

Carriage By Road Cost Index

A New Concept : An indicator of periodic variation of prices
of inputs of goods transport operation

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History Of Indian Roads & Transport Development Association

IRTDA was founded by a dedicated group of road pioneers in 1927 to draw the attention of the Government authorities and bring into public focus the need for the construction, improvement and maintenance of roads, bridges, airport, piers, jetties or any other structure tending to assist the convenience or development of transport of any kind. Their objects included also the improvement of methods of transport and the opening and connecting up of district throughout India.

India had around one Lakh kms of all types of road to provide access to the vast undivided India, in those pre independence days. With poor length, large tracts in the interior languished in immobility and isolation. A road link very often meant food, employment and security to the poorest of poor. Freedom and ease of travel gave mobility to labor and harnessed all resource into production. It also meant timely supply of food grains to the famine stricken interiors at short notice. During good harvests

there was access to insatiable urban markets.

Quietly pressing its viewpoint the IRTDA was largely instrumental in securing the appointment of the M.R.Jaykar committee by the ruling English Government which observed that road development was passing beyond the financial capacity of local Government & local bodies and therefore recommended setting up of the central road fund.

Since then IRTDA has been in the service of nation by contributing valuable research material as well as golden suggestions. In this history of 86 years, IRTDA has been honored by leadership of many great leaders from Business, Transport, Industries and Consultancy field. Our immediate past President has been Dr. P.G.Patankar, Adviser - Tata Consultancy

IRTDA is committed to the cause of welfare of Transport industry and infrastructure with its continuous research programs and advisory role.



Transportation a daily need :

Transportation is a major essential service for any country. Transport is the back bone of trade and Industry. The goods in the form of raw materials, intermediaries and finished goods have to move from their point of origin to the point of use. All minerals are taken out of the mines which are located in different parts of the country, but which needs to be moved to places of beneficiation. Agricultural products are grown in farms but are moved to markets in all small and big cities. The analogy is applicable to everything material or even livestock.

The movement by road is mostly by motorized vehicles like trucks, trailers, buses etc. In the present context, the focus is on Transportation of goods by road.

Inputs Of Transportation:

All motorized vehicles which transport goods or people use following as regular consumables apart from vehicles :-

1. Fuel - Diesel, Petrol, CNG or LPG
2. Tyres - mainly of rubber
3. Oils and lubricants

Other major costs involved:

1. Drivers' salary
2. Maintenance of vehicle
3. Toll and taxes
4. Interest on investment
5. Depreciation
6. Insurance

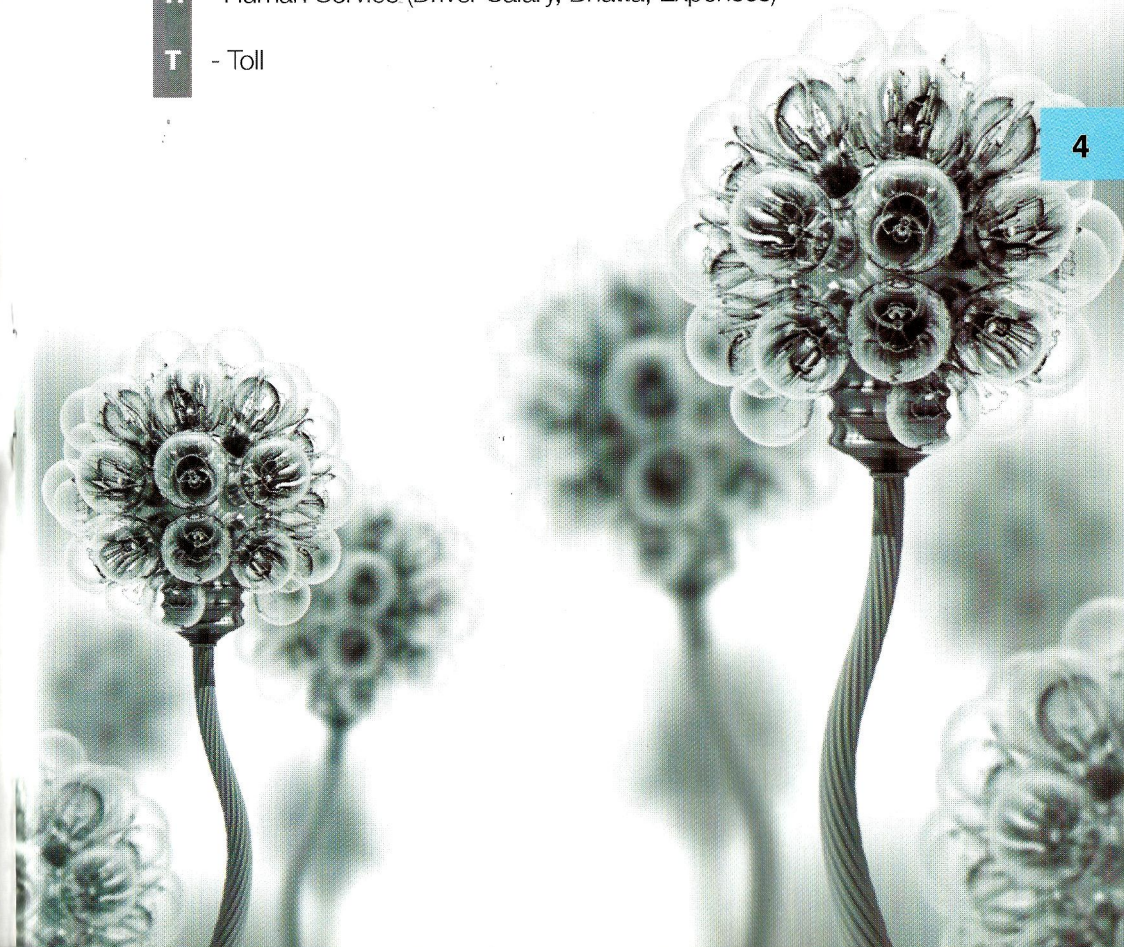
All inputs have different weightage in the overall costing of the transportation. For example fuel has maximum share in overall costing.



Our Basket Can Be Called Freight

Word FREIGHT describes our basket-

- F - Fuel
- R - Rubber Tyres
- E - Expenses (Insurance, Maintenance, Direct Overheads)
- I - Investment
- G - Government Taxes (National Permit, Road Tax, Fitness Test etc.)
- H - Human Service (Driver Salary, Bhatta, Expenses)
- T - Toll





Issues related to fuel:

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The transport system runs on the fuel mainly petroleum products like petrol, diesel, CNG etc. In earlier days the prices of petroleum products to the consumer was fully controlled by Government of India irrespective of their purchase prices of crude petroleum from International market. However situation gradually changed as the prices of crude in the International market became volatile due to many International reasons. It became difficult for the Government to absorb the impact of increasing prices of crude. To control the final selling prices of petroleum products, Government had to give subsidies to such Government refineries. Further, the exchange price of Rupee weakened against US dollar has also inflated the import bills for the same quantity and price of the crude.

All such changes forced the Government to change the prices of mainly diesel and petrol frequently. The diesel prices have been revised as many as 53 times since 2001 till date. On an average the prices have been revised more than 4 times in a year. Lately Government has devised the idea of monthly revision in smaller denominations.

Effect of Diesel price changes:

The most obvious effect is that any change in the major input of a service like transportation will increase the cost of operation. With any upward change in the diesel prices, the purchase of such fuels becomes effective the day it is announced. The transport service providers start paying the higher prices immediately. Unfortunately they cannot realize the increased effect from their customers immediately. A long process of negotiation starts with each customer. Customer is generally reluctant to consider any increase in their negotiated rates. Some companies provide for diesel escalation effect clause but they decide the effects arbitrarily without any scientific basis.

Indian trucking industry has a large share of single truck owners who are disorganized and are in no position to negotiate. Their prices are governed by demand and supply situation of market.

However they are also not spared the increased cost of increase in diesel prices. Moreover when the business of transport companies are affected due to such cost increases; the demand goes down – causing an indirect effect on such truck owners.

Due to the above factor there is a strong opposition from all transporters against any increase in the prices of their main input i.e. diesel. National transport Associations go on strikes demanding a roll back of such prices. Such strikes prevail for 2-3 or some times more days; the economic growth of the country gets paralyzed. Huge losses take place. Sensitive process industries make heavy losses due to disruption of supplies. Government either hurriedly makes certain compromises to end the ordeal or let the damage continue till it ends.

Effect of other major inputs: Other major inputs also affect the cost of operation. Tyre costs have

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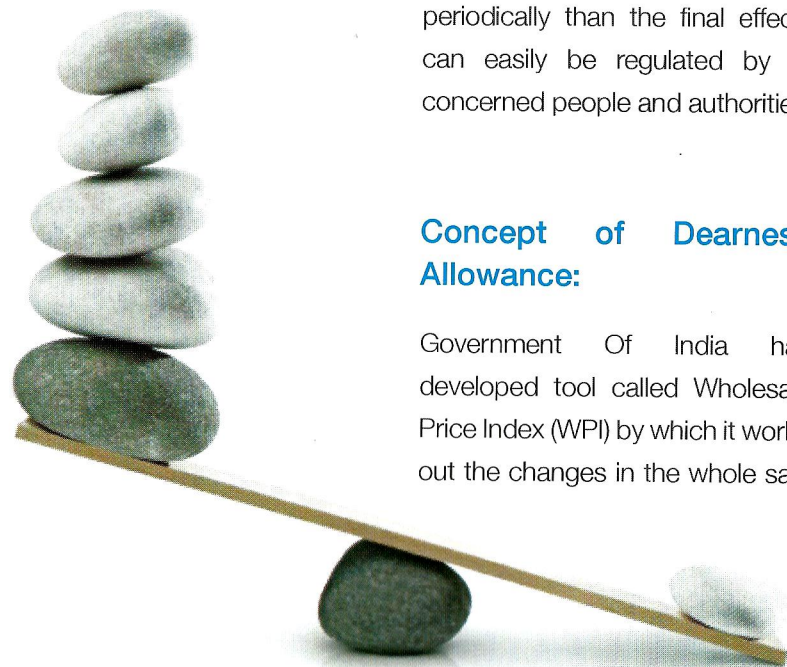
been quite volatile in last 5 years. Tyre Industry has been citing the increase in the prices of natural rubber as the reason of increase. Amount of toll charged on the highways is regularly increasing due to additional coverage or due to inherent provision of yearly hikes. All other inputs like Government Taxes, Insurance, and Maintenance etc. also to certain extent affect the cost of operation.

The Scope Of This Study:

The scope and reason of this paper is to devise a system which takes care of all such increased effects into the absorption of rates in simplest method. Masses involved in the business of providing transport services are not much educated and are not competent to work out the effects of each increase and demand the same. If there is a standard statistical tool available which can calculate the effects of all important changes periodically than the final effects can easily be regulated by all concerned people and authorities.

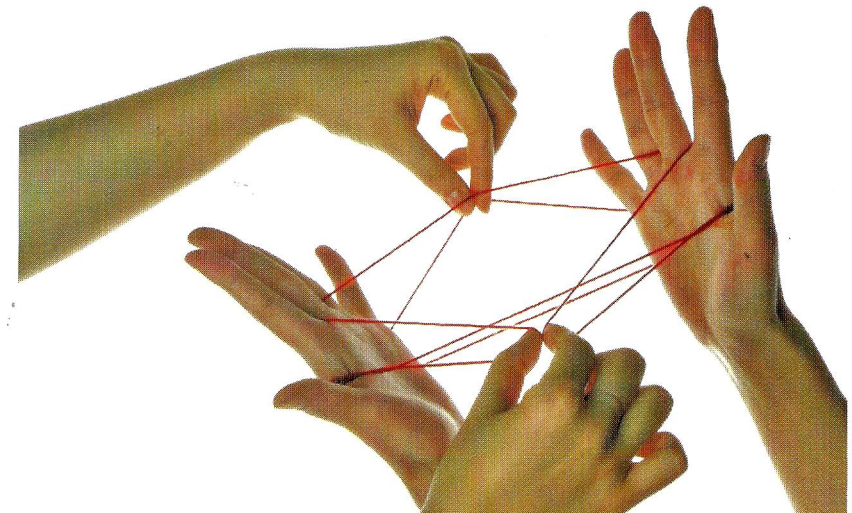
Concept of Dearness Allowance:

Government Of India has developed tool called Wholesale Price Index (WPI) by which it works out the changes in the whole sale



prices pattern. There is another such index called Consumer Price Index. CPI is a statistical time-series measure of a weighted average of prices of a specified set of goods and services purchased

by consumers. It is a price index that tracks the prices of a specified basket of consumer goods and services, providing a measure of inflation.



Consumer Price Index:

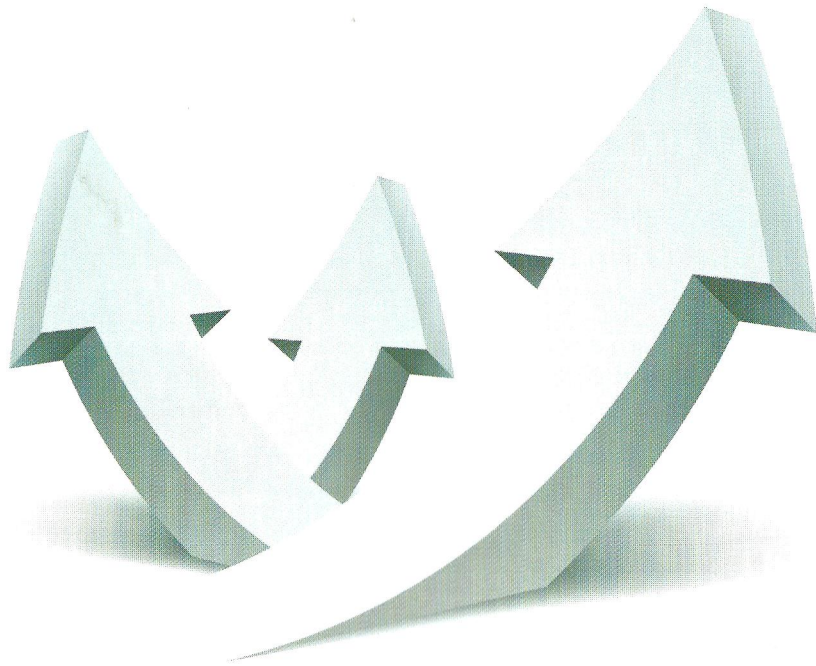
It is a fixed quantity price index and considered by some a cost of living index. Under CPI, an index is scaled so that it is equal to 100 at a chosen point in time, so that all other values of the index are a percentage relative to this one.

Based on these parameters Government organizations and many other private organizations allow dearness allowance to their employees. The allowances are worked out by adopting mutually agreed formulas which revolve around the WPI and CPI. In this fashion the increased burden of inflation is readjusted for a common man.

Concept Of Carriage By Road Cost Index (CRI)

The concept is similar to CPI. As CPI is a statistical time-series measure of a weighted average of prices of a specified set of goods and services purchased by consumers and it is a price index that tracks the prices of a specified basket of consumer goods and services, providing a measure of inflation similarly a CRI need to be worked out. The index should include all or major input parameters like cost

of diesel, tyres, driver etc. with different weightage which should be in proportion to their share in the overall cost of operation. The CRI may start with a particular year as the base year and the CRI can be 100 for the beginning of that year. The CRI can be worked out periodically or at the time of each change in the major input like diesel and should be declared by the Government.



Use Of Carriage By Road Cost Index (CRI)

CRI will be very useful tool in periodically measuring all inflationary issues in the cost of operation of transport services. The following can be the way in which CRI can be useful-

1. Transport Companies can announce their policy about their standard rates as a combination of base rate in addition of Inflationary Allowance, just like the dearness allowance in case of common people. There will be less scope of loss as the competition will also follow the same concept.
2. In long term and short term contracts the rates will be subject

to agreed formula based on CRI hence will protect both parties in case of upward or downward changes in CRI.

3 The effect is fair as the index will reduce with reduction in the inputs.

4. Truckers market can also reorganize their prices based on CRI.

5. In fact companies can sign open ended contracts without time limit by incorporating all actual future changes based on CRI.

6. The Government is spared the wrath of transport industry every time an increase takes place.



Carriage By Road Cost Index

Basis Of Calculation

Description	Average Age Of A Vehicle (Year)#	Daily Average Run*	Operative Days/ Year**	Annual Run in a year
9 Tonner	8	300	275	82,500
12 Tonner	8	300	275	82,500
16 Tonner	8	275	275	75,625
25 Tonner	8	275	275	75,625
31 Tonner	8	275	275	75,625
35 Tonner	8	275	275	75,625
40 Tonner	8	275	275	75,625
49 Tonner	8	250	275	68,750
Remarks	Study of 20 Top Vehicle Owners		Study of 20 Top Vehicle Owners	Daily Average x Operative Days/Year

Many State Governments do not allow older than 8 years vehicles in city limits

* Figures pertain to a 4 year old vehicle as age of vehicle is assumed to be 8 Years

**Breakdown/Accidents/ Repairs- 30 days, Holidays - 30 , Miscellaneous (No Driver, No Loads, Strikes, Nature, Delays)- 30 days

F - Fuel

R - Rubber Tyres

E - Expenses

I - **Investment**

G - Government Taxes

H - Human Service

T - Toll

Investment

- Quotes of Major Manufacturers – Tata Motors, Ashok Leyland and Eicher Motors for their different but comparable models
- Average price of all three manufacturers
- Life of Vehicles assumed to be 8 years
- A salvage of 10% of initial cost is assumed after 8 years

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Rubber Tyres

- Only nylon tyres are considered being masses choice
- Prices of all major manufacturers are similar
- Average price of Ceat, Apollo, JK, Birla and MRF are considered
- Tyre life is assumed to be 60000 kilometers on the basis of users' experience
- TCI-IIM joint study has also taken this base

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Toll

- Toll charges across Golden Quadrilateral and two corridors :- North-South and West-East are considered.
- On each route average toll in Rs. Per Kilometer is calculated.
- An average of all such routes is taken as the final basis.
- Maximum movement of Goods by road is covered through these routes.

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Human Service

- Two drivers are required on each vehicle
- Drivers basic salary varies from employer to employer but considering miscellaneous factors like incentive, bhatta (Allowances), other expenses – it works out similar
- Figures taken on basis of top 20 employers of drivers

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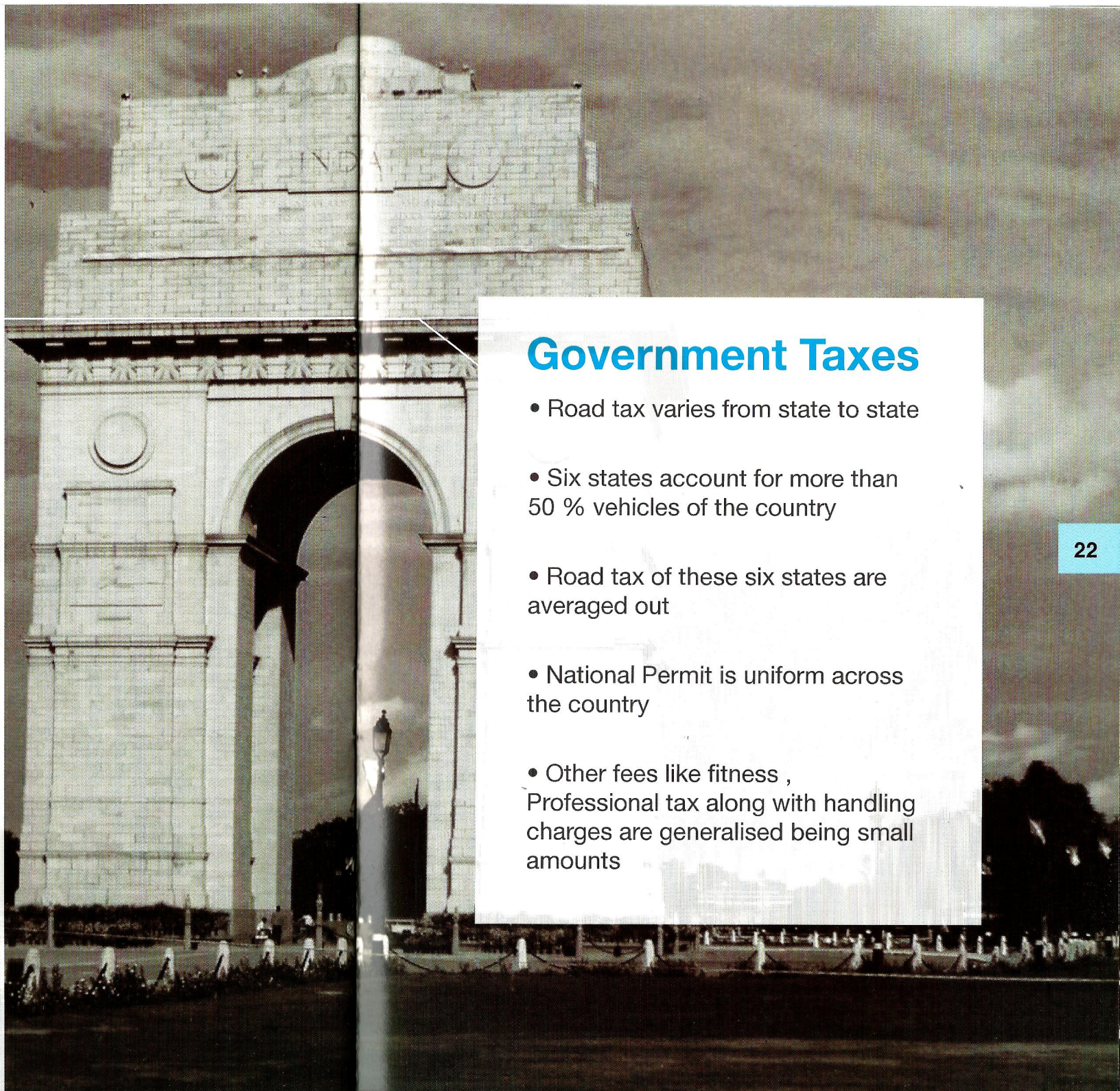
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Government Taxes

- Road tax varies from state to state
- Six states account for more than 50 % vehicles of the country
- Road tax of these six states are averaged out
- National Permit is uniform across the country
- Other fees like fitness , Professional tax along with handling charges are generalised being small amounts

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Expenses

- Insurance quotes for different models are considered
- Maintenance cost is worked out on the basis of AMC contracts of major manufacturers
- Overhead cost of vehicle is generalized being small amount

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Weightage modelwise

Different GVW vehicles have different quantitative presence on highways.

Last two years vehicle sales figure gives the insight about density of vehicles of different capacity

Data relied on – CRISIL report April, 2013

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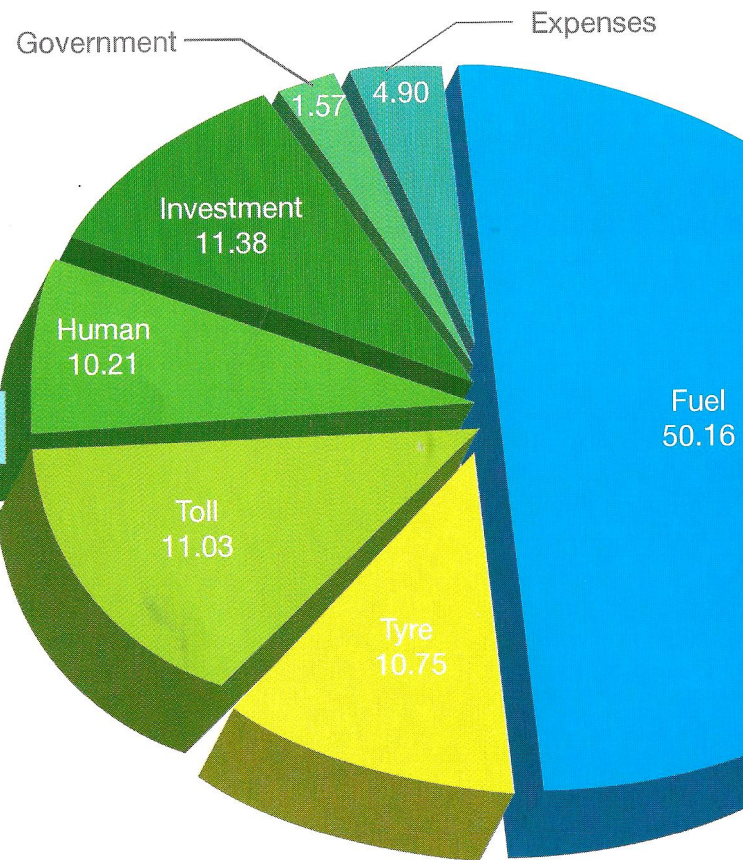


Carriage By Road Cost Index Working Out Final National Index

	GVW	Weightage of Models	Model wise index	Weighted effect of Index
Rigid Trucks	7.5 to 10	08.17	17.20	1.41
	10 to 12	15.73	18.00	2.83
	12 to 16.2	20.93	20.32	4.25
	16.2 to 25	25.55	26.40	6.75
	above 25	20.37	28.38	5.78
Tractor Trailer	26.4 to 35.2	03.51	33.32	1.17
	35.2 to 40	00.27	38.45	0.10
	40 and above	05.47	47.07	2.57
Total		100		24.86

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Transport Freight Index



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Inference

- Like all other Index - CRI is also based on Laspeyres Formula
- It is the weighted arithmetic mean based on the fixed value-based weights for the base period
- This presentation is an indicative study

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Conclusion:

Government has no choice as far as the prices of the important raw materials are concerned. Gone are the days when the Government tried to protect its citizens by absorbing the losses. In present times of reforms, the Government has to prepare the country for the tough decisions. Country cannot afford situation of chaos and confusion at every change. Transport Unions and Associations agitate because they are not safeguarded by the Government and are left to defend themselves against any inflationary step taken by the Government. While implementing such decisions, Government has to see that the burden does not fall as a direct impact on those who use such resources as their inputs. It is the duty of the Government to formulate proper strategy so that the effects of changes get distributed evenly on all stake holders.

Recommendation:

Government of India should form a committee to study this concept of CRI as early as possible. GOI should invite suggestions from all quarters for this new line of thinking and on the basis of that gathered knowledge make the guiding lines.



In a volatile market of variations an Index is the
Lighthouse for all concerned

