

The transportation efficiency of cargo truck drivers from Thailand to Lao PDRSukanya Sirimat^a and Sakkarin Nonthapot^{a*}^aFaculty of Interdisciplinary Studies, Khon Kaen University, Nong Khai Campus, Thailand**CHRONICLE****ABSTRACT***Article history:*

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The purposes of this study are to study (1) opinions on the driving performance of cargo truck drivers and (2) the factors that affect the efficiency of driving cargo trucks from Thailand to the Lao PDR by crossing the first Thai-Lao Friendship Bridge. The study was conducted with a sample of truck drivers who transport goods across the Thailand border to Lao PDR at the Nong Khai Customs Area, Nong Khai Province. 384 respondents were acquired by selection according to their convenience. They then completed a questionnaire with confidence values between 0.70 – 0.90. The statistical data analysis for this study included mean and standard deviation, and structural equation analysis. The results showed that: (1) Truck drivers have various opinions on the personal factors of truck drivers; truck driver performance factors and truck driver transportation efficiency indicators are as follows: speed, economy, safety, comfort and punctuality factors, which are at very high levels and (2) The personal factors of a truck driver have a positive influence on truck driver performance while the truckers' transportation efficiency and the truck drivers' performance have positive influences on the efficiency of truck drivers' transportation by 54 percent.

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1. Introduction

International trade is one of the most important components of a country's economic development. Currently, Thailand relies on export revenues for 70% of the country's gross domestic product (Jongwanitch, 2018). In 2022, Thailand's international trade totaled 17,094,524.52 million baht. The export value was 8,568,939.92 million baht, and the import value was 8,525,584.60 million baht. The import and export statistics from the Center for Information and Communication Technology, with the cooperation of the Department of Customs (2023), shows the role and importance of international trade in the Thai economy. Trade consists of domestic trade and international trade, and one of Thailand's major sources of international trade is trade along the border. Border trade is important in promoting the competitiveness of Thai products in neighboring markets as Thailand is connected to four neighboring countries: Malaysia, Myanmar, Laos, and Cambodia, resulting in low transportation costs and a large quantity of goods in Thai markets. In 2022 (January–December), the total trade value was 924,081 million baht, an increase of 21.56 percent. This included exports worth 570,003 million baht, an increase of 27.25 percent, and imports worth 354,078 million baht. Border trade with Malaysia had the highest value, accounting for 36.36 percent of the total border trade value, followed by Lao PDR at 23.25 percent, Myanmar at 22.09 percent and Cambodia at 18.30 percent (Department of Foreign Trade, 2023).

Thailand shares a border with Lao PDR for distance of 1,810 kilometers in 12 border provinces, namely Nong Khai, Bueng Kan, Mukdahan, Ubon Ratchathani, Nakhon Phanom, Loei, Nan, Phayao, Uttaradit, Chiang Rai, Phitsanulok, and Amit Charoen provinces of Thailand. In 2022, trade along the border between Thailand and Lao PDR reached a total trade value of 214,814 million baht, exports increased by 13.17 percent to 124,769 million baht, an increase of 20.42 percent and inflows were worth 90,045 million baht. Thailand had a positive trade balance of 34,724 million baht. The top five trade posts with the highest total trade value are Nong Khai Customs Checkpoint, accounting for 34.93 percent of the Thailand-Lao PDR border trade, followed by Mukdahan Border Gate at 18.94 percent, Thung Chang Gate at 13.20 percent, Chong Mek Border Gate at 11.64 percent and Tha Li Border Gate at 9.42 percent. Diesel fuel, other finished oils,

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passenger cars, and cosmetics, perfumes and soaps are the biggest export items and the top five imports are fuel, vegetables and vegetable additives, transceivers, signals and equipment, radio and telephone receivers, and cement (Center for Information and Communication Technology, with the cooperation of the Department of Customs, 2023).

Table 1 shows the trade value of the Thailand-Lao PDR border from 2016 to 2022, which reflects the value of trade on the Thailand-Lao PDR border. However, in 2019-2020, overall trade value decreased because of the virus epidemic situation. The COVID-19 pandemic continued and in 2021, According to the Department of Foreign Trade (2023)'s report on Thailand's border trade and cross-border trade in 2022, the Thailand-Lao PDR border had a total trade value of 214,814 million baht. Compared to the same period in the previous year, exports had increased by 13.17 percent and imports had increased by 20.42 percent. The top five trade posts with the highest total trade volume were Nong Khai Customs Post, accounting for 34.93 percent of the Thailand-Lao PDR border trade, followed by Mukdahan Border Gate (18.94 percent), Thung Chang Border Gate (13.20 percent), Chong Mek Border Gate (11.64 percent) and Tha Li Border Gate (9.42 percent) respectively.

Table 1

Trade value at the Thai-Lao PDR border in 2017-2022 (Unit: Million Baht)

Year	Export Value	Import Value	Total
2017	136,440	66,502	202,942
2018	131,262	75,783	207,045
2019	128,866	84,752	213,618
2020	107,891	79,555	187,447
2021	103,608	86,214	189,822
2022	124,769	90,045	214,814

Source: Department of Foreign Trade (2023)

When considering the value of exports and imports of goods through Nong Khai Customs monthly, in 2022, as shown in Fig. 1, the total value of trade showed a small increase in the early stages. In March, the total trade value increased to 8,625 million baht. However, in the following month, the total trade value fell to only 5,592 million baht. However, during the fourth quarter, there was a leap in the total trade value, which can be seen in October, when the total trade value was 11,040 million baht. The highest trade value was in December at 13,097 million baht, which shows that the trade opportunities at the Thailand-Lao PDR border at the Nong Khai Customs Post have great potential for economic expansion.

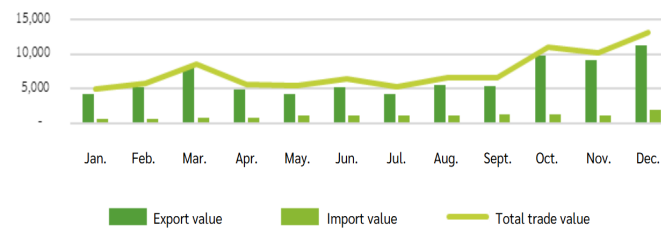


Fig. 1. Import-export values at Nong Khai Customs (Nong Khai Customs, 2023)

Nong Khai Customs is located at Mueang Nong Khai District, Nong Khai Province (Fig. 2). There is a large area to accommodate about 200 tow trucks transporting goods in and out throughout the day, and the transportation of goods across the border between Thailand and Lao PDR passes through Nong Khai Customs, which is the control point for the entry and exit of goods. For this reason, cargo tow trucks are the main means of transportation from Thailand to Lao PDR in the area. There are usually many cargo tow trucks at Nong Khai Customs and Customs parked up all over the area of the checkpoint. Many of the trucks carry fuel, other liquids and hazardous materials. They also often encounter and contribute to traffic jams, which ultimately leads to delays in transportation and a loss of efficiency.



Fig. 2. Cargo tow truck at Nong Khai Customs (Researcher)

The information presented above shows that the export sector is still the main force that drives growth in the Thai economy. Furthermore, trade at the border is important in promoting the competitiveness of Thai products in neighboring markets, especially trade at the border of Thailand and Lao PDR. In 2002, the total trade along the border between Thailand and Lao PDR had a total trade value of 214,814 million baht of which Nong Khai Customs had the highest export value of about 89 trillion baht. This shows that trade in the border area in Nong Khai province has high economic potential. Lao PDR often experiences delays with numerous people and vehicles waiting at the customs checkpoint. As a result, traffic jams can occur at various times, and the time it takes for cargo trucks to cross borders varies, which can lead to inefficiency in cargo operations.

The study of the opinions on the driving efficiency of truck drivers transporting goods through Nong Khai Customs from Thailand to Lao PDR revealed the factors that affected the efficiency of trucks transporting goods through the Thai-Laos Friendship Bridge border post. The results may help to 1) use transportation efficiency data as a guide for entrepreneurs to use in managing transportation plans more efficiently for preliminary information; 2) It can be used as a guideline for the Department of Land Transport, the Customs Department and related agencies to reduce accidents and to help international transportation to be more efficient. In addition, it can also be used as information to support government agencies and the private sector in planning, developing, improving and formulating strategies for the development of cross-border cargo transportation.

2. Literature review

The factors affecting the transportation efficiency of truck drivers transporting goods through Nong Khai Customs from Thailand to Lao PDR have been assessed in a number of works. Apirachasakul (2003) explained the concept of transportation efficiency. The development of transportation is aimed at improving the quality of transportation in terms of standards and efficiency. Efficient transportation must consist of the following qualities: 1. Speed: fast transportation can bring goods and services to the market quickly, on time, and on time with demand, with the same freshness and quality as the goods and services at the source of production. 2. Saving: the efficient transportation must cause savings in transportation costs and savings in service costs. In other words, transportation operators must try to keep transportation costs as low as possible. When the cost of transportation is low, the service fees will also be reduced, which will save users money on fare or freight charges, so savings can be considered as part of efficient transportation. 3. Safety refers to the safety of loss or damage to goods, as well as the safety of vehicles used in transportation, which is considered very important. For the transportation system, it can be considered that the transport operator is responsible for the loss and damage. In everything that happens to goods and services. 4. Convenience or availability of vehicles and related equipment in transportation. Good transportation must provide comfort for users or convenience in transporting goods and services, such as because vehicles must be fully equipped with various facilities that can be used for immediate movement, and 5. Punctuality is another important issue for transportation, because good and efficient transportation must have a precise, reliable and punctual travel schedule. Arrival time, travel duration. The time to pass various important points must be specified and must be maintained according to the schedule to be considered effective.

According to Julaemfa (2016) studied the efficiency of transportation services by trucks in the central region of the company. The objective of this study is to study the supply chain process elements of the transportation sector to study the efficiency of transportation services. It was found that there are many factors that affect the efficiency of truck transportation, namely price factors. Physical Characteristics factors is the most important factor in the quality of personnel is the service factor, which means accurate transportation on time and speed. Clarke and Wright (1964) and Supakdee et al. (2015) studied the routing of transportation and planning of distribution by computer programs to increase the efficiency of transportation more quickly. According to the study, the management of bus routes by the program can reduce the distance of transportation. As a result, transportation time is faster, and transportation costs are reduced. Moreover, Boonkorn and Wongmanee (2021) have studied the optimization of cost management in the freight transportation process of ABC Logistics company. They brought about the theory of PDCA becoming the concept of transporting goods that is applied to the company's transportation process to increase efficiency in cost management. After the improvement process, the work steps are reduced. It was found that transportation costs have decreased to actual savings, and there are also projects that increase income for employees as an incentive. The same is true for the study of the state of Soontrachay (2014) which has been conducted to increase efficiency and reduce freight costs with the case study of Siam Nissan Company Department Limited Logistics. It was found that the approach to increasing the efficiency of cargo transportation and reducing the cost of using transportation vehicles is to manage the bus route. Shibasaki and Darawong (2021) studied the safety management that affects the safety attitude of truck drivers of transportation companies in Chonburi Province. The aspect is the personal factor and the management of the performance of truck drivers. In the same way, Thaomey and Nopanatwongsakorn (2023) as well as Berg et al. (2009) investigated the factors affecting the service efficiency of drivers. It was found that personal factors such as age, workload, experience rewards have a positive effect on improving performance and affect the service efficiency of employees. In addition, Worawattanaparinya (2022) studied the expected performance level and actual performance of truck drivers from the perspective of road freight operators. This research compares the performance that affects driving performance. It was found that the driver's visual performance, training, and type of vehicle according to the expected performance and

actual conditions are different. While, Jansingh (2018) found the group of registered freight forwarders in the Bangkok metropolitan area and its vicinity, it was found that internal factors such as praise and respect. The authority of duties, job security, and internal factors such as training, compensation and welfare, and liaison affect the performance of truck drivers. As a result, the management has supplemented various factors to motivate employees to work (Kanrak & Nonthapot, 2024), and it is considered one of the achievements of the organization. From the above, there are two factors that affect the transportation efficiency of truck drivers. The first is the personal factor (Shibasaki & Darawong, 2021). The second factor is transportation efficiency of driver (Worawattanaparinya (2022); Jansingh (2018), it is measured a lot in terms of speed, economy, safety, comfort/availability of vehicles and related equipment in transportation, and punctuality (Apiprachasakul (2003; Julaemfa, 2016; Clarke & Wright, 1964). The conceptual framework is presented below in Fig. 3.

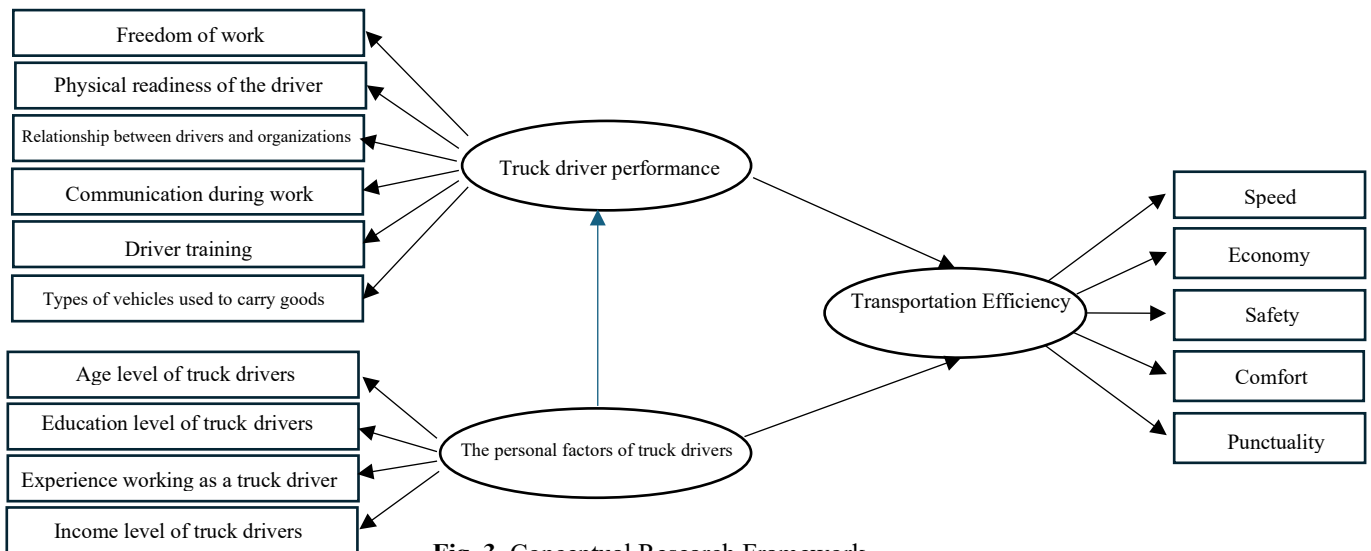


Fig. 3. Conceptual Research Framework

From the research conceptual framework, the following research hypotheses are obtained:

Hypothesis 1: *The performance of truck drivers influences the transportation efficiency of truck drivers.*

Hypothesis 2: *The individual factors of truck drivers influence the transportation efficiency of truck drivers.*

Hypothesis 3: *The individual factors of truck drivers influence the performance of truck drivers.*

3. Research Methodology

3.1 Population and Sample

The population in the study is truck drivers who transport goods across the Thai border to the Lao PDR at the Nong Khai Customs Area, Nong Khai Province by selecting 384 representatives of truck drivers by choosing samples according to their convenience (Convenience Sampling). The determination of the number of samples in this study is based on the recommendations of Kline (2023), who suggested that a sufficient number of samples are available for data analysis with the structural relationship equation analysis technique (Structural Equation Modeling: SEM) with covariance based that the number of samples, which should be greater than 200 and/or the number of samples should be approx. 5-10 per parameter used in the analysis.

3.2 Research Tool

The research tool used to collect data was a questionnaire in four parts as follows:

Part 1: General information about the respondents.

Part 2: Opinions on the factors affecting the transportation efficiency of truck drivers transporting goods through Nong Khai Customs at the Thai-Lao Friendship Bridge, which includes 'Truck Driver Performance and Personal Factors'

Part 3: Feedback on the transport efficiency indicators of cargo truck drivers, which includes speed, economic safety, comfort, and punctuality; and

Part 4: Other suggestions in the questionnaire.

In parts 2 and 3, there is a questionnaire with a Likert scale with five evaluation characteristics from level 1 (lowest) to level 5 (highest). Content validity was determined by considering the consistency of the text with the definition of the terminology. This is determined by employing a consistency index for the questions. According to the opinion of the

experts, the evaluation results showed that all questions had a consistent index value of more than 0.87 (Rovinelli & Hambleton, 1997). Reliability was analyzed by determining the Cronbach's alpha coefficients. In each question group, Cronbach's alpha coefficient was higher than 0.7. The confidence value obtained represents the level of stability of the questionnaire. If the value is very close to 1, it is very reliable. Here, the acceptance criterion is set at 0.70 or higher (Cronbach, 1990; Mohsen & Reg, 2011), so the researcher used the questionnaire to collect data on real samples to obtain data for study purposes.

3.3 Data Analysis

The data analysis according to the research objectives is divided into two parts: 1) preliminary data analysis to determine the level of the variables studied, including mean and standard deviation, and 2) the analysis of structural relationship equations (Structural Equation Modeling: SEM). SEM is based on covariance-based SEM (CB-SEM), which tests confirmatory theory and how the theory fits with observations (Hair et al., 2014) and performing with models' fit (Shengeza, Msambichaka & Mwishwa 2023). Hence, this study is to examine the factors that affect the efficiency of driving cargo trucks from Thailand to Lao PDR via the first Thai-Lao Friendship Bridge. The index values used as criteria for evaluation are Chi-square values, a relative square using the chi-square value divided by degrees of freedom, which must be less 5.00 ($X^2/Df < 5.00$) The comparative conformity index must not be less than 0.90 (Comparative Fit Index: $CFI \geq 0.90$). Tucker's Comparative Conformance Index and Lewis must not be less than 0.90 (Trucker-Lewis Index: $TLI \geq 0.90$). The tolerance index in parameter estimation must be less than 0.08 (Root Mean Squared Error Approximation: $RMSEA < 0.08$) and Standardized Root Mean Square Residual: Standardized RMR: the must be less than 0.05 (Standardized RMR < 0.05).

4. Research Results

From the data collection with the questionnaire, 384 samples of the questionnaire were returned and completed. The results of the analysis are divided into two parts. The objectives of the research are as follows:

Part 1: Opinions on the driving performance of truck drivers transporting goods from Thailand to Lao PDR via the first Thai-Lao Friendship Bridge. The results are as shown in Tables 2 – 4.

Table 2
Average and standard deviation of truck driver performance

Truck driver performance factors	Mean	S.D.	Skewness	Kurtosis	Average Level
1. Freedom to work	4.15	0.78	-0.63	0.22	very
2. Physical readiness of the driver	4.43	0.63	-0.65	-0.54	very
3. Driver-Organizational Relationship	4.05	0.81	-0.60	0.36	very
4. Communication during work	4.13	0.73	-0.29	-0.81	very
5. Driver training	4.15	0.79	-0.56	-0.27	very
6. Type of vehicle used to carry goods	4.16	0.73	-0.29	-0.95	very
Overview	4.18	0.54	-0.13	-0.71	very

Source: From calculation

The results of the analysis shown in Table 2 identify the factors that affect the transportation efficiency of cargo truck drivers. The overall performance of truck drivers is very high (Mean = 4.18, S.D. = 0.54), and when looking at each aspect, it was found that the performance factors of truck drivers in all six 6 aspects are at a high level. In addition, the results of the analysis of the distribution characteristics were determined by skewness and popularity. The Kurtosis of both the aggregate and individual variables is between -1 and +1, indicating that all variables are normally distributed (Schumacker & Lomax, 2004).

Table 3
Average and standard deviation of personal factors

Personal factors	Mean	S.D.	Skewness	Kurtosis	Average Level
1. Age level of the driver	3.84	0.77	-0.31	0.00	very
2. Driver's education level	3.69	0.78	0.20	-0.71	very
3. Experience working in truck driving	4.12	0.74	-0.58	0.56	very
4. Income level of truck drivers	3.94	0.83	-0.34	-0.31	very
Overview	3.90	0.59	0.01	-0.24	very

Source: From calculation

According to the results of the analysis presented in Table 3 showing the factors affecting the transportation efficiency of truck drivers, the individual factors of truck drivers, in general, are at a high level (Mean = 3.90, S.D. = 0.59). In addition, the results of the analysis of the distribution characteristics were determined by skewness and popularity. The Kurtosis of both the aggregate and individual variables is between -1 and +1, indicating that all variables are normally distributed

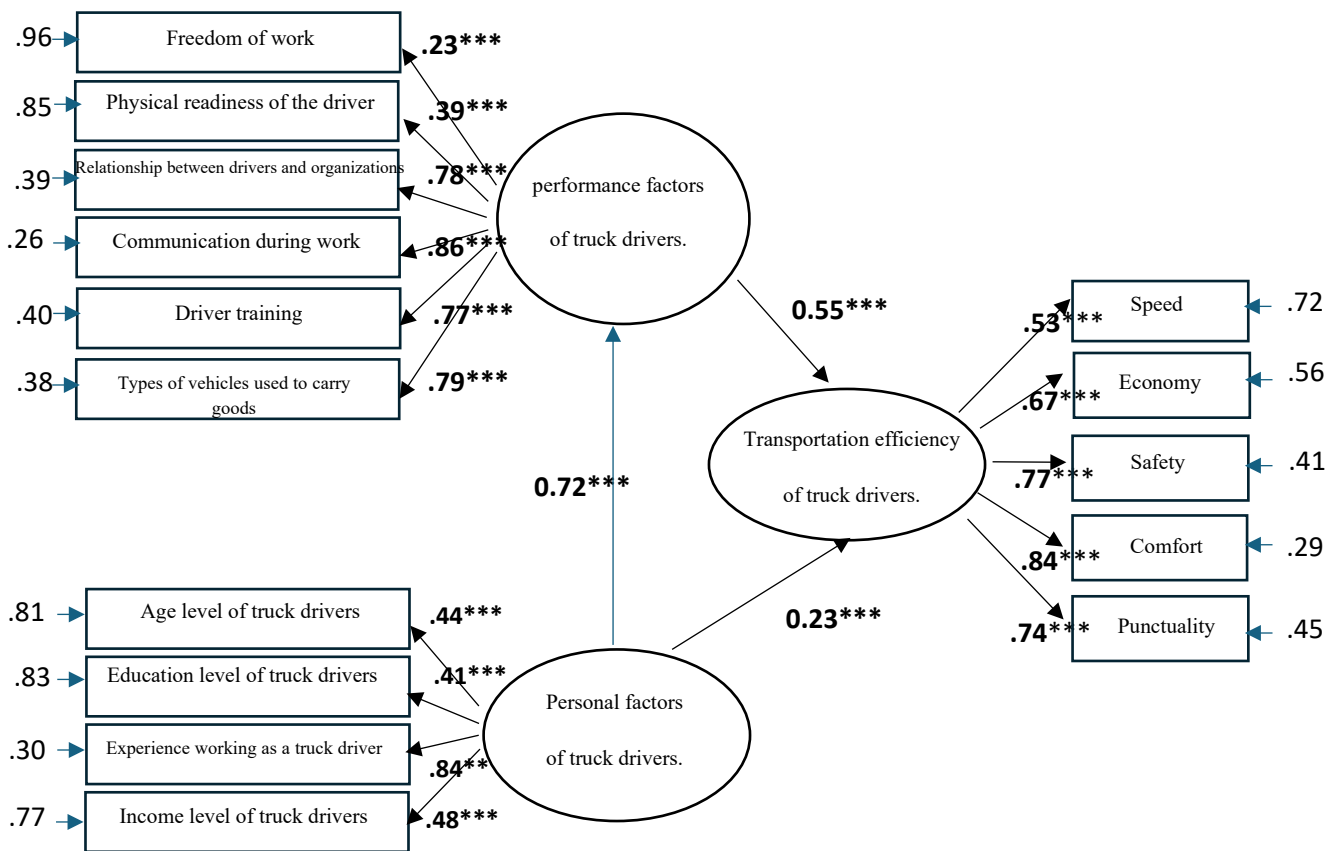
(Schumacker & Lomax, 2004). In Table 4, the overall transportation efficiency indicators of cargo truck drivers are high. (Mean = 4.04, S.D. = 0.52) and when looking at each side, it was found that the transportation efficiency indicators of the five freight truck drivers were at a high level. In addition, the results of the analysis of the distribution characteristics were determined by skewness and popularity. The Kurtosis of both the aggregate and individual variables is between -1 and +1, indicating that all variables are normally distributed.

Table 4
Average and standard deviation of the transportation efficiency indicators

Transportation performance indicators of cargo truck drivers.	Mean	S.D.	Skewness	Kurtosis	Average Level
1. Speed	3.94	0.62	-0.22	-0.25	very
2. Economy	3.93	0.68	-0.15	-0.60	very
3. Safety	4.21	0.60	-0.53	-0.39	very
4. Comfort	4.01	0.68	-0.28	-0.82	very
5. Punctuality	4.10	0.69	-0.52	0.17	very
Overview	4.04	0.52	-0.18	-0.35	very

Source: From Calculation

Part 2: For the analysis of the model on the structural relationship equation of the efficiency of transportation of truck drivers transporting goods from Thailand to Lao PDR, the results are shown in Table 5 and Fig. 4, and it was found that the model is consistent with the empirical data with the following conformity index criteria.



$\chi^2 = 251.87$, $df = 82$, $\chi^2/df = 3.07$, $P\text{-value} = 0.051$, $CFI = 0.93$, $TLI = 0.92$, $RMSEA < 0.07$ and $SRMR < 0.05$

Fig. 4. Model result of the transportation efficiency of truck drivers transporting goods from Thailand to Lao PDR

When considering the performance factor of truck drivers, there are six indicators: freedom to work, physical readiness of the driver, driver-organizational relationship, communication during work, driver training and the type of vehicle used to carry goods. It was found that all indicators could be used to explain the statistically significant variation in the performance factor of truck drivers at the level of 0.001. The communication during work can explain the variation in the performance factor of truck drivers at the 86 percent were followed by the type of vehicle used to carry goods, the relationship between the driver and the organization, and the training of the driver, which can be used to explain the variability of the performance factors of the truck driver with 79 percent, 78.0 percent, and 77.0 percent, respectively. Considering the personal factors of truck drivers, there are 4 indicators: the driver's age, the driver's education level. Experience working as a truck driver and income level of a truck driver. It was found that all indicators could be used to explain the variability of the truck driver's personal factors statistically significantly at the level of 0.001, and it was found that the experience of working as a truck driver could be used to explain the variation in the truck driver's

personal factors at the highest level, 84 percent, followed by the income level of the truck driver. This can be used to explain the variability of the trucker's personal factors at 48 percent. When considering the transportation efficiency variables of truck drivers, there are five indicators: speed, economy, safety, comfort, and punctuality. It was found that all indicators could be used to explain the statistically significant variation in the trucker's transportation efficiency variable at the 0.001 level. It can be used to describe the variability of the variables of the trucker's transportation efficiency at the highest level of 84 percent, followed by safety and punctuality, which can be used to explain the variability of truck drivers' transportation efficiency variables at 77 percent and 74 percent, respectively.

The results of the analysis of the equation of structural relationship with the efficiency of transportation of truck drivers transporting goods from Thailand to Lao PDR are according to the model. Overall, it is indicated that the personal factors of truck drivers have a statistically significant positive influence on the performance of truck drivers. ($DE = 0.72$, $p < 0.001$) and truck driver performance had a statistically significant positive influence on the trucking performance of truck drivers. ($DE = 0.55$, $p < 0.001$) It has an indirect influence on the efficiency of truck drivers' transportation. ($DE = 0.40$, $p < 0.001$), through the performance of truck drivers, as well as the variability of truck drivers. The variability of truck drivers transporting goods from Thailand to Lao PDR was explained by the performance of truck drivers and the personal factors of truck drivers. When considering the personal factors of truck drivers, it was found that personal factors in terms of experience in truck driving are the main factors that affect the ability of truck drivers to communicate during work and mainly affect the transportation efficiency of truck drivers in terms of comfort (Table 5).

Table 5

The total influence (TE), direct influence (DE) and indirect influence (IE) of factors in the model

Causal variables	Effect Variables					
	performance factors of truck drivers.			Transportation efficiency of truck drivers		
	DE	IE	TE	DE	IE	TE
Personal factors of truck drivers	0.72***	-	0.72***	0.23***	0.40***	0.64***
Performance factors of truck drivers	-	-	-	0.55***	-	0.55***
	R ²			0.54		

DE: Direct Effect, IE: Indirect Effect, TE: Total Effect

Source: From calculations.

5. Conclusion

1. The results of the analysis of the opinions of truck drivers who responded to the questionnaire number 384 cases about the personal factors of truck drivers are presented below. The truck driver performance factors and the truck driver transportation efficiency indicators are as follows: speed, economy, safety, comfort and punctuality. Based on the responses of drivers of trucks transporting goods from Thailand to the Lao PDR. The factors and the indicators of truck driver performance were found to be at a high level.

2. The results of the hypothesis tests are as follows:

	Research Hypothesis	Test results
Hypothesis 1	The performance of truck drivers influences the transportation efficiency of truck drivers.	Accepted
Hypothesis 2	The personal factors of truck drivers influence the transportation efficiency of truck drivers.	Accepted
Hypothesis 3	The personal factors of truck drivers influence the performance of truck drivers.	Accepted

The results show that the performance of the truck driver and the personal factors of the truck driver have a positive influence on the transportation efficiency of the truck driver. It is therefore better to manage the performance of truck drivers. The three most influential truck driver factors are communication during work, the relationship between the driver and the organization, and the training of the driver, respectively. In addition, there should be a management of personal factors. If a truck driver has good personal factors, it will lead to an increase in the efficiency of transporting goods, with the most influential personal factors of truck drivers being the experience of working in trucks and the level of income from working as a truck driver, respectively. The efficiency of transporting goods from trucks is greatly influenced by convenience, safety, and punctuality, respectively.

The results of this study are consistent with the results of a Shibasaki and Darawong (2021), which found that the safety attitude of truck drivers in Chonburi Province is influenced by personal factors and the performance management of truck

drivers. In addition, a study by Thaomey and Nopanatwongsakorn (2023); Berg et al. (2009) found that the performance of truck drivers is influenced by personal factors in various ways, such as praise, respect, respecting authority in duties, job security, training, remuneration and welfare.

In addition, in regard to the efficiency of transporting goods with trucks based on the research results and suggestions received from the research, the factors are as follows:

1) Truck driver performance

1. Communication during work: Training should be encouraged to improve communication skills at work, such as the use of in-car communication technology or applications that facilitate effective communication between drivers and management.

2. In terms of the type of vehicle used to carry goods, it is necessary to consider the selection of a type of vehicle that is suitable for the characteristics of the goods and the transportation route to increase efficiency and to reduce transportation costs.

3. The Driver-Organization relationship should create a creative and supportive environment for good work for the drivers and the organization, such as building friendly work disciplines and strengthening cooperation in solving problems.

4. Driver training should promote training and skill development for drivers, such as practicing safe driving and obeying traffic laws to increase confidence and efficiency in cargo transportation.

5. The physical readiness of the driver should be encouraged to maintain their physical health by providing advice on proper exercise and health care.

6. Freedom of work: a friendly atmosphere and support for the driver's independence should be encouraged to yield greater confidence and the freedom to make decisions in case of emergency or unexpected adjustments.

2) The personal factors of truck drivers:

1. Experience working in truck driving and the accumulation of experience in truck driving should be supported and promoted to increase expertise and their understanding of operations.

2. Increases in income from working as a truck driver, salary or other income adjustments should be considered to create stable private conditions and greater job satisfaction.

3. Age level of truck drivers: supporting and improving the working environment to suit older drivers, such as providing comfortable and safe shelter, should be considered.

4. Truck Driver Education Level Education and development of learning skills in educational institutions should be supported and opportunities to participate in training to enhance new knowledge and skills should be made available.

Moreover, other factors that influence the efficiency of truck drivers should be studied, which includes fitness and personal factors. A measurement model should be developed to give greater clarity to the personal and performance factors of truck drivers.

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