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A Study of Issues and Problems of Truck Owners in Haryana

Ankit, Research Scholar, Department of Commerce, Maharshi Dayanand University, Rohtak.
Kuldip Singh Chhikara, Professor, Department of Commerce & Former Director, Directorate of Distance Education (DDE), Maharshi Dayanand University, Rohtak.

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Abstract
Purpose: There are not enough studies on the concerns and issues with transportation, even though it is one of the most essential services utilized by every organization. Among all the modes of transportation, freight transportation by road is essential for the functioning of primary and secondary sectors of any economy. The study aims to identify the issues confronted by truck (fleet) owners in Haryana.
Design/Methodology/Approach - On a 5-point Likert scale, responses from 62 fleet owners of Haryana were gathered using a self-developed (post-pilot study) questionnaire. Using SPSS 26, the collected data were examined using factor analysis, independent t-test, one-way ANOVA, and descriptive statistics.
Findings: The study revealed that truck owners face problems at the micro (internal environment of the firms) and macro-level (external environment). However, the problems in the external environment, i.e., Government policies and administration, fuel prices, technology up-gradation, brokers, etc., are more significant than those in the internal environment, i.e., management, financial intermediaries, customers, and human resources.
Originality/Value: The present study is a unique piece of work in the area highlighting the issues and prospects of the transportation owners in the state of Haryana (India), which previous studies have not yet covered.
Keywords: Truck owners, trucking, road transport, fleet owners, freight transportation.
Paper Type: Research Paper.

1.Introduction

The word 'Transportation' refers to the movement of humans, animals, goods, liquids, and gases from one place to another using a mode of transport, i.e., air, water, roads, rail, and pipeline. Among all the modes of transport, the Road Transport is the oldest one. In India, there is a total road network of 6215797 km, including national highways, state highways, district roads, project roads, expressways, etc. compared to this, the total road network of Haryana is 31702 km (0.5percent of India) (Wikipedia). Given its capacity to traverse crowded regions and rough terrains, road transport is one of the most cost-effective and favoured modes of freight and passenger transportation. As a result, it is critical for the country's economic development and social integration. Road transport has emerged as the most important means of transportation in India, accounting for 4.5 percent of GDP in 2005-06, more than all other modes combined. The road transport sector transports about 80percent of passenger traffic and 60percent of freight traffic in the country. Road transportation benefits from the easy availability of many types of vehicles to meet the demands of consumers and the cost reductions (Ministry of Road Transport and the Highways). In 2018-19, Road Transport carried a 64percent of the total freight generated in India (Ministry of Railways, 2020).

The National Transport Development Policy Committee (NTDPC) had estimated the overall freight traffic of approximately 4800 billion tonne-kilometer with a share of 39:61 between rail and road transport for the year 2021-22, jointly contributing 8 percent to the GDP directly. The role of road transport infrastructure in the economy is exactly like the role of the circulatory system in the human body, i.e., to carry out the movements of essentials from one point to another. Imagine a scenario of the ill-functioning of a person's circulatory

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system. It may lead to various health-related issues and challenges for that person, and in the worst-case scenario, it may eventually lead to his death. The same is the case for road transport infrastructure; if there remain issues and problems unattended and unresolved in the road transport industry, it will severely affect the economy. Since transportation is a necessary component of all commercial and governmental activities and enables them to fulfill the innate demand for human mobility, its operation and advancement have a universal nature (Banister et al., 2000; May, 2005).

Of the three components of GDP- agricultural, manufacturing, and services- the former two entirely depend on goods transportation to be functional. Transporting goods from one plant to another is an element of the receiver's procurement and the supplier's distribution functions (Forkenbrock, 2001; Guenther & Greschner, 2010). So, it becomes necessary to identify the existing problems in the transportation of goods by road and eliminate them to ensure the enhanced growth of the economy.

2.Review of literature

(Raghuram, 2015) highlighted the structure of the trucking industry and briefly explained its elements, i.e., core actors, tangible elements, support services, government, and regulatory bodies. The importance of road transport is also described by showing its contribution to India's GDP. Also, the modal shares of different modes of transport are shown in which the road transport is leading. The causes and consequences of industry structure are also explained with the help of various factors, i.e., a phenomenon named "Unholy Equilibrium in the Road Transportation Sector," financing facilities, ownership pattern, and service quality. The study concluded that the 'five S' framework should drive the transport industry, i.e., speed, sustainability, safety, security, and stresslessness. (Pradhan & Bagchi, 2013) Using the VECM, researchers looked at the impact of road and rail transportation on India's economic development from 1970 to 2010. (Vector Error Correction Model). The study found bidirectional causality between road transportation and economic development, capital formation, and GDP growth. On the other hand, rail transportation has a one-way causality with gross capital creation and economic growth. According to the study, transportation infrastructure is a "significant" contributor to economic growth. An appropriate strategy is required to boost transportation infrastructure and raise gross capital creation, which will contribute to significant economic growth. (TCIL, 2015) conducted a comprehensive study to evaluate the operational efficiency of freight transportation by roads, and to do so, a survey was conducted on twenty-eight major routes. The study has given an insight into India's road network and an overview of the composition of vehicles used in road transportation. An illustration of the composition of a truck's trip expenses, i.e., fuel cost, driver's wage, maintenance cost, and on-road cost, has been made. Where the fuel alone contributes to more than 50 percent. It also came to light that India bears an additional fuel consumption cost of 14.7 billion USD due to delays. The increase in the freight rate was not proportionate to the increase in freight cost, which further led to a notable drop in the contribution margin. The study also described a few other dimensions of freight transportation by road, namely, multi-modal transportation, prospects like Sagar Mala and Bharat mala projects, and the impact of seasonality on business. The study also highlighted the urgent need to develop new road infrastructure, increase the width of present roads, and timely maintenance of roads. (NITI Aayog, 2021) has highlighted the importance of the role that the transport industry has played, is playing, and will play in the economy's growth. According to the report, India's logistics sector accounts for 5% of GDP and handles 4.6 billion tonnes of products annually, with growth predicted to be five-fold by 2050. India's freight transportation system is critical to its success. In this report, three opportunity areas are discussed, namely increasing the modal share of rail transport, optimizing truck use, and promoting fuel-efficient vehicles, in order for India to reduce its energy consumption by 50%, reduce logistics costs from 14% to 10% of GDP, reduce carbon emissions and improve the air quality index, and reduce road traffic. (Kot, 2015) has studied the cost management issue in road transport enterprises of different sizes, i.e., micro, small, medium, and large, because of the differences in their functioning and manner of operations. It came to light that the large companies bear

the greatest fuel consumption costs, and the costs of small companies have diminished over time. Other variable costs associated with road transport are drivers' compulsory social insurance, salaries, food and accommodation expenses, etc. In the case of companies, different forms of employment offered are contract of mandate or self-employment, or contract of employment. The study concluded that road transport is currently the most significant mode of transport in the present economic situation due to its flexibility with other modes. The efficient management of a road transport company requires precise cost analyses and controls. (Demir et al., 2014) presented a review of recent studies on green road freight transportation. The study has mentioned the harmful effects of road freight transportation on human health and on the environment caused by the emissions of nitrogen oxides (N2O), carbon dioxide (CO2), and particulate matter. The study emphasized understanding the vehicle emission models and their inclusion in the existing optimization models. The factors affecting fuel consumption are categorized further, viz., vehicle, environment, traffic, driver, and operations are also studied, and their implications are shown in the study. Various fuel consumption models are also mentioned, along with their applications, drawbacks, and findings. The study concluded that vehicle speed is crucial in minimizing fuel consumption; light-duty vehicles must be preferred over medium and heavy-duty vehicles. Besides carbon dioxide equivalent emissions, other traffic externalities like noise, accidents, and environmental damage could be examined at the regional levels. (Rameshwar Dubey Angappa Gunasekaran, 2015) have developed a theoretical framework with the support of a practical method using a quasi-ethnographic technique to determine the features and talents of a truck driver for sustainable transportation. Maturity, knowledge, and endurance were highlighted as three characteristics of an ideal truck driver. A truck driver's talents include both technical knowledge and behavioural qualities. The theoretical framework of the study explained three sorts of pressures: coercive, normative, and mimetic. The research advised that truck drivers' training assists in incorporating external demands into technical and behavioural abilities to make truck driving a valued career and make truck drivers part of a sustainable supply chain network. The top management should recognize the drivers' contribution and provide them regular training, health check-ups, and incentives in case of good performance. (Iv, 2018) interviewed eighteen log truck operators in Georgia, USA, to learn about the expenses and other problems of log truck transportation. The owners' fleet sizes ranged from zero trucks (which had recently stopped carrying) to more than fifty trucks. Their log trucks travelled an average of 1,27,324 kilo meters per year and delivered 17,410 tonnes per year. The combination of average payload, percent-loaded km, and reported haul rates, according to the analysis, makes it extremely difficult for log trucking companies to make a profit. The significant issues log truck operators confront are a lack of skilled drivers and escalating truck insurance prices. According to the study, boosting percent-loaded miles, giving driver training, lowering turn times at mills and harvest sites, and implementing new technology like GPS and onboard cameras could increase transportation efficiency and safety. (Tunde & Adeniyi, 2012) used primary and secondary data to investigate the influence of road transport on agricultural development in Kwara state's Ilorin East L.G.A. Farmers in the research region were given 150 copies of the questionnaire methodically. The impact of road transportation on rural development was assessed through a focus group discussion. According to the findings, road transport has both negative and positive effects on agricultural development in the studied area. According to the study, farmers' increased productivity is favourably connected with improvements in the road transportation infrastructure. Community participation in road transportation development should also be promoted in the study region. (Singh, 2012) provided an overview of India's urban transportation issues and challenges. The study concentrated on only the most important aspects of policy formulation. The study began by reviewing the trends in vehicular growth and available transportation infrastructure in Indian cities, followed by a discussion of the nature and scope of urban transportation problems, such as traffic congestion, pollution, and road accidents.The study concluded that the demand for transport had increased substantially in various Indian cities because of the increased population. In contrast, the public transport systems in those cities have not been able to keep up the pace. The study

suggested that the public transport system should be boosted, stringent emissions standards should be implemented, specifications for clean fuels, etc., to solve urban transport problems in India. (Kesharwani (1976), Padam and Singh (2001), Agarwal et al. (2010, 2011, 2014), and Baležentis & Balezentis (2011)) have all contributed to the expanding body of literature on transportation. Haryana invests heavily in the transportation industry (Haryana Government, 2004-2005). " Technical and pure technical efficiency" (PTE) were assessed by the CRS-MODEL and the VRS-model, with findings indicating that just one STU (STHAR) has the highest level of efficiency in transportation (Bishnoi & Sujata, 2007).

3.Objective

1.To study the issues and problems faced by the truck owners of Haryana.

4.Research Methodology

An empirical research design is used to study the problems of truck owners operating in Haryana. The purposive cum convenience sampling technique is used. Researchers personally visited 62 fleet owners from all over the Haryana and asked them to fill the self-developed questionnaires. The scheduling method of data collected is also used in case of some fleet owners because of their lower level of education. The responses were collected using a 5-point Likert scale, where "1=Strongly Disagree, 2=Disagree, 3=Neither Agree Nor Disagree, 4=Agree, and 5=Strongly Agree" on ten statements. Personal interviews were also conducted as a pilot study with 20 respondents to get valuable insights into the trucking business environment of the country. These personal interviews helped a lot in designing the questionnaire. All these responses were analyzed by the Exploratory factor analysis, independent t-test, one-way ANOVA, and descriptive statistics in SPSS 26.

5.Hypotheses

There is no significant difference in the problems of truck owners based on their demographic features, i.e., age, education, income, no. of trucks, residence, and finance facility.

6.Analysis and Interpretation

Table 1.
Demographic Profile of Respondents

Particulars		Frequency	Percentage
Age of Respondent	21-40	20	32.3
	41-60	37	59.7
	61-80	5	8.1
Level of Education	Upto 12th	48	77.4
	Graduate	12	19.4
	Post Graduate	2	3.2
Annual Income of Respondent	upto 5 lacs	46	74.2
	500001-10 lacs	11	17.7
	above ten lacs	5	8.1
Number of Trucks Owned	1-10	55	88.7
	11-20	4	6.5
	above 20	3	4.8
Residence of Respondent	urban	45	72.6
	rural	17	27.4
Finance Facility	Yes	55	88.7
	No	7	11.3

Table 1 presents the demographic profile of the truck owners (respondents). It shows that almost 60 percent of the truck owners belong to the age group of 41-60 years, while 32percent are from the 21-40 years category, and only 8 percent of the respondents are from the 61-80 age group. Almost 77percent of the truck owners studied only up to 12th class, 20 percent of them have done their graduation, and only a meager 3 percent are postgraduates. The majority of respondents (74percent) have an annual income of less than ₹ Five lacs, almost 18 percent of respondents have an annual income between ₹500001 and ten lacs, and only 8 percent with an annual income above ₹ ten lacs. The majority (89 percent) of the respondents owned less than ten trucks, 7 percent owned between 11-20 trucks, and only 5 percent owned more than 20 trucks. Out of the total respondents, 73 percent live in urban areas, and the remaining 27 percent live in rural areas. Eighty-nine percent of the total respondents have availed themselves of a finance facility, while only 11 percent have not.

Exploratory Factor Analysis

Collected data were further analyzed using exploratory factor analysis. It is a statistical technique used to identify the clusters of variables by measuring their correlation. In EFA, highly correlated variables are clubbed together to form latent variables known as factors. The study used the Kaiser-Meyer-Olkin Measure (KMO) and Bartlett's sphericity test to check the needed sample adequacy and the correlation between different pairs of variables.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.794
Bartlett's Test of Sphericity	Approx. Chi-Square	586.371
	df	45
	Sig.	.000

Table 2.
KMO and Bartlett's Test

The Kaiser-MeyerOhlin Measure of sample adequacy is 0.794 in table 2, indicating that the study's sample size is appropriate. When there is a significant correlation between the variables, exploratory factor analysis is used. The Bartlett Sphericity test examines the correlation matrix of the variables and tests the null hypothesis that the correlation matrix is an identity matrix. The null hypothesis that the correlation matrix of the variables is identity is rejected based on the outcome of Barlett's Test of Sphericity, which shows that the p-value of .000 (<0.05) with x^2 =586.371 is significant at a 5% level of significance. As a result, it may be determined that the selected variables have a significant correlation and that the matrix is not an identity matrix.

Statements	Initial	Extraction
You have an efficient management	1.000	.882
It is easy to get finance through formal sources	1.000	.803
The insurance claims are settled within time.	1.000	.426
Payment of services is received on time	1.000	.855
Your employees are skilled and trained	1.000	.560
Government policies positively impact the trucking industry	1.000	.400
Brokers are an inseparable part of the trucking industry.	1.000	.865
Technological up-gradation is easy to adopt	1.000	.883
Government authorities are not cooperative	1.000	.651
Fuel prices are justified	1.000	.633
Extraction Method: Principal Component Analysis.		

Table 3.
Communalities

Table 3 shows the communalities of factors after extraction. Communalities reflect how much of each variable is accounted for by the underlying factor.

Table 4.
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	5.440	54.399	54.399	5.440	54.399	54.399	3.983	39.835	39.835
2	1.518	15.181	69.580	1.518	15.181	69.580	2.975	29.745	69.580
3	.872	8.723	78.303						
4	.746	7.462	85.765						
5	.511	5.114	90.879						
6	.406	4.061	94.940						
7	.313	3.125	98.066						
8	.140	1.401	99.466						
9	.033	.327	99.793						
10	.021	.207	100.000						

Extraction Method: Principal Component Analysis.

Table 4 shows the total variance before and after the varimax rotation; only two factors are extracted with the help of factor analysis. Both have an eigenvalue > 1, so both are considered appropriate. These two variables explain a total 69.58 percent variance, while the first one explains 39.83 percent, and the second factor explains 29.75 percent.

Table 5.
Rotated Component Matrix[a]

Statements	Component 1	Component 2
You have an efficient management	.360	.867
It is easy to get finance through formal sources	.479	.758
The insurance claims are settled within time.	-.233	.610
Payment of services is received on time	.368	.849
Your employees are skilled and trained	.461	.589
Government policies positively impact the trucking industry	.619	.127
Brokers are an inseparable part of the trucking industry.	.907	.208
Technological up-gradation is easy to adopt	.895	.286
Government authorities are not cooperative	.802	.084
Fuel prices are justified	.756	.247

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization
a. Rotation converged in 3 iterations.

Table 5 shows the results of the varimax rotation with Kaiser normalization. The rotated component matrix shows that ten variables are clubbed into two factors comprising five factors each. "If a factor has at least four loadings greater than .6, it is reliable regardless of sample size" (Guadagnoli & Velicer, 1988). Based on exploratory factor analysis, two factors are extracted, namely:

- Problems in the external environment of the business. (F1)
- Problems in the internal environment of the business. (F2)

Descriptive Analysis

A descriptive analysis was also conducted based on the replies collected from truck owners.

Table 6. Truck owners' responses in context to factors extracted

Factors	Mean	Std. Deviation
F1 Problems in the external environment of the business.	2.8161	1.07203
F2 Problems in the internal environment of the business.	3.1000	.98364

Table 6 shows that the mean value of factor 1 (2.8161) is less than that of factor 2 (3.1). Based on mean values, it can be predicted that truck owners are giving more importance to the problems in the external environment of the business. (As all the statements of the questionnaire are positively framed, a lower mean value of the factor suggests that the truck owners are considering it as a more significant problem)

Table 7. Hypotheses Summary

Grouping Variable	Test	Factor1 (p-value)	Factor 2 (p-value)
Age	One way ANOVA	.810	.692
Education	One way ANOVA	.302	.066
Income	One way ANOVA	.012	.014
No. of Trucks	One way ANOVA	.116	.000
Residence	Independent t -test	.749	.140
Finance Facility	Independent t -test	0.11	.359

- At a 5% level of significance, the one-way ANOVA turns insignificant. Hence, H01 and H02 are not rejected, and it can be concluded that there is no significant difference in the problems of truck owners based on their age and level of education.
- At a 5% level of significance, the one-way ANOVA turns out to be significant. Hence, H03 is rejected, and it can be concluded that there is a significant difference in the problems (both in the internal and the external environment of the business) of truck owners based on their annual income.
- At a 5% level of significance, the one-way ANOVA turns insignificant for factor1 but significant for factor2. Hence, H04 is rejected, and it can be concluded that there is a significant difference in truck owners' problems based on their level of education.
- At a 5% level of significance, the independent t-test turns out insignificant. Hence, H05 and H06 are not rejected, and it can be concluded that there is no significant difference in the problems of truck owners based on their area of residence and facility of finance availed by them.

8.Limitations and Further Scope of Research

The study was attempted only by taking into its purview the owners of trailers only, and other vehicle owners have been left out. Moreover, some transporters deal in a particular type of goods. The study ignores that part of the population. Further, the secondary data have not been used primarily to draw the inferences, though the same has been used in limited quantity wherever necessary. The sample size of the study is also small.

9.Conclusion

This study has specifically examined the problems faced by the truck owners of Haryana. The problems at the micro-level are pointing towards the deficiencies in the management skills of owners, functioning of financial intermediaries, and performance of human resources of the businesses. Comparatively, the macro-level problems point toward the government's failure to provide a sustainable and efficient road infrastructure. As evident from (Table 1), almost 80 percent of the truck owners have had only a school education, and approximately 90 percent of the truck owners operate small fleets, i.e., less than ten trucks, which prevents them from achieving economies of scale (Iv, 2018). Even though individual truck owners in

Haryana maintain small fleets, the state's logistics industry supports an economic system worth billions of dollars. Considering Haryana is a land-locked state, it becomes essential for Haryana to remove the existing problems of the trucking industry. Hence, it is suggested that the government improve the conditions of roads, reduce fuel prices, and make policies favorable to the trucking industry to keep it profitable for the truck owners, as it will boost the trucking operations in the country.

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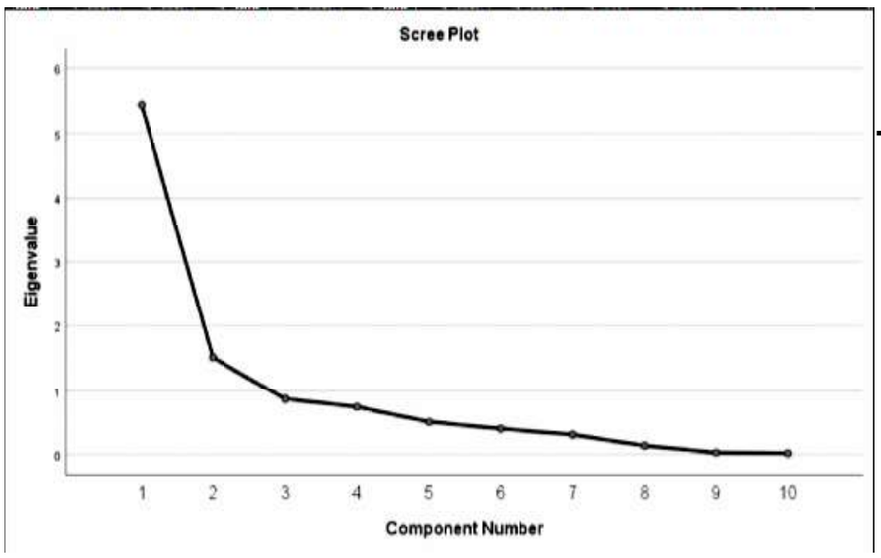

Exhibit 1.
Scree plot

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.888	.887	5

Table 1.
Reliability Statistics of Factor 1

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.862	.850	5

Table 1.
Reliability Statistics of Factor 2