reliability, frequency, speed, accessibility, and pricing. Conversely, the perceptual attributes include comfort, safety, convenience, and aesthetics. Due to the complexity of customer satisfaction in transportation services, characterised by perishability and intangibility, existing studies have consistently

attempted to assess a wide range of attributes and dimensions. These attributes include reliability, punctuality, cost/affordability, travel and waiting time, convenience, responsiveness, speed, safety, accessibility, ease of use, cleanliness, ticketing, frequency of service, and security [20]. In developing countries, the quality of long-distance bus services is positively correlated with the availability of information, customer service, reliability, comfort, safety, and security [21]. Mohamed et al. [22] identified several key factors that significantly influence the reliability of bus travel times. These factors include the length of the route, the number of signalised intersections, the day of the week, the number and location of bus stops, departure delays, the presence of dedicated bus lanes, passenger boarding and alighting processes, weather conditions, and the fare structure.

Disney [23] pointed out that drivers' friendly behaviour and effective communication are crucial factors in understanding customers' needs and significantly contribute to determining customer satisfaction. Employing the network approach to analyse the relationship between passenger satisfaction and various quality aspects of bus service in Nanjing City, China, key determinants of overall satisfaction have been identified. These determinants include adherence to schedules, waiting time, seat availability, cleanliness of the onboard environment, a pleasant station environment, convenient transfer planning, and the provision of air conditioning [24]. In the context of public bus transport in the Kegalle district of Sri Lanka, passengers' satisfaction is shaped by various service quality factors. These include the information exchange system, complaint management, maintenance of bus stops and terminals, congestion levels, cost and ticketing processes, cleanliness standards of buses, and poor road infrastructure [25]. Kageyama et al. [26] emphasised that passenger satisfaction with safety, comfort, and rest facilities on Japan's regional expressways ranks higher than satisfaction with fare facilities, reliability, and information.

3. METHODOLOGY

The primary objective of this study is to utilise mixed analysis methods to identify the supply-side factors affecting passenger satisfaction with long-distance bus services on the Southern Expressway in Sri Lanka. The Southern Expressway features twenty interchanges from Kahathuduwa to Mattala. This study collects data from passengers using the Southern Expressway by selecting key service provider terminals such as Makumbura, Matara, Tangalle, and Sooriyawewa, as these terminals represent journey segments exceeding 100 km in distance. Given the challenges of obtaining data from the entire population, the study utilises a purposive sampling method. Purposive sampling is utilised to select participants with specific characteristics or expertise relevant to the study, thereby ensuring focused data

collection and insights directly aligned with the research objectives. Data were collected through questionnaires distributed to 200 passengers at the selected service provider terminals, achieving a 100% response rate. Purposive sampling was chosen to deliberately select subjects most relevant to the study's objectives, ensuring the sample includes individuals who can provide the most valuable insights. This approach ensures that the data collected is both comprehensive and aligned with the study's objectives, facilitating a thorough analysis of the factors influencing passenger satisfaction with long-distance expressway bus services on the Southern Expressway.

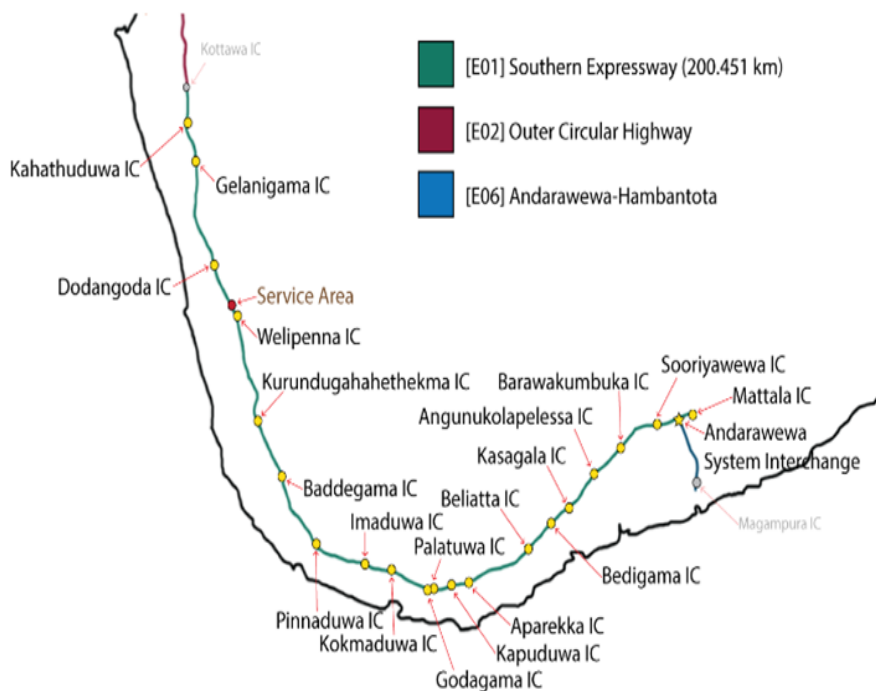


Figure 1: Southern Expressway Road Map

Source: Road Development Authority Sri Lanka

The primary data needed for this study were obtained through a combination of questionnaires and observations. The researcher designed a questionnaire to address the study's objectives, comprising both closed-ended and open-ended questions. The literature review, based on secondary data sources, was conducted using academic research papers, books, industrial annual reports, internet sources, and magazines.

A pilot survey was conducted before data collection to confirm the reliability of the questionnaire. To evaluate the questionnaire's reliability, relevance, and clarity, a preliminary survey was carried out using a model identical to the one used in the main

study. The pilot study included a sample size of 52 passengers. Feedback from these participants helped refine the questionnaire, ensuring that the questions were clear, understandable, and effectively measured the intended constructs. The structured questionnaire included a five-point Likert scale to measure passenger satisfaction with long-distance bus services on the Southern Expressway. The main survey was conducted during morning and evening peak hours to accurately capture passenger demand and ensure data accuracy.

Data analysis focused on evaluating passengers' levels of satisfaction with long-distance bus services. A five-point Likert scale was employed, with response options ranging from Strongly Agree (SA, coded as 5) to Strongly Disagree (SD, coded as 1). The remaining options were Agree (A, coded as 4), Neutral (N, coded as 3), and Disagree (D, coded as 2). Descriptive analysis and exploratory factor analysis were used to examine the underlying constructs. Initially, a correlation analysis using Bartlett's test of sphericity was conducted to determine whether the correlations in the data were sufficient to justify the use of factor analysis... Subsequently, factor analysis was performed to cluster these variables using IBM SPSS Statistics (Version 22) software. This methodological approach ensures a comprehensive analysis of passenger satisfaction with long-distance bus services on the Southern Expressway, providing valuable insights for service improvement.

4. RESULTS AND DISCUSSION

4.1. Analysis of Descriptive Statistics

According to the analysis of socio-economic data, the sample consisted of 50.5% female and 49.5% male passengers across different age groups. The most frequent users of long-distance bus services on the Southern Expressway are in the age groups of 30-39 years (40.7%) and 18-29 years (23.3%), collectively representing more than half of the total sample. Analysing the monthly salary levels, the majority of passengers earn between 50,000 and 100,000 LKR (52.7%). Regarding the purpose of use, 34.7% of passengers use long-distance bus services on the Southern Expressway for occupational purposes, and 21.3% use them for educational activities. In terms of frequency, 34.7% of passengers use these services daily, while 21.3% use them once per week to reach their destinations.

Table 1 presents descriptive statistics for the supply-side passenger satisfaction variables. The descriptive analysis indicates that passengers place special consideration on punctuality (Mean = 4.4), frequency of service (Mean = 4.23), professionalism and friendliness of the staff (Mean = 4.02), and travel time (Mean = 4) when using long-distance bus services on the Southern Expressway. Additionally,

the mean values of other variables suggest they are also important factors in the use of long-distance bus services on this route.

This detailed socio-economic and descriptive analysis highlights the key supply-side factors influencing passenger satisfaction, providing valuable insights for improving long-distance bus services on the Southern Expressway in Sri Lanka

Table 1: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Punctuality	200	1.0	5.0	4.400	.9720
Professionalism & Friendliness	200	1.0	5.0	4.050	.8896
Handling Complaints	200	1.0	5.0	3.560	.8896
Ease of Booking	200	1.0	5.0	3.170	1.0709
Frequency	200	1.0	5.0	4.230	.9062
Fare Levels	200	1.0	5.0	3.670	.9516
Value for Money	200	1.0	5.0	3.230	.9281
Stop Location	200	1.0	5.0	3.660	.8991
Information Availability	200	1.0	5.0	2.630	1.0190
Inter-connectivity	200	1.0	5.0	2.280	.8863
Travel time	200	1.0	5.0	4.000	.8267
Reliability	200	1.0	5.0	3.480	.7698
Direct Routes	200	1.0	5.0	3.700	.8206
Diver Competence	200	1.0	5.0	2.930	.9432
On-board Security	200	1.0	5.0	3.240	.7518
Bus Condition & maintenance	200	1.0	5.0	3.520	.9456
Accident Management	200	1.0	5.0	3.370	.9684
Personal Space	200	1.0	5.0	3.510	.9873
Seating Comfort	200	1.0	5.0	3.020	1.0320
Vehicle Cleanliness	200	1.0	5.0	2.880	1.1278
Air-Conditioning	200	1.0	5.0	3.490	.9974
Terminal Cleanliness	200	1.0	5.0	3.110	2.760
On-board Amenities	200	1.0	5.0	2.760	.9417

Source: Based on author's survey

4.2. Factor Analysis

Factor analysis is employed in this study to identify the supply-side factors influencing passengers' satisfaction when using long-distance bus services on the Southern Expressway. It is a sample-sensitive data analysis method commonly used in exploratory research. In exploratory factor analysis, the exact number of factors required for analysis is not predetermined but rather extracted from the data. The factor analysis in this study is based on twenty-three variables identified from the literature review.

Before conducting the factor analysis, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity are performed to assess the suitability of the data for factor analysis. The KMO test measures sampling adequacy, indicating whether the variables are related enough for factor analysis. Bartlett's test of sphericity assesses whether correlations between variables are sufficiently different from zero to justify factor analysis.

The table below displays the KMO values and Bartlett's test of sphericity results obtained in this study, providing insights into the appropriateness of the data for factor analysis.

Table 2: KMO Test and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.815
Bartlett's Test of Sphericity	Approx. Chi-Square	3256.776
	Df	253
	Sig.	.000

Source: Based on author's survey

A KMO value exceeding 0.6 is generally considered acceptable for factor analysis, indicating that the sample size is adequate. In this study, the KMO value is 0.815, well above the threshold of 0.6, demonstrating that the sample is suitable for factor analysis. A significant result, typically with a p-value less than 0.05, indicates that the variables are sufficiently correlated. In this study, Bartlett's test of sphericity yielded a p-value of 0.000, which is lower than the threshold of 0.005. This result confirms that the covariance matrix in the dataset is not an identity matrix, providing further support for the suitability of conducting factor analysis on all the variables included in the study.

Therefore, based on these values and findings, it is evident that the sample size and selected variables in this study meet the criteria for factor analysis, enabling a thorough examination of the supply-side factors affecting passenger satisfaction with long-distance bus services on the Southern Expressway.

Table 3: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.144	39.757	39.757	9.144	39.757	39.757	4.020	17.479	17.479
2	2.504	10.886	50.642	2.504	10.886	50.642	3.519	15.301	32.780
3	1.727	7.511	58.153	1.727	7.511	58.153	3.072	13.358	46.138
4	1.324	5.758	63.911	1.324	5.758	63.911	2.830	12.302	58.440
5	1.268	5.512	69.423	1.268	5.512	69.423	2.047	8.879	67.320
6	1.069	4.648	74.071	1.069	4.648	74.071	1.553	6.752	74.071
7	.831	3.618	77.685						
8	.692	3.011	80.696						
9	.645	2.804	83.499						
10	.518	2.253	85.757						
11	.446	1.939	87.691						
12	.399	1.733	89.424						
13	.389	1.690	91.114						
14	.357	1.551	92.665						
15	.317	1.376	94.041						
16	.289	1.256	95.297						
17	.235	1.024	96.321						
18	.215	.936	97.256						
19	.194	.845	98.102						
20	.142	.618	98.720						
21	.131	.569	99.289						
22	.086	.373	99.662						
23	.078	.338	100.000						

Note: Extraction Method: Principal Component Analysis

Source: Based on author's survey

Table 3 above presents the factors extracted from the analysis along with their eigenvalues that met the cut-off criterion during the extraction process. Based on the percentage of variance attributable to each factor after extraction (Extraction Sums of Squared Loadings % of variance), six components were identified that influence passenger satisfaction with long-distance bus services on the Southern Expressway from the demand side. Throughout the study, these six components collectively explained 74.071% of the total variance, indicating their significant impact on

passenger satisfaction. In other words, these components can account for 74.071% of the total incidents related to passenger satisfaction.

The first component, with an eigenvalue of 39.757%, plays a crucial role in explaining the variance in passenger satisfaction with long-distance bus services on the Southern Expressway. This component likely encompasses key factors that heavily influence passenger perceptions and experiences.

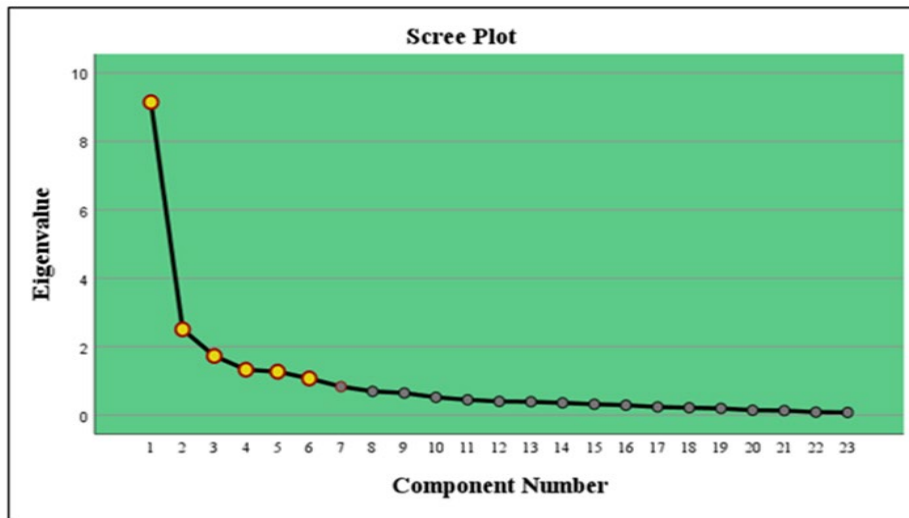


Figure 2: Factor Scree Plot

Figure 2 displays the scree plot, illustrating eigenvalues against all the factors derived from the 23 variables in this study. In this graphical representation, factors with eigenvalues exceeding one are referred to as principal components, while those with eigenvalues below one are considered minor factors. Figure 2 depicts six factors (components) with eigenvalues surpassing one, indicating their significance in explaining the variance within the dataset and their potential impact on the study's objectives.

The concept of factor rotation aims to streamline the interpretation of factors derived from factor analysis by reducing the number of factors with high variable loadings. After applying Varimax Rotation in this study, the variables were categorised into six distinct components based on the results of exploratory factor analysis.

Firstly, the 'Service Quality' component encompasses variables such as punctuality, frequency of service, travel time, reliability, and direct routes. These factors collectively contribute to the overall quality of service experienced by passengers. Secondly, the 'Comfortability' component comprises variables related to seating comfort, vehicle cleanliness, air conditioning, terminal cleanliness, and onboard

amenities. These factors focus on the physical comfort and cleanliness aspects of the bus service. Thirdly, the 'Accessibility & Convenience' factor includes variables that address the ease of booking seats, stop locations, interconnectivity, and availability of information. This component highlights the convenience and accessibility factors influencing passenger satisfaction. The fourth component, 'Safety & Security,' encompasses variables related to driver competence, on-board security measures, bus condition and maintenance, and accident management. These factors are crucial for ensuring the safety and security of passengers during their journey. Next, the 'Cost' component incorporates variables concerning fare levels and the perceived value for money. This factor examines the economic aspects of the bus service and how it impacts passenger satisfaction. Lastly, the 'Customer Service' component focuses on variables related to the professionalism and friendliness of the bus crew, as well as the effectiveness of complaint handling procedures. This component sheds light on the interpersonal aspects of service delivery and customer interactions.

Through this factor rotation process, the study aims to provide a comprehensive understanding of the various factors that influence passenger satisfaction with long-distance bus services on the Southern Expressway.

Table 4: Rotated Component Matrix

Variables	Factors (Components)					
	Service Quality	Comfortability	Accessibility & Convenience	Safety & Security	Cost	Customer Service
Punctuality	.780	.116	-.186	.122	.051	.173
Frequency	.686	-.074	.219	.137	-.097	.299
Travel Time	.788	.076	-.039	.331	.210	.112
Reliability	.806	.185	.259	-.023	-.010	.027
Direct Routes	.725	.135	.417	.244	-.068	-.052
Seating Comfort	.300	.544	.269	.332	.276	-.332
Vehicle Cleanliness	.190	.564	.402	.328	.205	-.189
Air-conditioning	.105	.666	.212	.392	-.064	.216
Terminal Cleanliness	.165	.885	.100	.003	.116	.214
On-board Amenities	.010	.767	.098	.317	.290	.060
Personal space	.488	.490	.452	.002	.009	-.063
Ease of booking	.221	.033	.749	.134	-.097	.299
Stop locations	.545	.232	.547	-.031	.274	.069
Information Availability	.009	.211	.765	.259	.303	-.069
Inter-Connectivity	-.103	.346	.518	-.049	.451	.035
Driver Competence	.105	.263	.081	.767	.328	-.028

Variables	Factors (Components)					
	Service Quality	Comfortability	Accessibility & Convenience	Safety & Security	Cost	Customer Service
On-Board Security	.228	.422	.040	.532	.251	.263
Bus Condition & Maintenance	.189	.096	.149	.804	.124	.175
Accident Management	.213	.327	.510	.571	-.074	-.245
Fare Levels	.352	.186	-.004	.170	.762	.061
Value for money	.011	.119	.213	.336	.709	.143
Professionalism & Friendliness	.242	.157	.059	.081	.110	.799
Handling of Complaints	.244	.342	.443	.269	.209	.452

Source: Based on author's survey

4.3. Reliability of Factors

Table 5: Reliability of Factors

Factor Name	Number of Items	Cronbach's Alpha Value
Service Quality	5	0.870
Comfortability	6	0.877
Accessibility and Convenience	4	0.767
Safety and Security	4	0.827
Cost	2	0.721
Customer service	2	0.622

Source: Based on author's survey

The reliability of this study was assessed using Cronbach's Alpha test, which is commonly employed to evaluate internal consistency. A Cronbach's Alpha value between 0.6 to 0.7 is generally considered acceptable, while a value of 0.8 or higher indicates a very good level of reliability. Conversely, a low Cronbach's Alpha value suggests that the factors being measured do not adequately represent the domain of behaviour.

In this study, a reliability test was conducted for each of the supply-side factors that influence passenger satisfaction with long-distance bus services on the Southern Expressway. The goal was to ensure that the factors being examined reliably captured the intended aspects of passenger satisfaction and were internally consistent. By assessing the reliability of each factor using Cronbach's Alpha, the study aimed to enhance the credibility and validity of its findings regarding the factors impacting passenger satisfaction with long-distance bus services in the Southern Expressway context.

5. CONCLUSION

The aim of this study was to examine supply-side factors affecting passenger satisfaction in long-distance expressway bus services. The intention was that through this research, bus services along Southern Expressway could be improved and management of the public transport system made more efficient and customer-based. The investigation involved the examination of twenty-three variables crucial in determining passenger satisfaction. The descriptive analysis conducted revealed the pivotal role of variables such as punctuality, frequency, professionalism & friendliness, and travel time in expressway long-distance bus services, significantly impacting passenger satisfaction. Furthermore, the results of the factor analysis unveiled six distinct components of factors sharing similar characteristics. These six supply-side factors that collectively contribute to passenger satisfaction were: service quality, comfortability, accessibility & convenience, safety & security, cost, and customer service. Among these factors, service quality emerged as the most crucial supply-side factor influencing passenger satisfaction. It encompassed aspects such as punctuality, frequency, travel time, reliability, and direct routes, which played a significant role in shaping passengers' perceptions and experiences. This study offers valuable insights to stakeholders and policymakers seeking to improve the effectiveness and calibre of long-distance expressway bus services on the Southern Expressway. By identifying and clarifying these supply-side characteristics, the study provides a crucial basis for well-informed policy development and decision-making. These factors should be taken into consideration by policymakers, bus operators, and other pertinent authorities when developing regulations and making decisions that will increase profitability, improve service quality, while avoiding operational losses. This will make it possible to increase capacity and improve services, drawing in more passengers and building a reliable public transport system. Policymakers should upgrade the fleet of buses, maintain cleanliness, optimise scheduling, adopt standardised procedures and routine maintenance, and enhance reservation systems in order to accomplish these aims. Staff training, safety measures, fair pricing, and subsidies as part of cost control can all help to improve safety. Furthermore, improving customer service through staff training and feedback systems, raising passenger awareness through information campaigns and real-time updates, and encouraging innovation through technology adoption and pilot projects are essential steps.

REFERENCES

- [1] Asian Development Bank, "The Asian Development Bank's Support for the Transport Sector in Sri Lanka," Independent Evaluation at the Asian Development Bank, Philippines, 2012.
- [2] U. S. D. o. Transportation, "Highway Functional Classification Concepts, Criteria and Procedures," in Federal Highway Administration, 2013.
- [3] Road Development Authority, "Expressway Operation Maintenance and Management Division," Road Development Authority- IT Section, [Online]. Available: http://www.exway.rda.gov.lk/index.php?page=expressway_network/e01. [Accessed 21 May 2024].
- [4] J. Yang, N. Shiwakoti and R. Tay, "Passengers' Perception of Satisfaction and Its Relationship with Travel Experience Attributes: Results from an Australian Survey," Sustainability 2023, Vols. 15, 6645, no. 14, pp. 1-18, 2023.
- [5] S. R. Dharmasena, "Development of methodology to analyze road landscape of accident black-spots; a case study with reference to southern expressway, Sri Lanka.," 2017.
- [6] A. Subbaih and R. Praveena, "A Study on Passengers Attitude towards the Minibus Services in Virudhunagar District," Indian Journal of Transport Management, 2011.
- [7] A. A. Nwachukwu, "Assessment of passenger satisfaction with intra-city public bus transport services in Abuja, Nigeria," Journal of Public Transport, vol. 17, no. 1, pp. 99-119, 2019.
- [8] E. N. AIDOO, W. AGYEMANG, J. E. MONKAH and F. K. AFUKAAR, "PASSENGER'S SATISFACTION WITH PUBLIC BUS TRANSPORT SERVICES IN GHANA: A CASE STUDY OF KUMASI-ACCRA ROUTE," Theoretical and Empirical Researchers in Urban Management, vol. 8, no. 2, pp. 5-17, 2013.
- [9] J. Koner, A. Purandare and A. Dhume, "An Empirical Study on Impact of Infrastructural Development on Social and Economic Growth in Indian States," European Journal of Business Management, vol. 4, no. 17, pp. 16 - 26, 2012.

- [10] J. Gaffney, "Understanding Network Performance Information Provided to Users - Final Report," International; Seminar on Intelligent Transport System in Road Network Operations, Kuala Lumpur, 2006.
- [11] Ministry of Transport & Highways, "Ministry of Road Transport and Highways," Ministry of Road Transport and Highways, 2012. [Online]. Available: <https://morth.nic.in/year/2012>. [Accessed 21 05 2024].
- [12] A. Mellor, "National Road Users' Satisfaction Survey (NRUSS) Annual Report 2013/14," Highway Agency, Cheshire, 2013.
- [13] E. Londenius, "Customer Satisfaction Measurement within the road sector - Further Development of Customer feedback systems and a public input model," AALTO UNIVERSITY, AALTO, 2011.
- [14] W. C. Gartner, L. L. Love and D. L. Erkkila, "Attributes and amenities of Minnesota's highway system that are important to tourists.," 2002.
- [15] C. T. Danthanarayana, "Evaluation of Public Transportation Mode Choice with Passenger Satisfaction; A case study of the Semi-Luxury Bus Service on the Panadura-Kandy Route in Sri Lanka," Journal of the Eastern Asia Society for Transportation Studies, vol. 13, pp. 1382 -1399, 2019.
- [16] D. M. W. Kanishka, K. U. K. Rambukwella and D. S. Santoso, "Customer Satisfaction Analysis of the Luxury Long Distance Bus Service in Sri Lanka," Journal of the Eastern Asia Society for Transportation Studies, vol. 11, pp. 1272-1290, 2015.
- [17] H. W. M. I. S. Ranawana and D. Hewage, "Factors Affecting Service Quality in Public Bus Transportation in Sri Lanka," in 08th International Conference Research Conference, KDU, Colombo, 2015.
- [18] W. T. Andressen, "Dissatisfaction with Public Services: The Case of Public Transportation," Journal of Services Marketing, no. 9, pp. 30-41, 1995.
- [19] Redman, Lauren, M. Friman, T. Garling and T. Hartig, "Quality attributes of public transport that attract car users: A research review," Transport Policy, vol. 25, pp. 119-127, 2013.
- [20] Ojo and T. Kolawole, "Quality of public transport service: An integrative review and research agenda," Transportation Letters, vol. 11, no. 2, pp. 104-116, 2019.

- [21] Tran, H. Quo, S. S. Tu, M. N. Ngo, T. T. K. Huynh, T. A. Nguyen, H. B. Nguyen and V. Y. Mai, "Analyzing the passengers' satisfaction with the services in long-distance bus stations–The case of Mien Dong station in Ho Chi Minh City, Vietnam.," In IOP Conference Series: Materials Science and Engineering, vol. 1289, no. 1, p. 012048, 2023.
- [22] Mohamed, H. Ahmed, I. A. Adwan, A. G. F. Ahmeda, H. Hrtemih and H. AI-MSar, "Identification of affecting factors on the travel time reliability for bus transportation," Knowledge-Based Engineering and Sciences, vol. 2, no. 1, pp. 19-30, 2021.
- [23] J. Disney, "Competing through quality in transport services," Managing Service Quality: An International Journal, vol. 8, no. 2, pp. 112-118, 1998.
- [24] J. Wu, M. Yang, S. Rasouli and C. Xu, "Exploring passenger assessments of bus service quality using Bayesian networks.," Journal of Public Transportation, vol. 19, no. 2, pp. 36-54, 2016.
- [25] I. D. C. Wijerathna, "Service Quality Factors Affecting Passenger Satisfaction in Public Bus Transportation: a case study of Kegalle District Passenger Bus Transportation Service Sector reforms for Economic Development," in Sri Lanka Forum of University Economists (SLFUE), Department of Economics, Faculty of Social Sciences, University of Kelaniya., 2016.
- [26] T. Kageyama, S. Terabe, H. Yaginuma and N. Kang, "Reasons behind Changes in Customer Satisfaction with Expressways in Japan," Journal of the Eastern Asia Society for Transportation Studies, vol. 12, pp. 182- 197, 2017.