

THE FACTORS INFLUENCING THE SATISFACTION OF THAI PASSENGERS ON THE INTERNATIONAL RAILWAY ROUTE BETWEEN BANGKOK (THAILAND) AND VIENTIANE (LAOS)

Jiranan BUNRUANG ¹, Sakkarin NONTHAPOT ^{1*}

¹Khon Kaen University, Faculty of Interdisciplinary Studies, Thailand; jiranan.j@kkumail.com (J.B.); sakkno@kku.ac.th (S.N.)

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Abstract: Laos is a destination with beautiful culture, traditions and nature that attracts many tourists, especially Thai tourists, so there is a strong tourism link between the two countries. The Thailand-Laos railway, the Krung Thep Aphiwat Central Terminal - Vientiane (Khamsavath) route, which is an important new railway tourism route to connect the capitals of the two countries. This research aims to study the experiential international economic factors, the market mix and satisfaction factors for Thai service users on the Thai-Laos railway service. The samples are Thai passengers who used the train service on the route between Krung Thep Aphiwat Central Terminal (Bangkok) of Thailand and Vientiane Railway Station (Khamsavath) in Laos in both directions with 394 respondents. Questionnaires collected from Google Forms were employed to collect data from a randomly selected convenience sample. Data were analysed using confirmatory factor analysis (CFA) and structural equation model analysis (SEM) to verify the accuracy of the latent variable structure and the consistency of the model with empirical data by using the JASP 0.19.3 software. Analysis results from CB-SEM revealed that the marketing mix factor had the greatest positive influence on satisfaction and the dimension of service delivery was found to be the main factor. In addition, experiential and international economic factors were found to have a significant indirect influence. This emphasizes the importance of security management and clear information communication. Relevant agencies should adopt guidelines, seamless service and joint testing to reduce the travel time and anxiety of passengers. In addition, there are suggestions to integrate cross-border travel insurance into the ticketing system to reduce risk perception and to meet international safety standards for tourism on the Thailand-Laos railway route.

Keywords: Thai - Lao Railway, satisfaction, marketing mix, international economics, experience

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INTRODUCTION

Rail transport is crucial in connecting various aspects, including society, culture, economy, tourism, and investment, both domestically and internationally. This leads to development in connected areas, generating income and employment, attracting investment, and facilitating cultural exchange. An example is the Laos-China railway line, which connects the economy, investment, and tourism in the Greater Mekong-subregion. In regard to the intermediary country in the Mekong sub-region, the Lao People's Democratic Republic (Laos), there are unique tourist attractions and beautiful nature that attract both domestic and international tourists to popular destinations in Lao, such as Luang Prabang and Vang Vieng.

According to a report by The Laotian Times (2025), Laos was expected to welcome more than four million tourists, an increase of nearly one million compared to 2023. This was a result of the "2024 Visit Laos Year" policy where Laos granted special visa waivers to visitors from more than 30 countries. In addition, Luang Prabang was described as "a hidden paradise" by Time magazine in 2023 and one of the 50 best places to visit (Vientiane Times, 2025). This implies that Laos is a popular tourist attraction in the GMS. In 2024, The Laotian Times (2025) reported that the number of Thai tourists traveling to Laos ranked first at 1,215,553. This was followed by Vietnam and China. Hence, Thai tourists are significant in the regional market of Laos. There is, therefore, a strong connection between the tourism businesses of Thailand and Laos.

The Lao government has invested in infrastructure development, such as roads, transportation such as trains and facilities to support tourism (Lao News Agency, 2024). In addition, a new railway route has been created while the train route from Krung Thep Aphiwat Central Terminal (Bangkok) to Vientiane Railway Station (Khamsavath) also began to provide services. The first train operation between Krung Thep Aphiwat Central Terminal and Vientiane Railway Station (Khamsavath) was inaugurated on 19 July 2024 (Figure 1.). There was a lot of interest from tourists and the public and, as a result, all of the seats were booked in a short time (State Railway of Thailand (SRT), 2024).

This railway is part of the international economic and development cooperation in Southeast Asia between Thailand and Laos (Nonthapot et al., 2025). The railway supports cost reduction and increases the potential for cargo transportation.

* Corresponding author

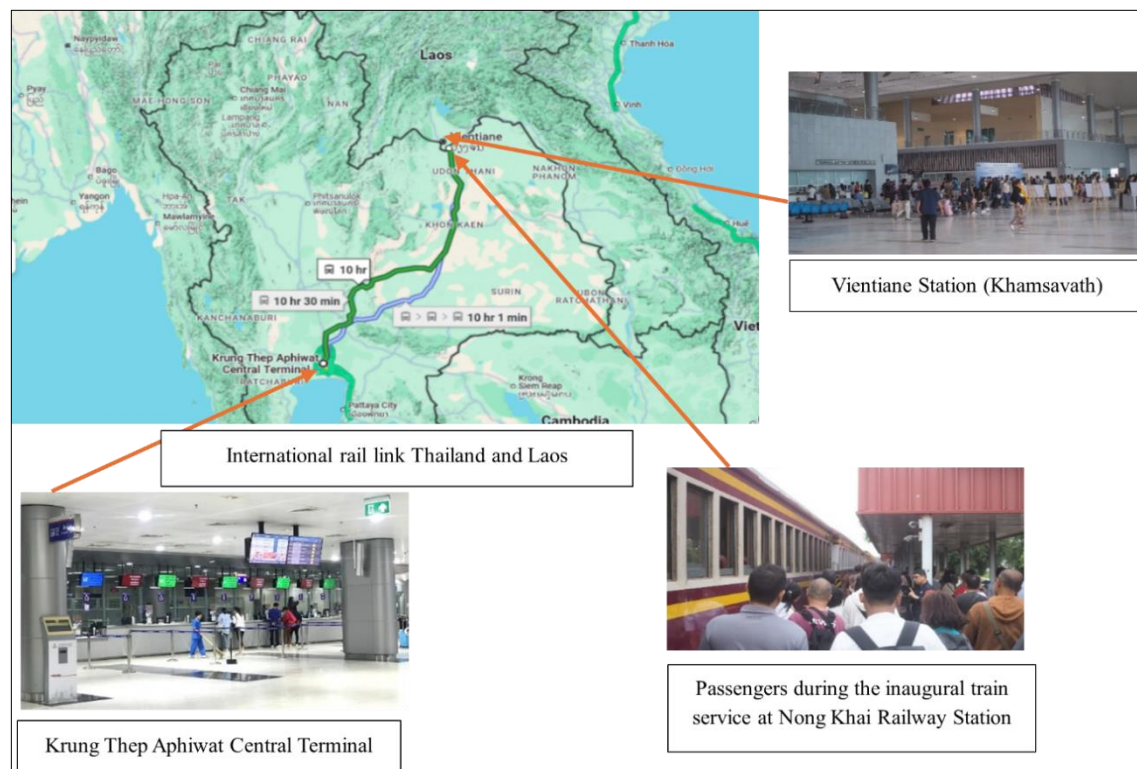


Figure 1. International rail link Thailand and Laos: Krung Thep Aphiwat Central Terminal – Vientiane Station (Khamsavath) route (Google Maps, 2025; datasource for the photos: authors, 2025)

It is continuous investment and creates opportunities for the Thai private sector to do business in Laos (Neighboring Countries Economic Development Cooperation Agency (NEDA), 2023).

Laos is a destination with beautiful culture, traditions and nature that attracts many tourists, especially Thai tourists, so there is a strong tourism link between the two countries. The Thailand-Laos railway, the Krung Thep Aphiwat Central Terminal - Vientiane (Khamsavath) route, which is an important new railway tourism route to connect the capitals of the two countries. As a result, tourism, investment, opportunity creation, and international development have been enhanced. Studying tourist behavior in regard to marketing strategies is considered important to plan and develop services to be effective and responsive to needs, and to determine the level of satisfaction with the use of the service (Qin, 2012)

However, there are still limited academic studies on satisfaction in regard to the use of the Thailand-Laos railway (Krung Thep Aphiwat Central Terminal (Bangkok) - Vientiane Railway Station (Khamsavath)). The study based on marketing education in this area in regard to rail transportation lacks academic attention. In order to better understand the factors affecting the satisfaction of using the railway service between Thailand and Laos need to be studied to fill the gaps. The results can be used as guidelines to support the government and the private sector, who will be able to use the information obtained from the research to develop and improve services to meet the demand for the Thailand-Laos railway.

MATERIALS AND METHODS

Related concepts and theories

Ideas and research related to the marketing mix and satisfaction. Tourism industry marketing research is the analysis of tourism resources and services that can be sold to tourists. This research is a study of Thai passengers using the Thailand-Laos railway service, and in the rail transportation business, there are three important elements: 1) trains, 2) routes, and 3) railway stations. Once the resources and services are known, attention is given to the tourism marketing mix, which is a strategic marketing tool that entrepreneurs can employ to generate results and drive demand to meet their goals by encouraging tourists to travel and buy tourism services. This allows tourism business operators to make profits and to develop services to satisfy tourists (Jittangwattana, 2012; Kotler et al., 2014). Furthermore, the future research directions proposed by Wahpiyudin et al. (2025) emphasize the importance of developing marketing models tailored to local context, which aligns with the present study's focus on analyzing marketing factors along the Thai-Laos railway route.

This marketing model consists of several components. Kotler et al. (2014) described the marketing framework in terms of the basic marketing mix, or 4Ps, which consist of Product, Price, Place, and Promotion. These are the main elements used in general marketing strategy. However, in the context of service marketing, Booms & Bitner (1981) expanded this concept, suggesting that in addition to the basic 4Ps, three more elements should be emphasized to reflect the specific characteristics of the service: People (including employees and stakeholders), Process (related to the procedures and methods of service delivery), and Physical Evidence (which helps build awareness and trust among service recipients).

Thus, these seven Ps are used as a key conceptual framework in service marketing. In addition, Jittangwattana (2012) proposed a tourism marketing concept with basic elements like Booms & Bitner's (1981) but adapted it to the specific

context of the tourism industry. The key difference is that the role of the people component in the tourism industry (people in tourism) was expanded to encompass a wider range of dimensions.

Furthermore, elements such as the integration of tourism services (packaging in tourism) to create value and convenience for tourists, the organization of activities or events to attract tourists (tourism programming), and the creation of business partnerships (partnership in Tourism) have been added to strengthen the networks and to enhance the overall competitiveness of the tourism industry (Jittangwattana, 2012). Kotler et al. (2014) described the 4Ps as follows:

- 1) Product means the goods and services offered by the entrepreneur to the target market.
- 2) Price refers to the amount of money that customers have to pay to acquire the product or service.
- 3) Distribution channel (Place) refers to the activities of the entrepreneur that enables the product or service to reach customers.
- 4) Promotion refers to activities used to communicate the value of products and services to attract customer interest.

The desired outcome of tourism operators is satisfaction. Satisfaction helps researchers to understand the needs of consumers and confirms the consumer's ability to make decisions about goods and services (Oliver, 1997). Consumer satisfaction is an emotional response, and the focus of the response is based on a comparison of performance with certain standards, which vary from context to context. It may be a comparison of general or specific standards, and the period in which consumers evaluate satisfaction can occur at a variety of moments (Giese & Cote, 2000). It is divided into three levels. Dissatisfaction occurs when a customer receives a product or service that is worse than expected; satisfaction occurs when a customer receives a product or service that meets their expectations, and a high level of satisfaction occurs when a customer receives a product or service that exceeds their expectations.

A review of relevant research in the tourism and hospitality industries revealed that the marketing mix affects satisfaction regarding the decision to buy products or services in the tourism industry. Rattanasomchok (2015), Pannarong (2017), Sirimongkol (2023), Thet (2023), Baidun et al. (2022), Tielung & Untu (2021), Do & Vu (2020), Magatef (2015) all pointed out that the 7Ps marketing mix affects consumer satisfaction in different contexts.

In addition, studies conducted in the context of bus travel in Thailand and Asia by Kieanwatana et al. (2022), Chanchai & Suwan (2021), and Phornthepkasemsant et al. (2021) also discussed the factors influencing decision-making and satisfaction in regard to train travel in normal and COVID-19 situations. It was found that passengers paid attention to safety, time, and the care of the staff, the convenience of service and connecting to the train station, access to information and a fast process for buying tickets and making payments. In addition, Sangpikul (2018); Vuong et al. (2024); Setiawan et al. (2024) discussed service quality factors related to customer experience, such as service providers, reliability, customer experience, Internet of Things (IoT), services and facilities, safety and cleanliness, which all affect satisfaction and loyalty to the service or destination.

The components of satisfaction measured by the passenger's experience after using the service on a train journey are consistent with the concept of Yuda Bakti & Sumaedi's (2015) P-TRANSQUAL which was developed from Parasuraman's SERVQUAL concept, Zeithaml & Berry (1988) and Cronin & Taylor (1992) as described by Yuda Bakti & Sumaedi (2015). They described the elements, which included 1) Comfort, 2) Tangible components, 3) Personnel, and 4) Reliability in measuring the quality of land transportation services in Indonesia. Nonthapot & Nasoontorn (2020), also studied the impact of service quality on the satisfaction of passengers traveling on routes between Thailand and Laos.

Concepts and research related to the field of travel experience

Social factors influence consumer behavior, including some informal groups, such as friends, family members, colleagues and neighbors. Family members can have a great influence on purchasing decisions, including abstract travel product purchases. Before deciding to purchase goods or services, tourists cannot usually experience the good or services to see if they will be satisfied or not. Therefore, it is important to rely on the recommendations of others (Kotler, 2000; Jittangwattana, 2012). This is in line with Pan et al. (2021) who studied tourist destination choice as affected by the destination images of social network members. This study revealed that the decision of tourists to visit destinations is influenced by family members, friends, colleagues, and social media members, who contribute by increasing their knowledge about the destination. It is also consistent in terms of reviews on social networks (Kim & Park, 2017), and it can also predict the performance of the services.

In other words, the review score on social media affects the user's decision to use the service. In addition, Nonthapot (2019b) also found that the people who influence travel decisions, the length of stay and the method of booking also affect the decision to travel. In the context of the China-Laos railway corridor, Liu et al. (2026) demonstrate that the railway infrastructure plays a significant role in reducing time-related frictions, which is a critical factor shaping the travel experience of time-sensitive passengers who prioritized speed and reliability. Nonthapot & Thomya (2020) also found that knowledge of Thai and foreign tourists traveling in Nong Khai and Bueng Kan provinces, which are linked to Laos, consists of life experience, learning lifestyle and travel experiences. From the above review, according to Nonthapot (2019b), the travel experience factor is influenced by the people around you, including family and friends, as well as social media, the length of stay, and how a reservation is made. Therefore, this research employs seven variables 1) the people around them, 2) social media, 3) booking method, 4) length of stay, 5) duration of travel, 6) life experience, and 7) lifestyle.

Concepts and research related to the field of international economics

Marketing analysis of the tourism industry involves analyzing the needs and behaviors of tourists, which change over time and depend on economic and social environments. These factors affect consumption and spending in various ways. It was found that tourists desire destinations with a low cost of living but standard services, as well as convenience and safety

(Jittangwattana, 2012; Kotler et al., 2014). These are consistent with Yai-in et al. (2023), a study of the economic corridors of the Greater Mekong Subregion countries along the Ayutthaya-Nong Khai-Vientiane-Luang Prabang-Bangkok route revealed that relatively low costs influence tourists' decisions to travel along the Mekong Subregion Silk Road. Foreign tourists perceive the cost of living in these countries as not excessively high when comparing the exchange rates of Western currencies against the currencies of China, Thailand, and Laos. It is also in line with the findings of Nonthapot & Lean (2015), cited in Nonthapot (2019b), which revealed that exchange rates are an important variable that affects travel. The lodging business, which is part of the tourism industry, may be also be related. Train travel is also one of the elements of the tourism industry. In addition, Ruengmaneekit & Chaiboonsri (2014), studied the international tourism demand model by studying Malaysia, Thailand and Singapore by analyzing the relationships between the following economic variables: tourist income, exchange rate, and travel expenses that affect the travel of foreign tourists. The change is in the same direction as the number of tourists visiting Thailand. In other words, if these economic factors change, it may result in an increase in the number of tourists visiting Thailand. However, the cost of travel has changed in the opposite direction to the number of tourists entering Thailand. If the cost of travel increases, the number of tourists visiting Thailand will decrease.

In addition, the studies by Rifai & Kurniawan (2023) and Nonthapot (2019b) both revealed that the number of foreign tourists visiting Indonesia is significantly influenced by economic growth and exchange rate fluctuations, reflecting the role of macroeconomic factors in foreign tourists' travel decisions. Beyond exchange rates affecting travel, Nonthapot (2019b) further noted that the opening of the country and participation in the ASEAN Economic Community (AEC) significantly facilitate international tourist movement and clearly stimulate regional tourism. These findings are consistent with the work of Pimsakul & Nimsai (2015), who predicted the impact of AEC policies on trade and tourism in border towns of Chiang Rai province. They found that border trade and transportation and economic connectivity with neighboring countries in the Mekong sub-region acted as important attractions, positively impacting the expansion of trade and tourism in the area. This aligned with the regional cooperation context highlighted by Yang et al. (2026), who found that regional collaboration and infrastructure development particularly the Thai-Laos railway serves as key factors in reducing cross-border travel barriers, thereby facilitating passenger's decisions to travel by rail.

In conclusion, the international economic factors in the decision to use the Thailand-Laos railway service of Thai passengers are observed in regard to five variables: 1) exchange rate, 2) immigration formalities, 3) travel expenses, 4) participation in the ASEAN Economic Community (AEC), 5) connection with neighboring countries.

Moreover, in regard to the 7Ps marketing concept, the correlation coefficients between the variables showed the relationship between the 'People' and 'Process' variables. In order to prevent problems of multicollinearity, the researcher considered the concept of Hair et al. (2019) to combine the two variables, which is based on the theoretical concept of Grönroos & Ravald (2011), which described the service as business logic that involves the connection between the service provider and the functional system of these two variables. This is also consistent with the Service Delivery System in the work of Lodorfos et al. (2015) in terms of employee performance elements and process control with the goal of bridging the gap between customer expectations and the experience gained.

In addition, Brady & Cronin (2001) stated that interaction quality is a dimension that measures the functional quality of a service, which reflects the elements of 'People' (measured by the attitudes, behaviors, and expertise of employees) and 'Process' (delivery methods). Therefore, the researcher defined the Service Delivery (SERV) variable and renamed the observable variable in the next step of the confirmatory component analysis. The proposed conceptual framework and the hypothesized relations among the study variables are graphically illustrated in Figure 2.

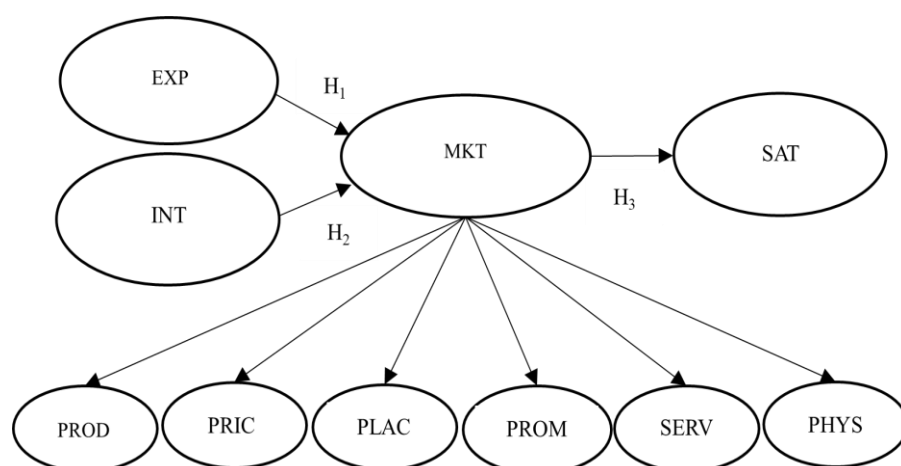


Figure 2. The proposed conceptual framework of the study

Hypotheses in the study

H1: Experience factors influence the decision to use the Thailand-Laos railway, depending on marketing mix factors.

H2: International economic factors affect the decision to use the Thailand-Laos railway, depending on marketing mix factors.

H3: Marketing mix factors affect satisfaction with the Thailand – Laos Railway Service.

Population and sample selection

The target population of this study consisted of Thai passengers who used the train service on the route from Krung Thep Aphiwat Central Terminal and Vientiane Railway Station (Khamsavath) in both directions. Due to the unknown total population size, a sample size of 400 was determined, following the methodological precedents of Sihabutr & Nonthapot (2021), cited in Nonthapot et al. (2024) and Nonthapot et al. (2025). This sample size ensures accuracy in data analysis. A convenience sampling technique was employed for data collection. Following the collection phase, data screening was conducted to identify multivariate outliers using Mahalanobis Distance Square. Observations with a p-value of less than 0.001 were excluded from the dataset, resulting in a final valid sample of 394 respondents for the structural equation modeling analysis.

Research Instrument and Measurement

The research instrument was a structured questionnaire comprising 54 items, organized into four main sections. The first section gathered respondents' demographics and general information. The second section assessed factors related to passenger experience and international economics, which influenced the decision to use the service. The third section examined the Marketing Mix (7Ps) and its impact on satisfaction. The fourth section measured the overall satisfaction level of passengers using the Thailand – Laos railway service. All items in the second to fourth sections were measured using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (Strongly agree) (Best, 1981).

Statistical Data Analysis

1) Basic statistical analyses of the studied variables, including mean, median, popularity, skewness, and skewness were conducted. In normal distribution checks, the absolute value of the skew does not exceed 1.0 and the absolute value of the skewness does not exceed 1.5 (Schumacker & Lomax, 2004; Sirimat & Nonthapot, 2025).

2) Correlation coefficient analysis between variables/indicators (Correlation Coefficient) consider the direction and relationship of the variables.

3) Verification of the consistency of the model with empirical data (Overall Testing). It is a confirmatory component analysis to prove the acquired model, which is determined by statistical values. The acceptable value of the Relative Chi-Square: $\chi^2/\text{Degree of Freedom}$ value must be less than 5.00 (Wheaton et al., 1977); for RMSEA (Root Mean Square Error of Approximation), the acceptable value must be less than 0.07 (Steiger, 2007); the CFI (Comparative Fit Index)/TLI (Tucker-Lewis Index) value must not be less than 0.90 (Hu & Bentler, 1999; Schumacker & Lomax, 2004), and for the statistical value SRMR (Standardised Root Mean Square Residual), the acceptable value must be less than 0.08 (Hu & Bentler, 1999).

4) Structural Straightness Evaluation of Latent Variable Measurement Models (Measurement Model) is based on the weight of the elements (λ_i), which should be greater than 0.50 or the statistically significant Cronbach's Alpha should be greater than 0.70 and the average of the extractable variability of the latent variable (AVE) should be greater than 0.50 (Henseler et al., 2015)

5) Evaluation of the classified accuracy between the latent variables (Discriminant Analysis Validity) checks that the relationship of the latent variables in the structural equation model are sufficiently correlated to analyze the structural equation model. The correlation coefficients between the latent variables in the research model are not more than the square root value of AVE (Fornell & Lacker, 1981).

6) The conformity of the model (Overall Testing) is developed with empirical data based on model consistency index values, as well as structural straightness tests. The value of each parameter and the reasonableness of the size and direction of each parameter value is according to the assumption mentioned above.

RESULTS

General information of the respondents

Based on the analysis of the sample data, the number of train users 394 was found to be as follows: 225 females, accounting for 57 percent. 167 people aged between 21-30 years old, accounting for 42 percent. The highest level of education was at the undergraduate level, with 254 students, accounting for 64.5 percent, of which 239 students or 60 percent were students, followed by employees/employees of private businesses. 54 people, 13.7 percent, with an average monthly income of not more than 10,000 baht, 182 people, or 46.2 percent, followed by 115 people with an income of 10,001 – 20,000 baht, at 29.2 percent.

Empirical Analysis

Regular Distribution Verification for Suitability of Element Analysis Assertionist and Structural Equation Model Analysis. The results of the analysis of the skewness and popularity of the variables showed that the skewed value was in the range of -1.00 to -0.51. The absolute value of skewness was not more than 1.00 and the absolute value of the skewness was in the range of -0.64 to 0.89 (Schumacker & Lomax, 2004) and represents data from that variable with a normal distribution. This set of data is suitable for estimation by the Maximum Likelihood (ML) in affirmative element analysis and structural equation model analysis.

Results of confirmatory component analysis to verify the structural straightness of latent variables

When the data has been normalized and the structural model has been adjusted, the next step is to test the confirmatory component to see whether the model is consistent with the empirical data. It is measured by the consistency value of the model (Model Fit) and evaluates the structural accuracy of the measurement model (Construct Validity) including the classification

of the latent variables. Moreover, Discriminant Validity is employed to examine the relationship of the latent variables in the structural equation model as to whether there is a sufficient correlation to analyze the structural equation model.

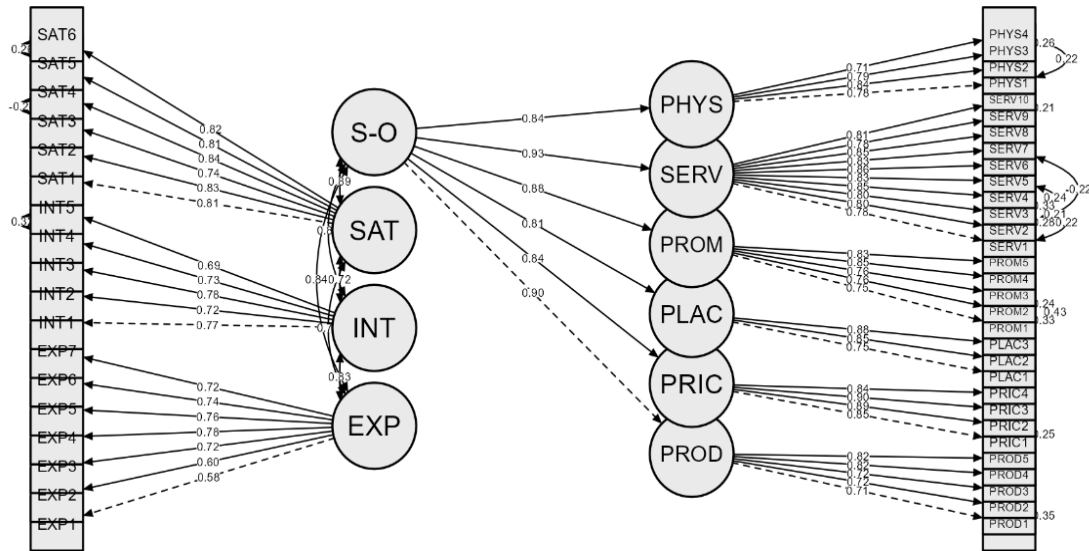


Figure 3. CFA Diagram of the measurement model Source: Output from JASP 0.19.3 (2025)

Figure 3 shows that the model is consistent with the empirical data. From the conformity measurement index of the model through a specified criterion, the statistical value of the relative kai-square (Relative Chi-Square: $\chi^2/\text{Degree of Freedom}$) is 2.447, where the acceptable value must be less than 5.00 (Wheaton et al., 1977). The acceptable value of RMSEA must be less than 0.070 (Steiger, 2007). The CFI/TLI (Tucker-Lewis Index) values are 0.902 and 0.900 respectively. The acceptable value must not be less than 0.90 (Hu & Bentler, 1999; Schumacker & Lomax, 2004) and the statistical value SRMR value is 0.046, while the acceptable value must be less than 0.08 (Hu & Bentler, 1999).

$$\chi^2 = 2687.082, df = 1098, \chi^2/df = 2.447, CFI = 0.902, TLI = 0.900, RMSEA = 0.061, SRMR = 0.046$$

Table 1. Results of the CFA for the measurement model (Source: Compiled from the authors' calculations)

Second-Order Variable	First-order variables	Question Item	Factor Loading (λ)	R ²	CR	AVE	95% Confidence Interval	
							Lower	Upper
	EXP				0.873	0.497*		
		EXP1	0.578***	0.334			0.507	0.649
		EXP2	0.601***	0.361			0.533	0.669
		EXP3	0.722***	0.522			0.669	0.775
		EXP4	0.783***	0.613			0.738	0.827
		EXP5	0.762***	0.580			0.714	0.809
		EXP6	0.744***	0.554			0.694	0.794
		EXP7	0.719***	0.516			0.665	0.772
	INT				0.855	0.543		
		INT1	0.772***	0.596			0.724	0.819
		INT2	0.717***	0.514			0.662	0.772
		INT3	0.777***	0.604			0.730	0.824
		INT4	0.726***	0.527			0.671	0.780
		INT5	0.687***	0.472			0.628	0.747
	SAT				0.918	0.651		
		SAT1	0.808***	0.653			0.770	0.846
		SAT2	0.828***	0.685			0.793	0.863
		SAT3	0.739***	0.547			0.690	0.789
		SAT4	0.838***	0.702			0.804	0.873
		SAT5	0.806***	0.65			0.768	0.845
		SAT6	0.817***	0.668			0.780	0.855
MKT					0.949	0.756		
	PROD		0.903***	0.816	0.871	0.576	0.873	0.934
		PROD1	0.711***	0.505			0.656	0.765
		PROD2	0.721***	0.519			0.667	0.774
		PROD3	0.719***	0.517			0.666	0.772
		PROD4	0.817***	0.667			0.777	0.856
		PROD5	0.820***	0.673			0.781	0.859

	PRIC		0.843***	0.710	0.926	0.758	0.806	0.879
		PRIC1	0.846***	0.716			0.812	0.880
		PRIC2	0.888***	0.788			0.861	0.915
		PRIC3	0.904***	0.817			0.880	0.928
		PRIC4	0.843***	0.710			0.810	0.876
	PLAC		0.806***	0.650	0.867	0.686	0.761	0.851
		PLOT1	0.746***	0.556			0.695	0.796
		PLOT2	0.852***	0.726			0.816	0.889
		PLOT3	0.881***	0.776			0.848	0.914
	PROM		0.882***	0.778	0.893	0.627	0.849	0.915
		PROM1	0.747***	0.558			0.697	0.798
		PROM2	0.763***	0.582			0.715	0.811
		PROM3	0.763***	0.582			0.715	0.811
		PROM4	0.848***	0.719			0.813	0.883
		PROM5	0.832***	0.692			0.794	0.869
	SERV		0.932***	0.868	0.953	0.672	0.912	0.952
		SERV1	0.777***	0.604			0.736	0.819
		SERV2	0.798***	0.637			0.759	0.837
		SERV3	0.797***	0.635			0.759	0.836
		SERV4	0.848***	0.719			0.817	0.878
		SERV5	0.830***	0.689			0.797	0.863
		SERV6	0.857***	0.735			0.829	0.886
		SERV7	0.832***	0.693			0.799	0.865
		SERV8	0.855***	0.731			0.826	0.884
		SERV9	0.781***	0.61			0.740	0.822
		SERV10	0.814***	0.663			0.779	0.850
	PHYS		0.844***	0.713	0.862	0.611	0.803	0.886
		PHYS1	0.782***	0.612			0.735	0.829
		PHYS2	0.837***	0.700			0.797	0.877
		PHYS3	0.793***	0.628			0.747	0.838
		PHYS4	0.708***	0.502			0.649	0.768

Variable: EXP = Experience Factor; EXP1 = Personal recommendations (Word-of-Mouth from family and friends); EXP2 = Social media influence and online travel reviews; EXP3 = Online booking accessibility via website and mobile applications; EXP4 = Length of stay at the destination; EXP5 = Travel duration; EXP6 = Experiential learning and life experience through rail travel; EXP7 = Lifestyle-based transportation mode preference; INT = International economics; INT1 = Currency exchange rate volatility; INT2 = Simplicity and convenience of immigration procedures; INT3 = Overall travel and tourism expenditures; INT4 = Regional integration (AEC membership and visa-free policies); INT5 = Cross-border linguistic proximity and communication ease; MKT = Marketing Mix; PROD = Product; PROD1 = Expediency and swiftness of travel; PROD2 = Frequency/Headway of train departures; PROD3 = Cleanliness of seating and interior cabin; PROD4 = Safety and security of the passenger coaches; PROD5 = Adequacy of on-board facilities and amenities; PRIC = Price; PRIC1 = Perceived value for money regarding service quality; PRIC2 = Fare proportionality relative to travel distance; PRIC3 = Fare affordability and economic reasonableness; PRIC4 = Diversity of fare classes and pricing options; PLAC = Place; PLAC1 = Convenience of ticket purchasing and refund processes; PLAC2 = Adequacy of ticket counters at railway stations; PLAC3 = Diversity and accessibility of ticket booking channel; PROM = Promotion; PROM1 = Diverse multi-channel advertising and public relations; PROM2 = Corporate Social Responsibility (CSR) activities during festivals; PROM3 = Communication via telephone hotline (Call Centre 1690); PROM4 = Tourism promotion and destination marketing; PROM5 = Modernized corporate image of the State Railway of Thailand; SERV = Service delivery; SERV1 = Appropriateness of staff appearance and grooming; SERV2 = Staff courtesy and professional conduct; SERV3 = Staff attentiveness and helpfulness; SERV4 = Effectiveness and accuracy of staff communication; SERV5 = Promptness in staff problem-solving; SERV6 = Efficiency in travel safety management; SERV7 = Travel convenience and comfort; SERV8 = Service delivery speed and responsiveness; SERV9 = Train punctuality and on-time performance; SERV10 = Adequacy of staffing levels for passenger service; PHYS = Physical; PHYS1 = Adequacy of station amenities and structure; PHYS2 = Visibility and accessibility of station information counters; PHYS3 = Adequacy, cleanliness, and safety of station waiting areas; PHYS4 = Cleanliness of restroom at station, terminal, and platforms; SAT = Satisfaction; SAT1 = Overall perceived safety and security of service; SAT2 = Physical environment of trains and stations (modernity and functional utility); SAT3 = Cleanliness of passenger coaches and station facilities; SAT4 = Service performance of on-board and station staff; SAT5 = Adequacy of train capacity and coach dimensions; SAT6 = Reasonableness of waiting and travel time duration

Table 1 shows that all variable measurement models are consistent with the empirical data, and all observable variables are observed. It can explain the variance of the measurement model statistically significant at the level of 0.001 and has a component confidence value where CR is 0.855 – 0.953 as well as having a straightness that is measured by the average of the extractable variability of all variables according to the specified criteria.

The AVE value is 0.497 – 0.758 and from the AVE value of the EXP variable (AVE = 0.497), the value is less than 0.50, but with the criteria of Fornell & Larcker (1981) is acceptable since the CR value is greater than 0.700 (CR = 0.873), so it can be concluded that all variables are structurally straight.

Discriminant Validity Assessment Results

Based on the estimation of the variable classified straightness measurement model (Discriminant Validity) from the

evaluation method of Fornell & Larcker (1981), the evaluation criterion is that the correlation coefficient between the latent variables must not exceed the square root value of the value. The AVE of the latent variables defined criterion has one pair where the correlation coefficient is greater than the square root of the value (Table 2).

Table 2. Discriminant validity assessment using the Fornell & Larcker (1981) criterion (Source: Compiled from the authors' calculations)

Construct	EXP	INT	PROD	PRIC	PLAC	PROM	SERV	PHYS
EXP	0.686							
INT	0.840	0.737						
PROD	0.780	0.780	0.760					
PRIC	0.703	0.789	0.778	0.876				
PLAC	0.703	0.631	0.777	0.690	0.825			
PROM	0.811	0.710	0.787	0.738	0.755	0.790		
SERV	0.754	0.788	0.825	0.807	0.716	0.800	0.821	
PHYS	0.694	0.628	0.721	0.608	0.712	0.769	0.753	0.800

For the result of the Heterotrait-Monotrait Ratio (HTMT) of correlations in Table 3, it was found that for the threshold of the HTM that can be used to evaluate the categorical accuracy, all variables meet the specified criteria, which are not more than 0.85 (Voorhees et al., 2016; Roemer, 2021). Therefore, there is a value that fits the criteria (Anderson & Gerbing, 1998; Bagazzi & Phillips, 1982).

Table 3. Result of the Heterotrait-Monotrait Ratio (HTMT) of correlations (Source: Compiled from the authors' calculations)

Construct	EXP	INT	PROD	PRIC	PLAC	PROM	SERV	PHYS
EXP	1.000							
INT	0.821	1.000						
PROD	0.787	0.799	1.000					
PRIC	0.686	0.783	0.792	1.000				
PLAC	0.691	0.611	0.786	0.696	1.000			
PROM	0.792	0.665	0.768	0.697	0.741	1.000		
SERV	0.736	0.776	0.824	0.802	0.708	0.766	1.000	
PHYS	0.694	0.605	0.723	0.611	0.720	0.770	0.751	1.000

Results of Hypothesis Testing, Experience Factors, International Economic Factors, and Market Factors Affecting Satisfaction with the Thai-Laos Railway Service

Figure 4 demonstrates that the structural equation model is consistent with the empirical data at an acceptable level. The conformity measurement index of the model met the specified criteria. $X^2 = 2543.809$, $df = 1049$, $X^2/df = 2.424$, $RMSEA = 0.060$, $CFI = 0.905$, $TLI = 0.900$ and $SRMR = 0.047$. From all the ststistic values, it can be estimated as shown in Table 6.

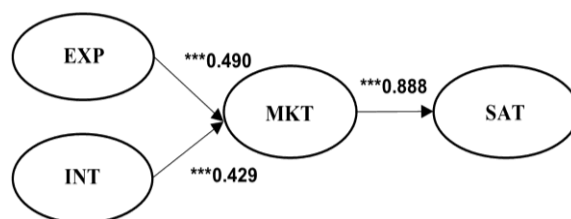


Figure 4. Results of the structural equation model (SEM) for factors influencing the satisfaction of Thai passengers in using the Thai - Lao railway (Source: Compiled by the authors based on JASP 0.19.3 output (2025))

$X^2 = 2543.809$, $df = 1049$, $X^2/df = 2.424$, $CFI = 0.905$, $TLI = 0.900$, $RMSEA = 0.060$, $SRMR = 0.047$

Table 4. Path coefficients and hypothesis testing results (Source: Compiled by the authors based on JASP 0.19.3 output (2025))

Note: ***p-value < 0.001, R^2 of MKT = 0.777 and R^2 of SAT = 0.788

Hypotheses	β	Hypothesis Results
H1: EXP $\rightarrow$ MKT	0.490***	Supported
H2: INT $\rightarrow$ MKT	0.429***	Supported
H3: MKT $\rightarrow$ SAT	0.888***	Supported

Table 4 presents the results of the analysis which showed that the satisfaction factor in using the Thai-Laos railway service was influenced as a whole with the highest being the marketing mix factor ($TE = 0.888$). The marketing mix factor is a factor that has a direct and positive influence on the satisfaction factor of using the Thai-Laos railway service.

In addition, it was found that the factors of experience and international economic factors are factors that indirectly influence the satisfaction factor in using the Thai-Laos railway service.

Both the experience factor and the international economic factor have an indirect influence of 0.439 and 0.377, respectively. For the marketing mix factor, it was found that it was the result of the factors of experience and international economic factors (TE) were equal to 0.490 and 0.429 respectively as shown in Table 5.

Table 5. Direct, indirect, and total effect analysis of factors influencing passenger satisfaction
(Source: Compiled by the authors based on JASP 0.19.3 output (2025) (Note: ***p-value < 0.001)

Endogenous	Exogenous				
	Effect	R ²	EXP	INT	MKT
MKT	DE	0.777	0.490***	0.429***	-
	IE		-	-	-
	TE		0.490***	0.429***	-
SAT	DE	0.788	-	-	0.888***
	IE		0.439***	0.377***	-
	TE		0.439***	0.377***	0.888***

DISCUSSION

The purpose of this research was to analyze the factors affecting the satisfaction of users of the Thailand-Laos railway service by using a structural equation model with Covariance Based (CB-SEM) to test the causal relationship between various variables from the results of statistical estimation. The important findings of studies that can be discussed in the dimensions of economics and tourism are as follows:

The results of the study show that the marketing mix factor, which consists of six main components, namely service delivery, product, marketing promotion, physical characteristics, price, and distribution channel, can explain the latent variables of the marketing mix factor. This is a factor in the consideration of using the Thai-Laos railway service and can act as a structural representation of the latent variables (MKT).

The satisfaction with the Thai-Laos Railway service factor consists of six main components. All components can explain the latent variables of satisfaction, with the component weight values being high in all respects. This indicates that these six indicators are important factors in creating the satisfaction factor for the use of the Thai-Laos railway service and can act as a structural representation of latent variables (SAT).

The experience factor (EXP) consists of a total of seven main components. As this result, this point is consistent with Nonthapot & Thomya (2020), who found that the service user wants to acquire life experience. In addition, the duration of the trip and the length of stay were also found to be important factors in the decision to travel on the Thailand-Laos route (Nonthapot, 2019b). In addition, the international economic factors (INT), which consist of five main components. It confirms that these structural factors serve as important agents in explaining the desire to use the Thai-Laos railway service.

The indicators indicate that in the context of the Thai-Laos railway, which is an international railway connecting the region, users pay attention to travel expenses, in line with the concept of Chittangwattana (2012) and Kotler et al. (2014), as well as a study by Anek Aiin et al. (2023), which stated that the cost of travel is a factor in deciding to travel to an accessible destination and obtain standard service. In addition, the exchange rate factor affects the decision to travel (Nonthapot & Lean (2015) cited in Nonthapot (2019b) and Rifai & Kurniawan (2023), and Nonthapot (2019b), who also noted that membership of AEC also affects travel.

In regard to the influence of the marketing mix factor on the user satisfaction factor of the Thai-Laos railway service, the results of the analysis of the structural equation model showed that the marketing mix factor has a positive influence on the satisfaction factor with a total influence value. The factors of experience and international economic factors also indirectly influenced the satisfaction factor. The decision to use the railway is based on the consideration of the marketing mix factors. The user also considered the experience of the user and the economic factors of the two countries.

Moreover, the results determined the relationship between Marketing Mix Factors (MCT). It was found that the dimension that plays an influential role was satisfaction (SAT), the highest being the dimension of service delivery (SERVE). This indicates that users of the Thailand-Laos railway service attach the most importance to the dimension of service delivery. In other words, the user considers receiving services from the staff and the service system as a priority. In terms of the indicators of satisfaction in using the Thai-Laos railway service, the service of employees on trains and stations was considered to be important. It is evident that service users value receiving services from both service providers and systems that mediate services as well as speed of service and clear and accurate communication to bridge the gap between customer expectations and the experience received (Lodorfos et al., 2015)

CONCLUSIONS

As mentioned above, the factors of service delivery (SERV) are the most important and indicate that the marketing mix factors affect the satisfaction of using the Thai-Laos railway service. Consequently, the State Railway of Thailand should develop a seamless service system (Seamless Service). Emphasis should be placed on the speed of information communication and the clarity of the public information points, including the development of staff competencies in providing clear and precise information, especially in the border crossing procedures at Nong Khai and Vientiane stations (Khamsavath) to reduce the anxiety of service users and to increase the efficiency of travel time management.

Moreover, both governments should consider extending cooperation to offer "Juxtaposed Border Facilities" or joint testing at one point (a one-stop border post). This will reduce redundancy in checking baggage and border crossing

documents, which will reduce the total travel time (McLinden et al., 2010; Kieck, 2010). Cross-border travel insurance integrated into the ticket price is an option for users that reduces the perception of risk when making travel decisions. In addition, to enhance standards of safety, confidence and protection of service users (Quintal et al., 2010; OECD, 2020) accident insurance is available for all parties including passengers and operators of the MRT who are on duty on the passenger train. This includes getting on or off a train and accidents caused by the operation of the train from the departure station to the destination station (SRT, 2023) and may consider providing additional insurance options by extending coverage to accidents that occur during a trip.

In term of the experience dimension, the State Railway of Thailand, in collaboration with the tourism authorities of both Thailand and Laos, should consider developing integrated travel packages that emphasize ‘life learning experience.’ These packages must take into account travel duration and length of stay to effectively attract the younger traveler segment who prioritizes these factors. Furthermore, service delivery should be enhanced by ensuring accurate and clear communication from frontline personnel, particularly regarding cross-border and immigration procedures, to mitigate passenger anxiety and to bolster confidence. Additionally, providing a diverse fare structure and seating classes is essential to offer value for money and to cater to varying people with different purchasing powers, allowing passengers to manage their budgets effectively and encouraging repeat usage in the future.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. Participants were informed about the study’s purpose and their right to withdraw at any time, and anonymity was strongly maintained.

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