

An Overview of the Trucking Sector in India: Significance and Structure

G. Raghuram

W.P. No. 2015-12-02

December 2015

The main objective of the working paper series of the IIMA is to help faculty members, research staff and doctoral students to speedily share their research findings with professional colleagues and test their research findings at the pre-publication stage. IIMA is committed to maintain academic freedom. The opinion(s), view(s) and conclusion(s) expressed in the working paper are those of the authors and not that of IIMA.



INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD-380 015
INDIA

An Overview of the Trucking Sector in India: Significance and Structure

G. Raghuram¹

Abstract

The objective of this paper is to provide an overview of the trucking sector. It describes the significance of road transport and the structure of the trucking industry. It also explores the causes and consequences of the structure. The paper brings out the significance of road transport by examining the modal share and GDP share, and profiling the type of roads and vehicles. The paper highlights the structure of the trucking industry comprising its core actors, the providers of the tangible elements, support services, and government and regulatory bodies. The causes of this structure, especially the core actors, are discussed with the help of the phenomenon of 'Unholy Equilibrium'. The consequences are seen in the fragmented ownership pattern and poor service quality. The paper concludes by bringing out the priorities of any transport system through a 'five S' framework. The trucking sector should be driven by speed with sustainability, safety, security, and stresslessness.

Keywords: trucking, freight logistics, road transport, industry structure

¹ Professor, Indian Institute of Management, Ahmedabad. Email: graghu@iimahd.ernet.in
This paper is being published as a book chapter in 'Trucking Business Management: Cases and Concepts', McGraw Hill Education, 2016.

1. Significance of Road Transport

1.1 Road vis-a-vis other modes

Amongst all the modes, rail and road transport are the most significant. The modal share between these two has changed over the years, from the 80% rail share in 1950-51, to the road share becoming 65% in 2011-12. Road overtook rail in the early 90's (Figure 1). This shift was a consequence of the inability of the Indian Railways to provide the required capacity or respond with expected customer service, while road transport could provide door to door service. Further, during the last two decades, road infrastructure expanded rapidly on account of focused policies and investments.

However, it is important to note that apart from rail and road, there are four other modes that have a share of the freight transport of the country. Measured in billion tonne kilometers (btkm), rail and road account for 86% of the freight transport while the other modes account for 14% (Table 1).

Table 1: Modal Share of Freight Traffic

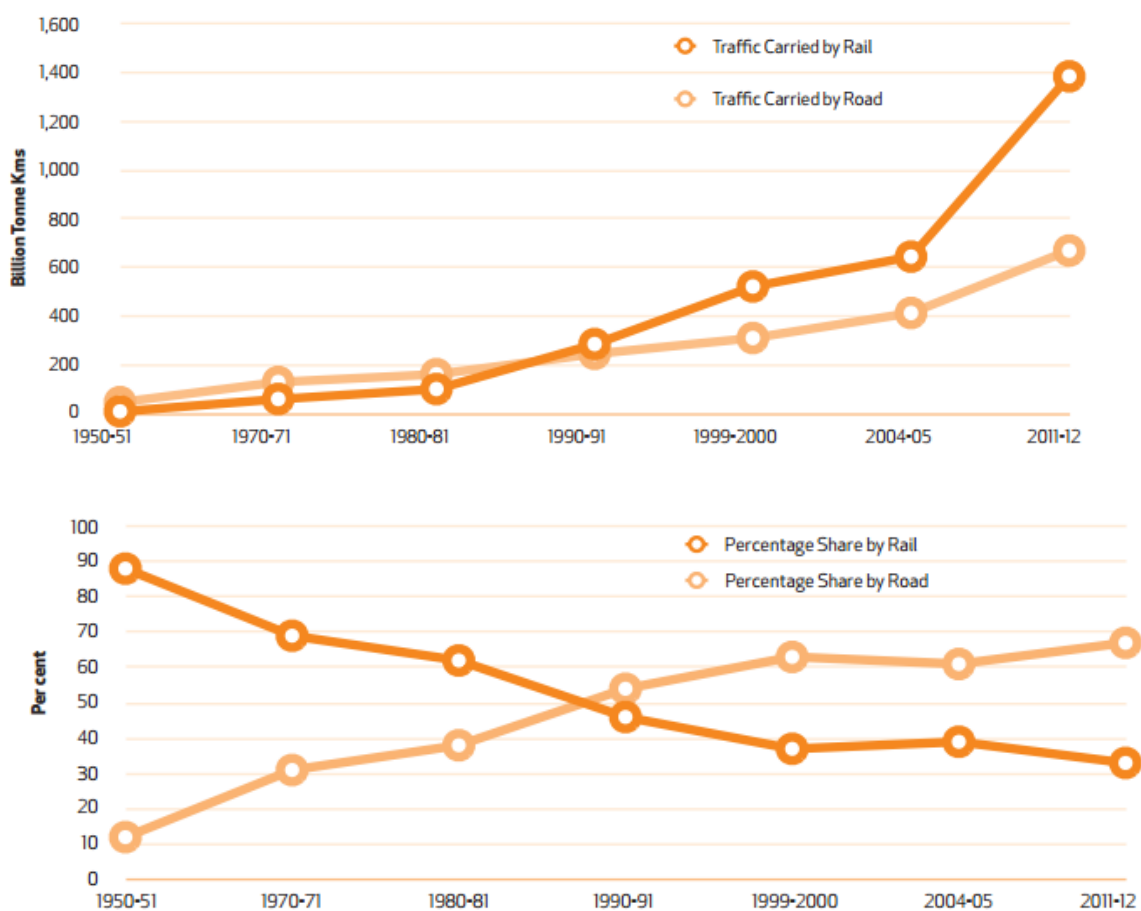
Mode	2007-08 (RITES)	
	btkm	% Share
Road*	706.0	50.11
Rail*	508.0	36.06
Pipelines	105.0	7.45
Coastal Shipping	86.0	6.10
Inland Water Transport (IWT)	3.5	0.25
Airways	0.3	0.02
Total	1408.8	100.00

(RITES Ltd., 2014)

One of the major concerns of transport infrastructure planning is the non availability of authentic data, especially in the road domain. The last attempt at a scientific sample survey based study for freight transport was conducted in 2007-08 at the behest of the then Planning Commission by RITES.

It is time that we put together a mechanism for a more scientific and periodic collection of road data. It should be noted that this information is electronically available with a large number of trucking companies and the shippers.

Figure 1: Freight Traffic: Roads Overtake Rail



(NTDPC, 2014)

The National Transport Development Policy Committee (NTDPC) has tried to estimate the overall freight traffic until 2031-32, using a growth rate of 1.2 times the GDP growth rate. Based on this multiplier of 1.2, the expected freight traffic would be as below.

Table 2: Projection of Freight Traffic

Year	GDP growth (%)	(btkm)	Rail:Road share
2011-12	--	2053	--
2016-17	6.9	3056	35:65
2021-22	8.0	4834	39:61
2026-27	8.5	7856	45:55
2031-32	9.0	13118	50:50

(NTDPC, 2014)

The NTDP projects an increasing share of rail transport from 35% to 50% based on policy measures towards savings in carbon impact. It is also expected that water (coastal shipping and IWT) would increase its modal share, with pipelines sustaining their share, bringing these environment friendly modes to at least 20%. This would bring road share down to 30%. This would imply that the btkm of road freight would go up from over 1000 in 2011-12 to nearly 4000 in 2031-32.

1.2 GDP Share

The contribution of the transport sector to India's GDP has increased from 6% in 2001-02 to 6.7% in 2012-13 (Table 3). Within this, road transport has increased from 3.9% to 4.9%, being the primary driver of the increase in the transport share.

Table 1: Share of Different Modes of Transport in GDP (All values in %)

Sector	2001-02	2008-09	2009-10	2010-11	2011-12	2012-13
Transport	6.0	6.6	6.6	6.5	6.6	6.7
Segmental Breakup						
Railways	1.2	1.0	1.0	1.0	1.0	0.9
Road Transport	3.9	4.7	4.7	4.6	4.8	4.9
Water Transport	0.2	0.2	0.2	0.2	0.2	0.2
Air Transport	0.2	0.2	0.2	0.3	0.3	0.3
Services Incidental to Transport	0.5	0.4	0.4	0.4	0.4	0.4

(Ministry of Railways, 2015) (Singh, 2014)

1.3 Roads

Roads are the primary infrastructure required for the trucking sector. As per the 2013 estimates, the total road length in India was 4.7 million kilometres, making the Indian road network the second largest in the world after the United States.

Indian roads are classified according to their primary source of financing. The Central Government finances the National Highways, the State Government the State Highways and the State and Local Governments the rest of the roads (Table 4). In the past decade, a lot of rural roads have been financed by the Central Government under the Pradhan Mantri Gram Sadak Yojana project. Under 'other' roads, there are categories like urban roads, project roads and border roads financed by Municipal Administrations, Major Projects and the Defence Ministry respectively.

Table 4: Classification of Roads

Type of Road	Length (km)	%
National Highways	93,051	2.19
State Highways	154,522	3.63
District, Rural and Other Roads	4,010,973	94.18
Total Length	4,258,546	100.00

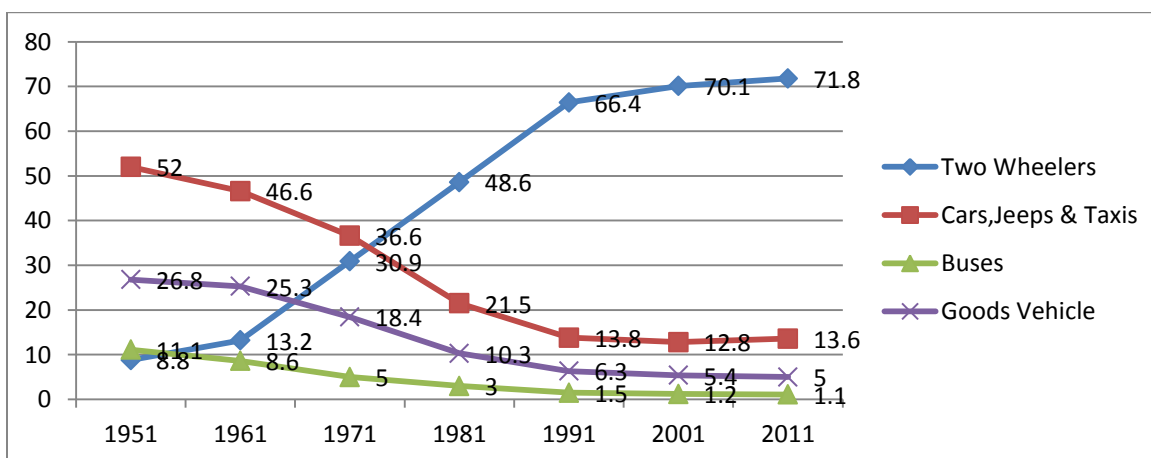
(NHAI, 2014)

The National Highways carry about 40% of the total road traffic, though constituting only about 1.7% of the road network. (NHAI, 2014) The National Highways Authority of India has been investing in a multi phase National Highways Development Project to improve the capacity and quality of the National Highways, significantly using the Public Private Partnership (PPP) model. Many State Governments have followed the same for State Highways, concessioning out on a PPP model often through a state public sector in the form of a Road Development Corporation.

1.4 Vehicles

The total number of registered vehicles in India was 173 million as of March 31, 2013. Of this, goods vehicles accounted for 8.1 million. The largest share was held by two wheelers at 125.7 million, followed by four wheelers at 23.5 million. A 60-year profile of registered motor vehicle categories is given in Figure 2. This shows the significant growth in the share of two wheelers.

The truck population in India grew at a rate of 7% per annum between 2011 and 2013. Around 75% of the trucks on Indian roads are two-axle trucks with a capacity of nine tonnes. Two and three-axle rigid trucks constitute the bulk of trucks in India. The share of three-axle trucks and light commercial vehicles is on the rise.

Figure 2: Profile of Registered Motor Vehicle Categories

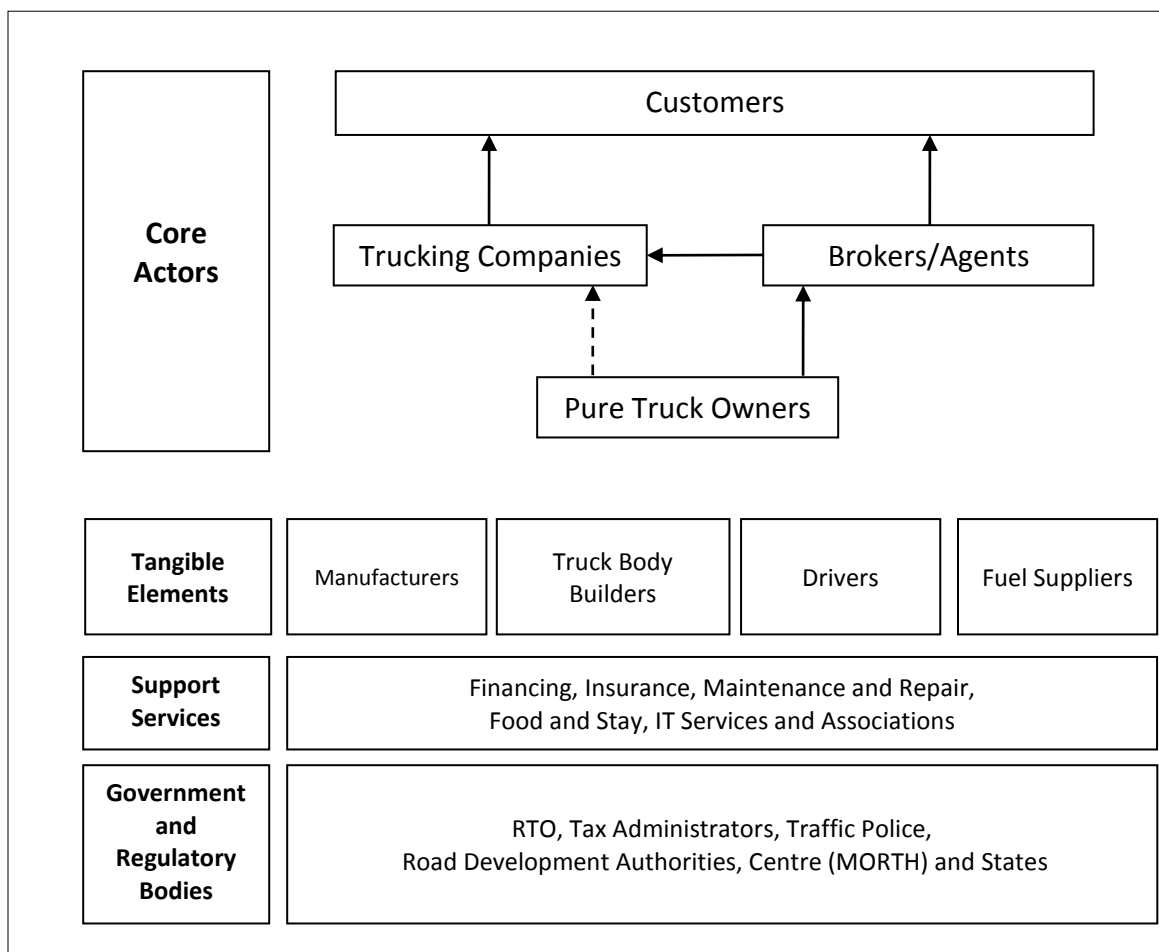
(Ministry of Road Transport and Highways, 2013)

About 40% of Indian trucks are less than six years old, while 34% are older than 10 years. In India, the average truck is operational for about 20 years, after which it is scrapped (The International Institute for Sustainable Development, 2013). There is an attempt by the government to cap the life at a reduced level, from a pollution perspective.

2. Structure of the Trucking Industry

Customers move their goods almost entirely through third party players, rather than through their own fleet. This makes the trucking industry commercially very dynamic. The trucking industry has multiple actors (Figure 3). The core actors directly serving the customers are the trucking company and the brokers/agents. They are supported by the pure truck owners. This core set of actors is supported by four entities providing the tangible elements for trucking: manufacturers, truck body builders, drivers and fuel suppliers. The core set of actors has an ecosystem constituting support services, and government and regulatory bodies.

Figure 3: Structure of the Trucking Industry



(Developed by the author)

2.1 Core Actors

2.1.1 Trucking Companies: They are the primary solicitors of freight, either based on ruling market prices or tender based bids. They are responsible for delivery of goods from the customers' loading location to the unloading location. They are also accountable for cargo loss and damage claims, and perform various other customer care services. Most trucking companies own some fleet. However, to fulfill market needs, they often source a larger part of their requirement through brokers or directly as 'attached' fleet.

2.1.2 Brokers/Agents: They are the primary intermediary acting on behalf of pure truck owners, supporting customers directly (like a trucking company) or providing fleet to the trucking companies. They play an important role in the Indian trucking ecosystem as they are a means of giving continuous work to them. Since the trucking companies have limited means of assessing an owner's performance, the brokers help in determining the trustworthiness of the truck owner.

2.1.3 Pure Truck Owners: These entities account for the largest share of the truck fleet in India, owning say less than five trucks. The trucks are driven by a set of family members or hired loyal drivers. The drivers are usually assisted with a helper and virtually live in the truck. They largely depend on brokers for getting business, either directly from customers or through trucking companies. Some of them 'attach' themselves to specific trucking companies (shown as a dotted line in Figure 3). The rates they get are as per the market which reflects the supply-demand situation on specific origin-destination segments.

2.2 Tangible Elements

2.2.1 Manufacturers: The Indian truck manufacturing sector is characterized by the large organized sector primarily making the chassis, with the trucking companies or the pure truck owners then having bodies built on the chassis as per their market needs. There is a growing, though not yet significant, body built trucks supply direct from the manufacturers. The annual truck sales have fallen in recent years, both due to a sluggish economy and an increasing utilization of trucks. The manufacturing segment is characterized by two market leaders who have had a long innings in an earlier regulated market favorable to them. Over the past two decades, after liberalization, there have been many new entrants with a growing market share and offering a wide range of vehicle types. The manufacturing industry, also called the commercial vehicle (CV) industry, is described in greater detail in another chapter.

2.2.2 Truck Body Builders: The Indian truck building industry is understandably huge, but operates largely in the unorganized sector. The advantages of this sector are the low cost and the customization that they bring to the table. However, there are concerns related to safety and quality. Further, some of the customized body building violates the Motor Vehicles Act in the interest of higher revenues.

2.2.3 Drivers: Truck drivers are the most critical players, forming the human backbone of this industry. The role of a truck driver is challenging, given the unpredictable nature and schedule,

long periods and distances away from family members, perceived harassment by the police while *en route* and the job insecurity involved. Poor design and maintenance of the Indian roads add to problems of health and safety. In spite of this, they are paid poorly and not surprisingly there is a growing shortage of drivers.

There is both a status and a skill gap among drivers. Many actors in this sector have begun to realize this. There is an increasing focus on bridging the skill gap and providing appropriate *en route* facilities for drivers. These efforts are fragmented and need more focused attention. The National Skill Development Council has identified formally trained drivers as an important skill gap.

2.2.4 Fuel Suppliers: This sector is supported by large organized players, with a larger share in the public sector. The penetration of fuel retail outlets is deep. Many of the outlets have started providing extra road side facilities for trucking. One issue of contention is that fuel prices tend to vary more often than the ability of trucking companies to pass through the variations to customers.

2.3 Support Services

2.3.1 Financing: The financing of vehicles largely happens through non banking financial services, commercial vehicle manufacturers and sometimes by the unorganized sector including money lenders. Trucking also qualifies under priority sector lending of banks but is targeted at the small fleet owners.

2.3.2 Insurance: While insurance for the commercial vehicle is organized, it is not so for the goods carried. It is not always that customers insure their goods during transit, since the Carriage by Road Act passes the responsibility to the carrier. Any accident and/or goods lost situation becomes a complex and 'uncivilized' process of a blame game. This is one of the high risk areas for trucking companies and truck fleet owners.

2.3.3 Maintenance and Repair: Traditionally this has been carried out in the unorganized road side sector. Increasingly, trucking companies are going in for Annual Maintenance Contracts (AMC) offered by manufacturers at least in the early years of the use of the truck. Some large fleet owners have their own workshops, which makes sense if the revenue generating routes are largely invariant.

2.3.4 Food and Stay: The ubiquitous *dhabas* (a commonly used word from Hindi, referring to a roadside food stall) dotted across the roads of the country play a critical role in supporting the trucking sector. Drivers select *dhabas* mostly on a relationship basis. Some of the *dhabas* also become nodal for other support services including maintenance and repair.

2.3.5 IT Services: The most important IT service today is GPS which enables visibility of trucks to the fleet owner/trucking company/customer. IT systems are also used for office automation, starting with Accounting followed by Enterprise Resource Planning and then Management Information Systems. Sensors that can communicate the condition of the vehicle and attempt to

optimize performance are technologically feasible and expected to be the future. Some entrepreneurs are trying to create a market mechanism using IT based platforms, to replace the role of brokers. While this would lead to higher truck utilization, it is not clear whether the ecosystem is ready to replace the services that a broker brings to the table.

2.3.6 Associations: Associations of trucking companies and truck owners primarily provide support to both for lobbying. Leveraging the scale that their membership offers, there is an opportunity to enable sharing of best practices, set standards and provide roadside facilities.

2.4 Government and Regulatory Bodies

2.4.1 RTO: The Regional Transport Office functions under the Transport Commissioner in every state. It is responsible for licensing drivers and vehicles, keeping in view safety and environmental considerations. While playing a key 'gate keeper' role, it is often perceived as a source of 'harassment'. The need for such a 'gate keeper' under the government has often been questioned especially if certified agencies can be assigned the responsibility of achieving the same objectives with better quality. The government is in the process of implementing a project to computerize and network all the RTOs and have a single database to track license holders and prevent abuse.

2.4.2 Tax Administrators: Due to specific inter-state taxes and tax variations, there are check posts at inter-state borders for inspections by tax administrators. This leads to trucks being significantly delayed. Apart from causing movement inefficiencies, there are harassment and environmental concerns. The government is attempting to bring the Goods and Services Tax to rationalize taxation and consequently remove such check points.

2.4.3 Traffic Police: Their role is to ensure traffic discipline. The inherent violations by the trucking companies and truck owners cause difficulties, making the relationship with the traffic police a difficult one.

2.4.4 Road Development Authorities: The road network is governed by various authorities, starting from the NHAI, the Public Works Department (PWD) and local authorities as outlined in Section 1.3. Depending upon the institutional structure and concessioning, the construction, and operation and maintenance could be with different authorities.

2.4.5 Centre (MORTH) and States: The role of the government (Centre and States) is to evolve and implement policy and regulation in public interest. The Ministry of Road Transport and Highways (MORTH) at the Centre and the PWD and Transport Commissioners at the state level are responsible for this.

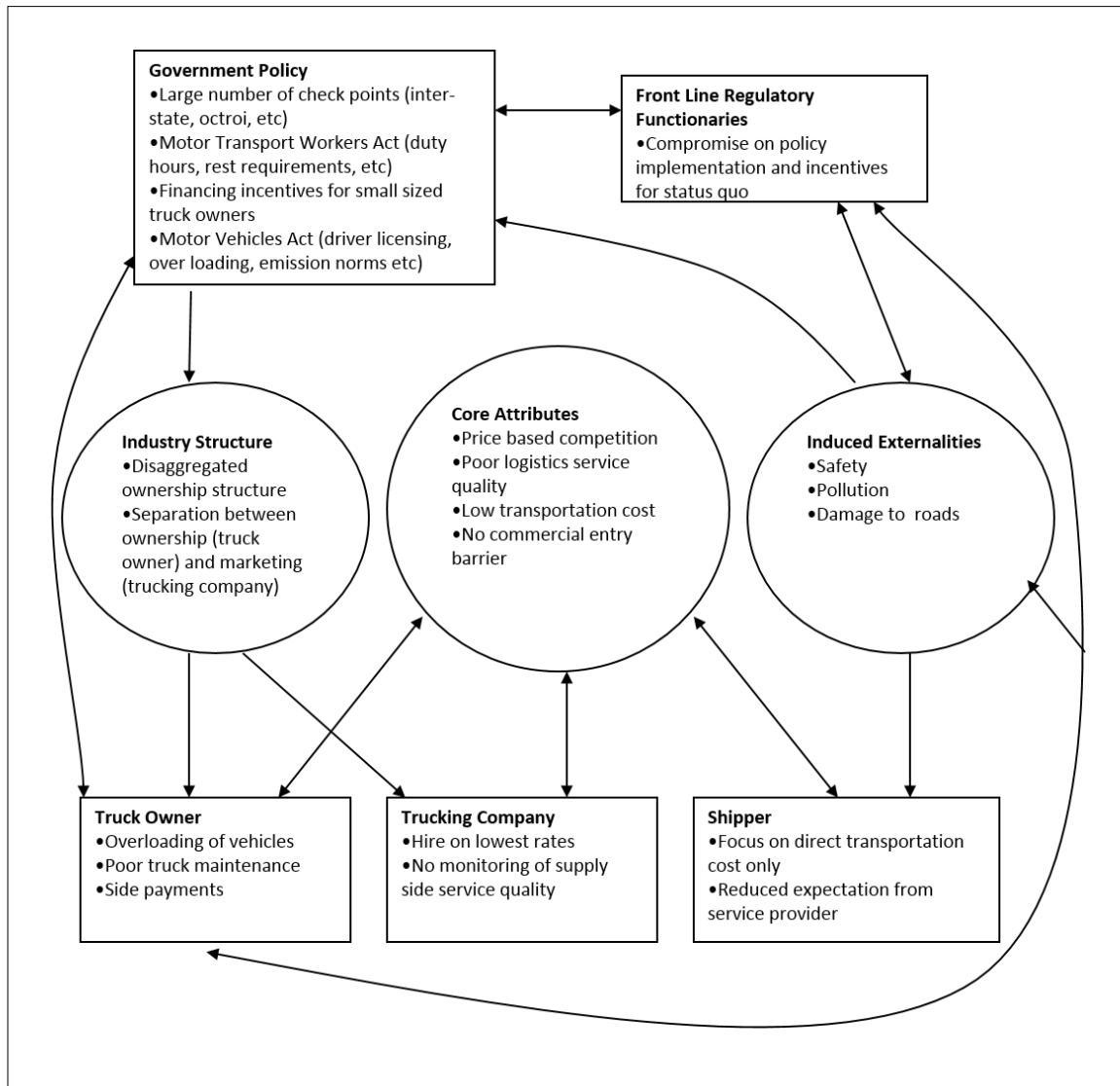
2.5 Causes and Consequences of Industry Structure

2.5.1 Competition and Corruption

The sector is characterized by cut throat competition given the large number of truck owners. Market rates tend to get deflated. This creates the incentive to drive and earn more. This leads to practices such as overloading, overspeeding, not taking the required breaks, violating the regulatory provisions etc. This then leads to corruption, as these operators pay bribes to avoid being caught for plying overloaded trucks, exceeding speed limits and violating other traffic and commercial rules. Various studies have documented the bribes that truckers have to pay on a daily basis. These could exceed a few lakhs of rupees per year per truck. This is a significant reason why the industry is highly disaggregated since large truck fleet owning players will have difficulty in accounting for such bribes. Further, the driving hours often violate the Motor Transport Workers Act, making it tenable only if there is no significant employer-employee relationship between the owner and driver. Thus, small fleet owners prefer to operate their fleet through family and friends.

This is a phenomenon where, in spite of laws and regulations, the norm of violation supports and is supported by the small truck owner. Figure 4 describes this phenomenon as the 'Unholy Equilibrium in the Road Transportation Sector'.

Figure 4: Unholy Equilibrium in the Trucking Sector



(Raghuram & Shah, 2004)

2.5.2 Financing

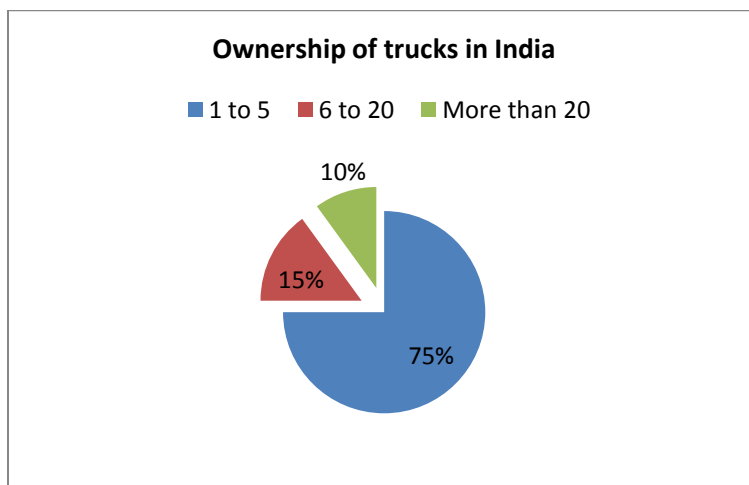
Banks provide financial aid to the small road operators under priority sector lending. This is in accordance with the RBI initiative where it has identified certain sectors to be the priority sectors for the purpose of granting low interest loans. The objective of this is to make financial assistance available to low income groups and weaker sections of society, and also to provide self employment opportunities to the educated unemployed. Since loans are available at cheaper rates, the truck owners have the incentive to stay small.

2.5.3 Ownership Pattern

As a consequence of the above 'equilibrium', highly fragmented truck ownership is sustained. 75% of the fleet is with those who own up to five trucks. 15% of the fleet is with those who own between six to 20 trucks. Only about 10% of the fleet is with those who own more than 20 trucks (Figure 5). It is important to note that this profile is a 'guesstimate'. The last known field study was done by the Central Institute of Road Transport in 1998 wherein this profile was estimated. It appears that different reports are quoting the same profile.

However, the author recalls that in the 80's, the often quoted profile was that 95% of the fleet was owned by truck owners with less than five trucks. If this was indeed true, the profile has changed towards larger fleet owners.

Figure 5: Truck Ownership Profile Pattern in India



(The International Institute for Sustainable Development, 2013)

2.5.4 Service Quality

Given the structure of the industry, most of the trucking companies/owners (being small) do not focus much on service quality. Competition is cost based rather than service based.

As described in Figure 4, this structure introduces a vicious cycle leading to a detrimental situation. As an initiative to break the cycle, certain customers are insisting that trucking companies follow regulations. They are willing to pay higher freight rates. They expect better service, including that the same (approved) trucks return for subsequent loading. The case study Ispaat Parivahan Limited illustrates this.

Another way to break out of the cycle is if associations also insist on their members following regulations. Similarly, manufacturers can also insist on the same, since they have leverage through AMCs. Of course, if the unorganized maintenance sector gears up, the commercial vehicle manufacturers risk losing their AMCs.

3. Conclusions

To conclude, we draw upon a 'five S' framework which helps focus on the key priorities of any transport system, including the trucking sector. The transport system should be driven by speed with sustainability, safety, security and stresslessness.

3.1 Speed: The primary need of the trucking sector is speed. While vehicle technologies are moving in this direction, infrastructural and regulatory bottlenecks remain. There was a push on infrastructure last decade which has slowed down. Attempts are being made to re-energize this. On the regulatory side, a lot needs to happen to enable streamlined movement of trucks across the country. Apart from removing inter-state check posts, electronic tolling needs immediate attention. The average speed of trucks needs to move significantly upwards from the current 300 plus kilometers per day.

3.2 Sustainability: Rail and Coastal transport are threats to the trucking sector due to their better environmental impact. This can be combated by better technologies, maintenance and driving practices. There are efforts to limit the age of the vehicles and use improved fuel.

3.3 Safety: Indian roads kill the maximum number of people globally, on a country wise comparison. Road engineering, signages, driver training and licensing, driving practices and vehicle maintenance need significant attention. Post-accident support is also critical to minimize loss of life and limb. This would be addressed by better roadside support for emergency assistance.

While the Government is trying to arm itself with a new Transport and Safety Bill, a lot can happen even without it by focused action at the grassroots. Truck based video cameras and a 'black box' should be considered for better analysis of the causes of accidents.

While there is sensitivity on these issues, implementation could be better. The recent initiative to have tree plantations on the land adjacent to highways needs caution. As per many international studies, trees are the biggest killers during accidents. This is specially significant when we are trying to increase the average speed on the roads.

3.4 Security: There are many situations where truck and cargo thefts happen. Vulnerable areas need to be identified for better security support. ICT, including truck based video cameras, can be used more effectively to bring in visibility.

3.5 Stresslessness: Studies have estimated that the economic loss due to damages on the road, vehicle and cargo would amount to 2% of GDP. In addition, the driver is often stressed out, which also could be a cause of accidents. High quality road infrastructure, improved truck cab design for driver comfort and scientific cargo loading practices need emphasis.

Acknowledgements

I acknowledge the research and editing support from Deepmala Pokhriyal, Research Associate, Pooja Shrivastava, Research Associate, and Geetika Sarda, Intern, Indian Institute of Management, Ahmedabad.

References

- Ministry of Railways. (2015, February 24). Indian Railways: Lifeline of the Nation. *Indian Railways: Lifeline of the Nation*. Government of India. Retrieved July 3, 2015, from http://www.indianrailways.gov.in/railwayboard/uploads/directorate/finance_budget/Budget_2015-16/White_Paper-_English.pdf
- Ministry of Road Transport and Highways. (2013). *Road Transport Year Book 2011-12*. Retrieved December 14, 2015, from <http://morth.nic.in/index2.asp?slid=291&sublinkid=137&lang=1>
- NHAI. (2014). *Annual Report 2013-14*. Retrieved December 16, 2015, from <http://www.nhai.org/Audit.htm>
- NTDPC. (2014). *India Transport Report*. Routledge. Retrieved December 15, 2015, from http://planningcommission.nic.in/reports/genrep/NTDPC_Vol_01.pdf
- NTDPC. (2014). *Trends in Growth and Development of Transport*. Planning Commission. Retrieved December 14, 2015, from http://planningcommission.nic.in/sectors/NTDPC/volume2_p1/trends_v2_p1.pdf
- Raghuram, G., & Shah, J. (2004, August). Roadmap for Logistics Excellence: Need to Break the Unholy Equilibrium. Indian Institute of Management, Ahmedabad. Retrieved December 15, 2015, from http://vsliir.iimahd.ernet.in:8080/xmlui/bitstream/handle/123456789/792/WP%202004_1837.pdf?sequence=1

RITES Ltd. (2014). *Total Transport System Study*. Planning Commission. Retrieved December 15, 2015, from http://planningcommission.nic.in/reports/genrep/trans/summary_find.pdf

Singh, H. M. (2014). Revenue from Road Transport in India. *Journal of Business Management & Social Sciences Research*. Retrieved December 13, 2015, from <file:///C:/Users/Laptop/Downloads/1661-1200-2-PB.pdf>

The International Institute for Sustainable Development. (2013). *The Impacts of India's Diesel Price Reforms in the Trucking Sector*. The International Institute for Sustainable Development. Retrieved December 15, 2015, from https://www.iisd.org/gsi/sites/default/files/ffs_india_irade_trucking.pdf