

All India Study on Sectoral Demand of Diesel & Petrol

Report

**Petroleum Planning and
Analysis Cell**



Petroleum Planning & Analysis Cell
(Ministry of Petroleum & Natural Gas, Government of India)

By

nielsen
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2013

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Foreword

Pricing of petroleum products like Diesel, Domestic LPG and PDS Kerosene continues to be regulated and subsidized. The subsidy/ under recovery on these products was of the order of Rs. 138,541 crores and Rs. 161,029 crores in 2011-12 and 2012-13 respectively. Diesel alone accounted for 57.8% of the under recoveries (Rs. 173,253 crores) during these two years.

Petroleum products are vital for the economic growth of the country. Out of the total 157.1 MMT of petroleum products consumed during 2012-13, the share of diesel was the highest at 44% (69.1 MMT), while petrol accounted for 10% (15.7 MMT). LPG and SKO accounted for 9.9% and 4.8% respectively.

Out of the total petrol and diesel consumption in the country, more than 99% of petrol and 90% of diesel are currently sold through retail outlets (petrol pumps), for which there is no system of capturing the end-use by sectors and categories. However, data on sector-wise consumption of diesel sold directly by the Oil Marketing Companies (OMCs) is available. The data related to sectoral consumption of these products is an important input for policy formulation, especially as regards subsidies.

The Petroleum Planning & Analysis Cell (PPAC), an attached office of the Ministry of Petroleum & Natural Gas, in association with the PSU OMCs, viz. Indian Oil Corporation Ltd, Bharat Petroleum Corporation Ltd and Hindustan Petroleum Corporation Ltd, commissioned an "All India Study on Sectoral Demand of Diesel & Petrol" through Nielsen (India) Pvt. Ltd., to estimate the shares of various sectors/ segments in diesel and petrol sold through retail outlets (ROs) on state level and on all India basis.

Contd.....2

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The study has been completed, and the report submitted by M/s Nielsen. This was made possible by the efforts of hundreds of enumerators and supervisors for collection of field data from over 2000 retail outlets in 150 districts across 16 states in each of the four rounds, spanning a period of 18 months.

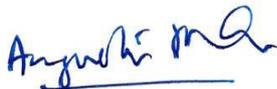
This report provides a very useful insight into the consumption patterns of diesel and petrol across various sectors and segments, on a state, zonal and all India basis.

I would like to thank Shri Rohit Dawar, Additional Director PPAC, Shri Vijay Sethi, former Additional Director PPAC, Shri Rajesh Manocha and Shri Vikram Pathak, Deputy Directors PPAC who were associated with the study and contributed to its timely completion.

I would like to acknowledge the role of the State Level Coordinators of PSU Oil Marketing Companies, retail sales officers and retail outlet dealers for extending their cooperation in carrying out this study.

I hope this report would be useful to the policy makers, industry and academia alike.

New Delhi
20th December 2013


Augustine Peter
Director General, PPAC

Acknowledgement

We are thankful to Petroleum Planning & Analysis Cell (PPAC), Ministry of Petroleum & Natural Gas, Government of India for assigning this study, “All India Study on Sectoral Demand of Diesel & Petrol” to the consultant. We are grateful to Shri Augustine Peter, Director General, PPAC, Shri Rohit Dawar, Additional Director PPAC & Shri Vijay Sethi, former Additional Director PPAC, for extending their support.

The consultant had the pleasure of interacting with the various OMC as well as their representatives at state and zonal level for providing us the required support and help from time to time.

Last but not the least we would like to thank our entire team of research professionals, our field staff across India and support teams for their spirit and enduring cooperation in compiling this compendium of information.

Abbreviations and Acronyms

BTS	Base Transceiver Station
GWh	Giga Watt-Hours
HCV	Heavy Commercial Vehicles
LCV	Light Commercial Vehicles
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MMT	Million Metric Tonnes
MTS	Metric Tonnes
OMC	Oil Marketing Companies
OMCs	Oil Marketing Companies
PPAC	Petroleum Planning & Analysis Cell
PSU	Public Sector Undertaking
RO	Retail Outlet
STC	State Transport Corporation
UPS	Uninterruptible Power Supply
UV	Utility Vehicles



Executive Summary

Diesel and Petrol are strategic commodities; they play a vital role in the socio-economic development of a country. Any uncertainty about their supply can impact the functioning of the economy. In order to reduce this uncertainty it is important to plan and use the resources judiciously. But, before planning, it is essential to understand the consumption pattern of these products. Tentative information pertaining to category-wise overall consumption is available with different sources but there is no correct picture available on category-wise retail sales of Diesel / Petrol, as it is not maintained by dealers operating the retail outlets. It is important to note that during last one decade, retail share in total diesel sale has gone up from 78.5 to 82.1 per cent in 2011-12.

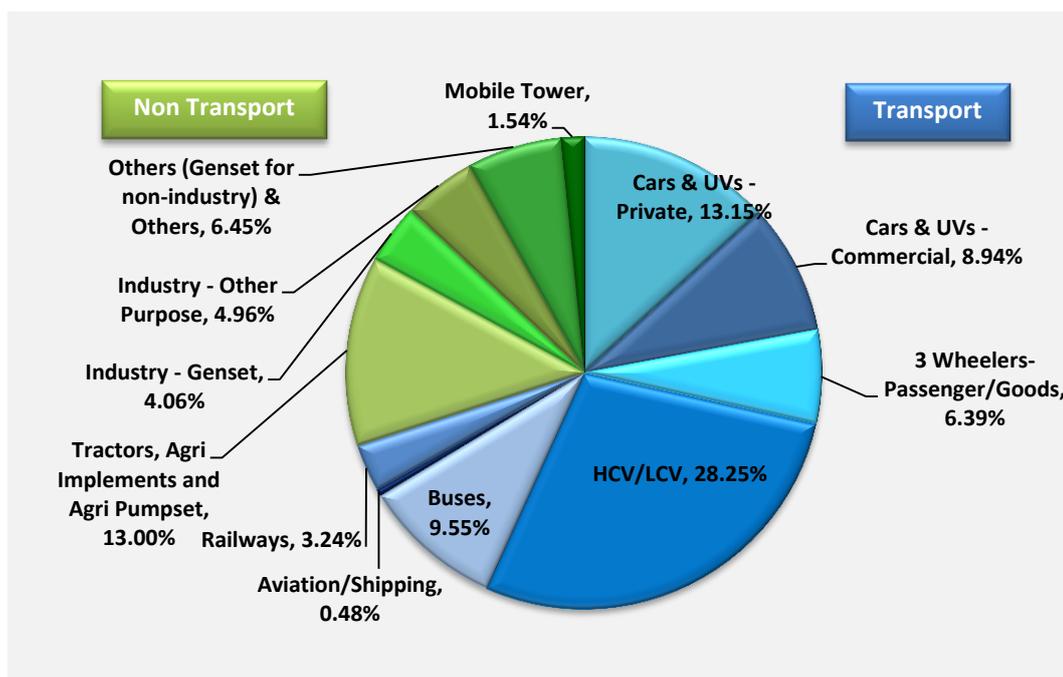
Keeping in mind with the above scenario, Petroleum Planning and Analysis Cell (PPAC), an attached office of the Ministry of Petroleum and Natural Gas, engaged Nielsen India to conduct an in-depth research covering over 2000 retail outlets (RO) spread across 150 districts in 16 states in India. The study was focused to estimate the share of different consuming segments within the transport and non-transport sector for diesel and petrol sold through retail outlets of Public Sector Undertaking (PSU) Oil Marketing Companies (OMCs) on a state-wise, zone-wise and All India basis. To give a more realistic picture, an attempt was also made to put together the direct sales figures (diesel sold directly by the Oil Marketing Companies (OMCs) to bulk consumers like industry, railways, defense, etc.) and retail sales figures to arrive an all India estimate share of different consuming segments within the transport and non-transport sector.

To meet the study objectives, at each RO, retail data was collected through primary survey technique collecting data from the dispensers against the vehicle category /model for vehicle entering for fuelling up for 12 hours (24 hours in case of a RO situated on a highway) for 7 days in a staggered manner. Besides this, direct sales data of diesel provided by PPAC has helped to draw a complete picture of the consumption pattern of diesel at the national level. This exercise was done over four different time periods – January to March 2012, July to September of 2012, October to December of 2012 and April to June of 2013 and the aggregate level data has been arrived both at national and zone

level. PPAC had commissioned Nielsen India to conduct the whole field survey and to submit a comprehensive report keeping in mind the basic objective of the study.

It appears that that transport sector accounts for 70% (both direct and retail sales) consumption of diesel at all India level; LCVs, HCVs and Buses together account for about 38%. This is due to, the large distances that are travelled by commercial vehicles vis-à-vis passenger vehicles. Cars and UVs category contribute nearly 22% of the diesel sales, in which private vehicle consumes little less than 60% of total in this category. This huge private consumption of diesel is due to growing population of UVs and cars, especially amongst private car owners. This segment is expected to grow very fast due to introduction of new generation fuel efficient vehicles by different vehicle manufacturers. Also change in consumer attitude of a particular segment to opt for UVs rather than conventional cars. However, it is interesting to note that there is significant diesel consumption in commercial car and UV segment. Agriculture sector accounts for around 13%. Agri-implements largely stand for Tractor based agri-equipment such as Harvesters, Threshers, etc. Pan India consumption pattern of diesel by transport and non-transport sector for both direct and retail sales has been presented in the following graph below:

Figure 1: All India End-use Share (%) of Diesel in Retail and Direct Sales Combined

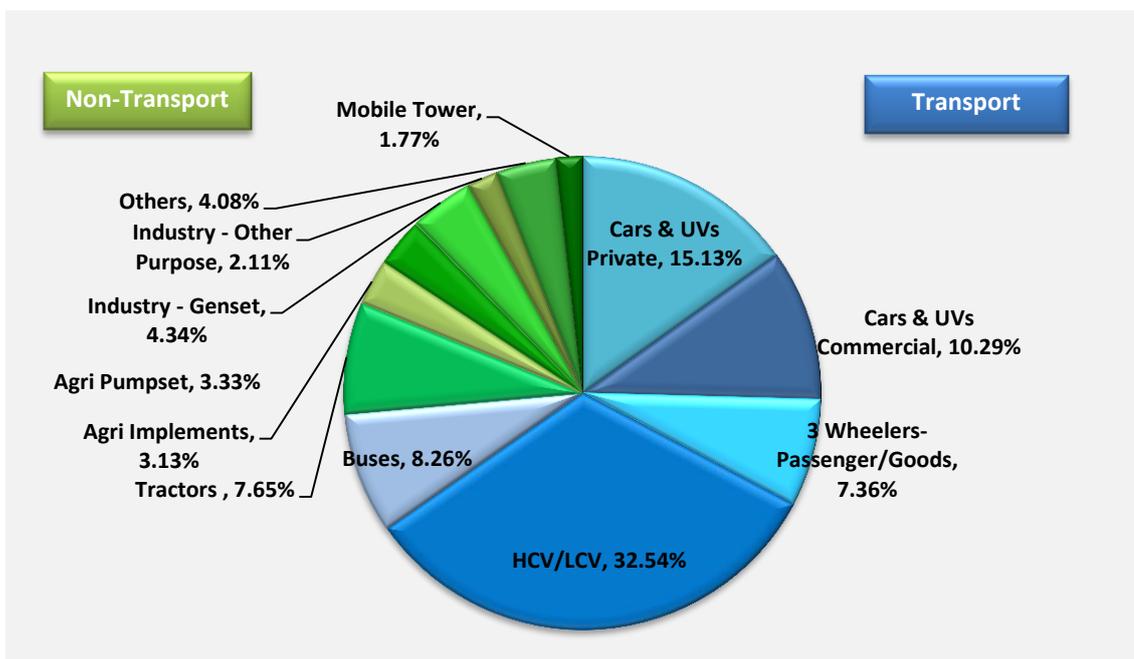


Source: Primary survey of ROs and PPAC

At an All India level, for diesel, the retail sales data echoes similar trend where in transport sector, diesel consumption is maximum in HCV/ LCV/ Buses followed by private cars and UVs. In the non-transport sector, maximum consumption is in agriculture (tractors) followed by gen-set. This may be because tractors are not necessarily used only for agricultural purposes. Today they are also used for commercial purposes, such as for transporting construction material like bricks, stones, mined sand as well as other goods. As the cost remains low for using tractors for the transportation of these materials not only due to lesser fuel consumption, but also because these vehicle enjoy various exemptions like not having to pay toll on highways. It has also been evident from the retail outlet survey that a sizeable quantity of diesel being consumed by infrastructure construction industry, stone crushers, drilling & boring, etc.

Pan India consumption pattern of diesel by transport and non-transport sector for retail sales has been presented in the following graph below:

Figure 2: All India End-use Share (%) of Diesel in Retail

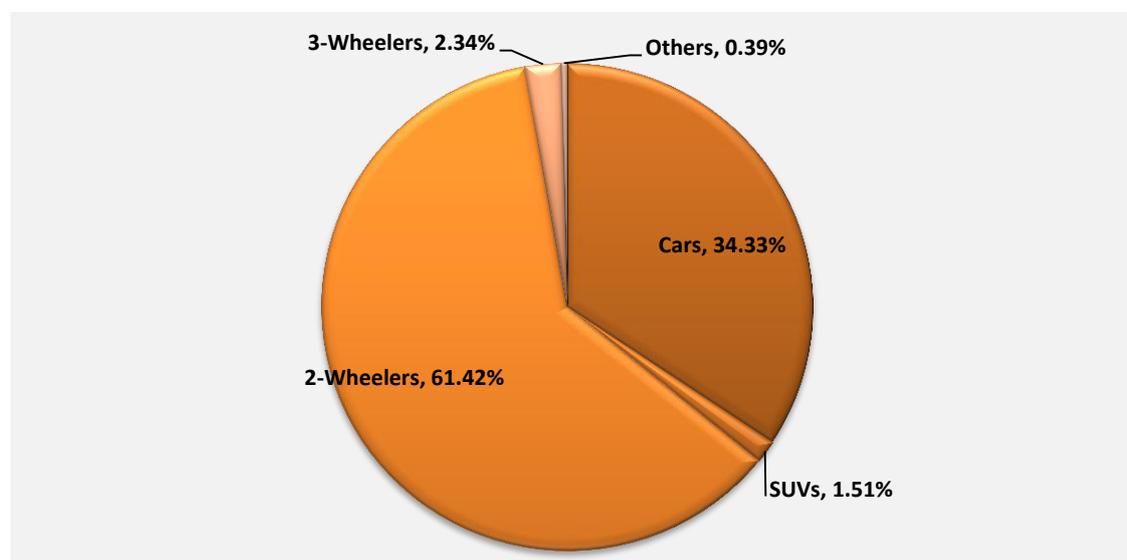


Source: Primary survey of ROs

On the other hand at an All India level, for petrol, study reveals that 2-wheelers segment accounts for the highest consumption at 61.42%. This is because majority of middle-class income population including college students prefer to travel by 2-wheelers, as it is more economical than traveling by car. Whereas

car category contributes for 34% of retail petrol consumption in India as per survey; in the coming years, there can be a significant drop in the consumption of petrol due to increasing price difference between petrol and diesel. Due to this, people prefer to opt for cars run on diesel as they find it to be more economical in the long run, though they are slightly expensive than the petrol driven car at the time of taking out on road. It is interesting to note, 2-wheeler and cars together account for 95% of the total consumption of petrol (retail sales) in India. Pan India consumption pattern of petrol has been presented in the following graph below:

Figure 3: All India End-use Share (%) of Petrol in Retail



Source: Primary survey of ROs

At a zonal level, for diesel (only retail), North zone has the highest share of diesel consumption in non-transport sector and West zone has the highest consumption of diesel in the transport sector. Similar trend is observed in case of HCV/LCV which is over and above the diesel consumption share by all the other categories in the transport sector. This trend is observed across all the four zones. In West zone the consumption share of diesel by HCV/LCV is almost half of the total diesel consumption in the zone. Amongst all the 16 states covered in the study, diesel consumption share by HCV/LCV is highest in the state of Maharashtra. This is due to positioning of large commercial hubs in West zone comprising, Maharashtra and Gujarat vis-à-vis the other states under consideration. Both, Maharashtra and Gujarat are among the top 5 contributing states to the GDP of India. Diesel consumption share in Buses is

highest in South zone, followed by East Zone. This is presumably because South India has a better road infrastructure and many of the privately owned buses not only run intra-state bus also interstate. North zone, consisting of states like Punjab, Haryana and Uttar Pradesh, has the highest share of diesel consumption in tractors, agri-implements, pump-sets and industrial purposes (including gen sets). The reason may be attributed by the fact that agriculture / agro based are the major activity in North India. Punjab, in comparison to all the other states covered in the study, ranks the highest in diesel consumption share by tractors and agri implements. Delhi has the highest diesel consumption share for Industrial back up power purposes which may be due to shortfall of power supply in the state.

In case of cars and UVs, diesel consumption share (private and commercial) is highest in the state of Delhi. This is because Delhi is an important business centre and almost every MNC has a branch/head office in Delhi/NCR. It is interesting to note that for a few states like Haryana and Bihar, the diesel consumption in commercial cars and UVs (with yellow number plates) is less vis-à-vis the other states under consideration. However, there are many cars and UVs without the yellow plates that are being used for commercial purposes in those states as per survey. For zone wise and state wise details of diesel consumption (retail) by transport and non-transport sectors, please refer to the Appendix.

At zonal level, for petrol, across all the four zones, 2-wheelers lead in the consumption share of petrol. Whereas, consumption share of petrol by cars is highest in the North zone. For North and West zone, consumption share of petrol by UVs and 3-wheelers is less than 5% while for the rest two zones; percentage share of petrol in UVs and 3-wheelers is almost double (10%). The consumption share of petrol by 3-wheeler is almost equal in South and East zone, however for North and West zone, the consumption share in 3-wheelers is almost negligible. This is presumably because several auto drivers in North and West zone may have shifted to CNG either by learning that it is more economical for them to run their 3- wheelers on CNG than on petrol or due to government mandate on use of CNG in 3 wheelers. Compared to all states, Orissa leads with highest share of petrol consumption by 2-wheelers. Delhi however is the leading state followed by Punjab in case of petrol consumption

share by cars. Assam has the highest consumption share of petrol by 3-wheelers. Gujarat has the lowest consumption share of petrol by UVs.

In-depth survey was conducted at ROs to those who are buying loose fuel (diesel and petrol) in tanks/ barrels from the ROs. It reveals, in majority of the cases there is an agreement between the RO and owner of bearer of the tank/ barrels where the bearers simply ask for certain quantity of diesel with a less knowledge about exact application of the diesel. The tracer survey reveals that majority is getting consumed to run genset for different application such as for running mobile tower, for electrification at factory/ office, hotels, hospitals as well as for commercial complex including housing complex. This kind of activity is very much rampant in case of urban outlets. Whereas in case of highway or rural outlet it is mainly consumed for running pump set and other agri-equipment as an alternative to electricity. Even in case of rural areas they carry diesel to nearby village for storage and consumption whenever needed.



1.0 Introduction

Energy is the lifeblood of economy of a nation. How the overall role energy can play in the economy of a nation and how it serves as the mainspring of economic growth do not need explanation.

Though India is the world's fourth-largest energy user, its per capita consumption is among the lowest in the world. Stagnant output of crude oil has increased external dependence for its sourcing (77% on consumption basis) and as a result crude oil constitutes the major item in India's import bill. Rising crude oil prices and volatility has negative implications for the Indian economy and the ambition of putting the economy on a higher growth trajectory.

In view of the criticality of energy usage for economic growth, it is imperative for India to formulate appropriate policies and strategies that reduce dependence on crude and product imports and review pricing strategies of regulated products, especially diesel. Lack of information on sectoral demand of diesel and petrol not only poses a challenge for taking policy decisions by the Government, but also creates a deficiency when it comes to demand estimation of these products. This necessitates estimation and analysis of diesel and petrol consumption trends in different sectors/ sub-sectors of the economy.

The other implicit purpose of this study is to bring to the fore the actual facts / statistics pertaining to the recent trend of "dieselization" of private motor transport (at the time of commissioning of the study). Debate was on whether diesel subsidy was flowing to deserving sectors and consumers or largely to the well to do sections of the society. Historically, petrol has always been more expensive than diesel because of higher incidence of taxes on petrol. Since the government has always been wary of increasing diesel prices for its perceived adverse impact on inflation, the price gap of diesel with petrol has been widening. This had led to preference for diesel vehicles vis-à-vis petrol vehicles, leading to 'dieselization' of private motor transport, in particular.

a. Petroleum sector in India at a glance

After Coal, Oil is the largest energy source for the country with a share of about 30.5% in the primary energy consumption basket¹. The high rate of economic growth in the Indian economy has been fuelled by an increasing demand for oil, and consequently, imports of crude oil are also increasing. The indigenous production of crude oil has not been increasing in tandem with consumption and demand for petroleum products. For an emerging economy like India, this gap is likely to increase over the coming years.

- Consumption of petroleum products during 2012-13 was 157.1 million metric tonnes (MMT) (including sales through private imports) which is 6.0% higher than the 148.1 MMT consumed during 2011-12
- During 2012-13 the country imported 184.8 MMT of crude oil and 10.91 MMT LNG against 171.7 MMT and 11.63 MMT respectively during 2011-12.²

Being an environmentally clean fuel, Natural Gas is fast emerging as an alternative to liquid hydrocarbon. Natural Gas presently meets around 8.7% of the primary energy demand¹. Considering the global trend of shift in energy mix from oil to natural gas, the share of natural gas in hydrocarbon consumption in the Indian context is also likely to increase substantially in the days to come.

To meet the growing energy demand over the next few years, India will have to enhance its energy security by procuring energy supplies at affordable prices. While the country has surplus refining capacity and is a net exporter of petroleum products, major investments will have to be made in the domestic upstream industry and to acquire hydrocarbon reserves abroad. To this it seems that the first few steps have already been taken, with the petroleum minister, approving raising crude oil output from Barmer oilfield in the state of Rajasthan, and stating that he is now preparing a roadmap to cut India's energy imports by 50% in next seven years to make India self-reliant by 2030³.

¹ BP Statistical Review of World Energy 2013

² Petroleum Planning & Analysis Cell

³ http://articles.economictimes.indiatimes.com/2013-01-22/news/36484322_1_diesel-prices-petrol-and-diesel-petrol-prices

b. Major petroleum dependant sectors

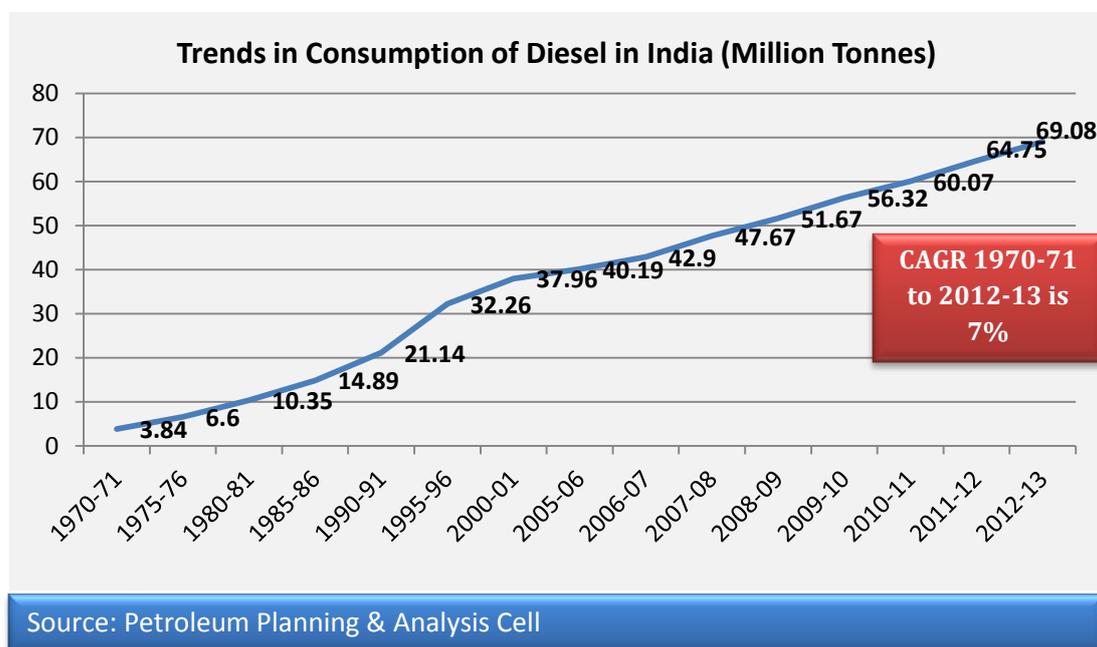
In 2012-13 India depended on foreign crude oil to meet 84.5% of its refinery requirement. However, in terms of domestic consumption of petroleum products, the dependence was significantly lower, at 77%⁴, the remaining import being aimed at production for export markets.

Of the total consumption of all types of petroleum products in 2012-13, high speed diesel oil accounted for 43.98%. This was followed by Petrol (10.02%), LPG (9.93%) and Naphtha (7.82%)⁴.

i. Diesel

The following table shows the trend in consumption of diesel in India over a period of 32 years.

Figure 4: Trends in Consumption of Diesel in India (Million Tonnes)



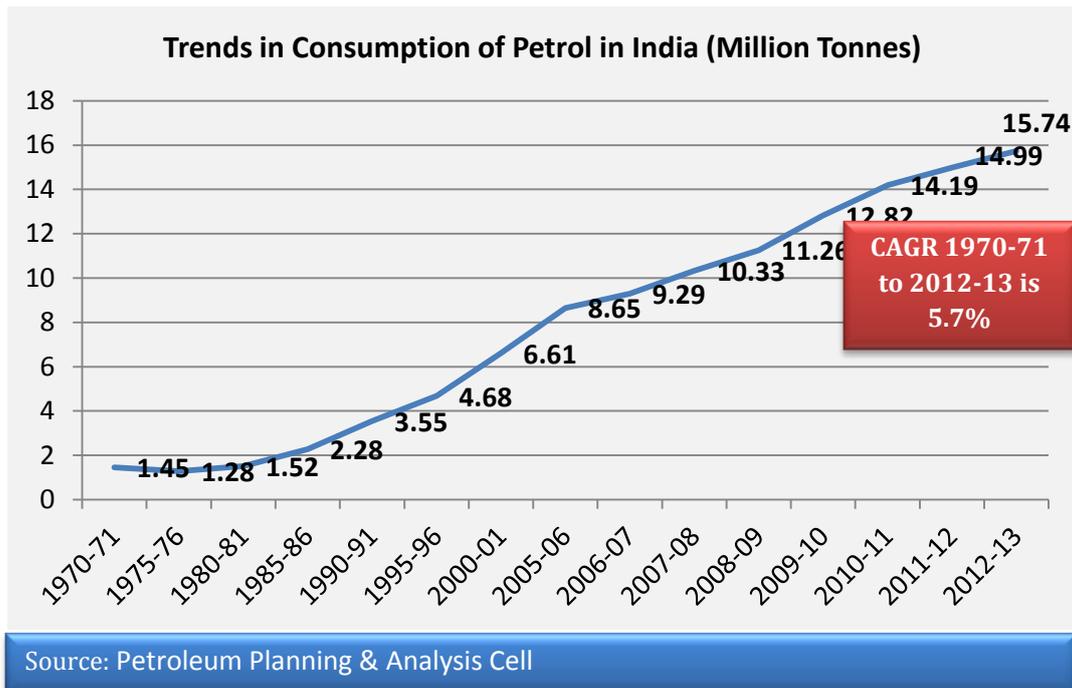
Diesel is mainly used in the road transport, agriculture, industry and power generation sectors.

⁴ Petroleum Planning & Analysis Cell

ii. Petrol

The following table shows the trend in consumption of petrol in India over a period of 32 years.

Figure 5: Trends in Consumption of Petrol in India (Million Tonnes)



Motor Spirit (MS), Motor Gasoline, Petrol and Gasoline are terms interchangeably used in India for this light distillate product of refineries. Motor spirit (MS) is used as a transportation fuel in vehicles such as passenger cars, two-wheelers and three-wheelers.

c. Trends in consumption pattern of diesel

i. Transport sector

Due to lower price of diesel and widening price gap with petrol, there was a surge in the demand for diesel models in most of the passenger vehicle segments, despite the petrol variants being priced cheaper. Another complementing factor was the relatively higher fuel efficiency of diesel models. These two factors can be presumed to be the prime reasons for impacting the sales of petrol vehicles for the first time in history during 2011-12. Many models that were offering both the fuel options, the diesel variants accounted for as much as 80% of sales during 2011-12. According to the Society of Indian Automobile Manufacturers (SIAM), the proportion of diesel car sales to total sales has steadily risen from 21.4% in FY08 to 28.42% in FY11. However, in FY12, at least 40% of the total cars sold in the country run on diesel⁵.

Seeing this trend many top makers like Maruti, Hyundai and Ford have announced investments to boost diesel engine capacity. However, in case of complete deregulation of diesel prices, there may be some moderation in the rush for diesel cars. But then as per industry experts, an increase in diesel price will have very little impact on UV and commercial vehicle demand, but may slightly shift demand to petrol driven cars in the passenger car segment in the small and mid-range.

⁵ <http://timesofindia.indiatimes.com/business/india-business/Surge-in-sales-of-diesel-cars-may-ease/articleshow/18067725.cms>

ii. Non-Transport sector

Tractors and Agri-implements

In terms of volume, India is one of the largest tractor markets in the world, besides China and the USA. The prospects of domestic industry are highly linked to monsoon which remains a key factor in determining agricultural production. Better irrigated states like Punjab and Haryana have a high tractor density (over 100 per 1,000 ha), while Rajasthan, Gujarat, Himachal, Tamil Nadu, Maharashtra, Andhra, Madhya Pradesh and West Bengal have low levels of tractor penetration—a pointer to the substantial growth potential that the latter set offers. On an all-India basis, tractor penetration remains low at around 13 per 1,000 ha. Besides their use in farming, tractors find application in activities such as harvesting and irrigation, land reclamation, drawing water, powering agricultural implements and rural transportation. In addition, lately, the tractors are also being used for non-agricultural purposes including haulage in construction and infrastructure projects, which has expanded the tractor market.⁶ For the financial year 2013-14, growth is expected to be modest and industry expects volume to expand by 5%-7%.⁷

Also, there is expected to be a rise in use of farm tools that run on diesel, as lately farmers in India have learnt that mechanisation is important as it can help them in raising their farm income by increasing productivity and limiting post-harvest losses. And with convenient and tailor made finance options it has become much easier for them to buy tractors, tillers or other agricultural-implements.

Generators

The power shortage in India is of the order of about 9%: at peak periods it goes up to 18%. In some regions it is worse. The deficit is increasingly being met through power produced by diesel and heavy fuel oil-powered generating sets. The power backup market in India is growing at an annual rate of 10-15% due

⁶ IUP Journal of Marketing Management, May 2013

⁷ Indian Tractor Industry – ICRA Research Services, October 2013

to rising demand-supply gap, however varying within the three different segments – generators, UPS and inverters.⁸

Agri-pumps

Pumpsets in India are used in domestic, agriculture, construction and industrial sectors. Agriculture sector leads the usage of pumps in India with prominent uses like irrigation. The number of farmers using diesel powered pumps is high in villages having remote or minimal access to electricity. However, there too, poor farmers are ignorant of the fact that using efficient and technologically advanced pumps will be beneficial to them by bringing down the fuel usage.

Mobile Towers

In the telecom sector, service providers have started infrastructure sharing in order to save capital cost and the cost of fuel needed to operate the Base Transceiver Station (BTS). In the coming days, this transformation may reduce the consumption of diesel in mobile sites.



⁸ Construction Week, Business Line

2.0 Study Background

The total diesel sold in the country during 2012-13 was 69,080 TMT and petrol 15,744 TMT. While diesel constitutes about 44% of total consumption of petroleum products in India, petrol accounts for about 10%.

Out of the total petrol and diesel sales in the country, more than 99% of the petrol and 90% of the diesel is sold through retail outlets (petrol pumps), for which there is no system of capturing the consumption data of the sectors and categories based on their end-use. However, the sector-wise consumption of diesel sold directly by the Oil Marketing Companies (OMCs) for bulk consumers like industry, railways, defense, etc. is available. The data related to sectoral consumption of these products is an important input for any policy formulation.

This study (i.e. All India Study on Sectoral Demand for Diesel and Petrol) commissioned by Petroleum Planning and Analysis Cell (PPAC) aims at providing critical inputs through Retail data on sector wise consumption of Diesel and Petrol from ROs for the intended strategic/ policy interventions. PPAC commissioned Nielsen (India) Pvt. Ltd. to carry out quarterly sample surveys across a specified number of selected retail outlets of PSU OMCs for arriving at the sectoral/ segment wise demand of Petrol & Diesel sold through retail outlets.

3.0 Research Objective

The broad objective of the study was to estimate the percentage share of sectors/ segments in consumption of Diesel and Petrol sold through retail outlets on a state-wise, zone-wise and all India basis.

4.0 Scope of work of the study

As per the terms of reference, the scope of work for this study was:

- To capture the consumption trend for diesel across the following sub-categories:
 - Cars & Utility Vehicles (UVs) – Private
 - Cars & UVs – Commercial
 - Buses
 - Light Commercial Vehicles (LCVs) & Heavy Commercial Vehicles (HCVs)
 - Agriculture (Tractors, Pump Sets, Other Agri Equipment)
 - Power Generation (Gensets)
 - Industrial Applications
 - Others (such as Mobile Towers etc.)

- To capture the consumption trend for petrol across the following sub-categories:
 - Cars
 - 2- Wheelers / 3-wheelers
 - UVs
 - Others, if any

5.0 Methodology & Coverage

This study was conducted in four phases, wherein each phase consisted of a stint of three months. This was done to understand the percentage change and factors for change in consumption pattern for both diesel and petrol at different time periods at state, zonally and all India level.

This study encompasses minimum 2000 Retail Outlets (ROs) spread across 150 districts in 16 states.

a. Selection of districts in each of the identified states

16 states were selected for this study, which constituted 85% of the total sales of diesel and petrol in India (during 2011-12).

To shortlist the districts within each of the identified states:

- Firstly, the numbers of districts in each of the identified state were listed.
- Then the ratios were calculated – number of districts in each identified state to the aggregate number of districts in these states.
- Based on these ratios, one arrived at the final number of districts to be covered in each of the 16 states.

Then the selection of urban and rural districts in these states was done based on the vehicle population data, as well as the past sales volume of petrol and diesel. (The final go ahead was taken only after the approval of the committee members of PPAC).

Table 1: Selection of Districts in Each of the Identified State

S. No.	States	No. of Districts	Proportion	No. of districts to be covered
1	Andhra Pradesh	23	0.05	7
2	Assam	27	0.06	8
3	Bihar	38	0.08	12
4	Delhi	9	0.02	3
5	Gujarat	26	0.05	8
6	Haryana	21	0.04	7
7	Karnataka	30	0.06	9
8	Kerala	14	0.03	4
9	Madhya Pradesh	50	0.10	16
10	Maharashtra	35	0.07	12
11	Orissa	30	0.06	9
12	Punjab	20	0.04	6
13	Rajasthan	33	0.07	10
14	Tamil Nadu	32	0.07	10
15	Uttar Pradesh	75	0.16	23
16	West Bengal	19	0.04	6
Total		482	1.00	150

b. Selection of retail outlet

The retail outlets were selected from the list of outlets provided by OMCs for each district. OMCs provided a list of 20 ROs per district in consultation with the joint coordination committee of PPAC and OMCs. Of these 20 ROs, in agreement to the sample size, 13-14 ROs were selected per district by Nielsen, taking into consideration the sales volume and class market catered, so as to cover all types of ROs (i.e. A, B, C, D, and E).

Table 2: State Wise RO Coverage

S. No.	State	Total ROs covered
1	Andhra Pradesh	89
2	Assam	100
3	Bihar	173
4	Delhi	45
5	Gujarat	107
6	Haryana	99
7	Karnataka	117
8	Kerala	59
9	Madhya Pradesh	178
10	Maharashtra	150
11	Orissa	112
12	Punjab	87
13	Rajasthan	145
14	Tamil Nadu & Pondicherry	131
15	Uttar Pradesh	325
16	West Bengal	89
TOTAL		2006

In this way the final list of ROs to be covered for this study for each district was prepared and the same was shared and discussed with PPAC and OMCs before launching of field work.

c. Operational methodology

To collect the data in order to meet the research objectives, there were two sets of questionnaires that were administered at each of the identified RO.

Figure 6: Operational Methodology

Observation Sheet

- Enumerator had to be physically present at the RO and note down the volume of fuel filled from the dispensers against the vehicle category /model for each vehicle entering the RO and also capture the loose sales of petrol and diesel
- For each RO, this exercise was carried out for 12 hours for 7 days in a staggered manner across the quarter. In case an identified RO was situated on a highway, instead of 12 hours the same exercise was done for 24 hours for 7 days in a row
- In order to perform this assignment, Nielsen ensured that sufficient enumerators are allocated to each RO depending on the location and traffic that comes in and out of that RO. However, it must be noted that 2 wheelers count as well as volume was not taken into account in case of metros /mini metros and Class 1 towns as it was practically not possible.

Outlet Questionnaire

- This questionnaire was administered to the outlet owner/manager by the supervisor on duty, in order to have a bird's eye view of the filling pattern, volume, type of vehicles that are coming to their RO, hours of operation, seasonality and more.

As per the sampling frame, 13 to 14 ROs were allotted to each district. To cater to these 13-14 ROs, a team of 5 to 6 investigators were allotted to a district in each state and as per the location and traffic coming to the RO, 2 to 3 enumerators were allotted to each RO. In some cases only one enumerator was also there. The investigators were responsible for taking down observations for both the transport and non-transport segment. In case of non-transport segment i.e. for loose sales in cans, barrels containers, etc., the respondents were interviewed to find out the quantity, frequency and the purpose of this purchase. In certain cases, even the addresses for such kind of consumers were noted so that they could be traced and interviewed. In this way, close to 1000 households/consumers were interviewed in each phase,

belonging to various selected districts to understand the purpose and quantity of the loose diesel purchased from the covered ROs.

To ensure data consistency and accuracy, multiple checks were performed at various levels. Also, multiple layers were rooted during the course of the study to have a close control and monitoring at the grass root level. Each state had a supervisor and each day, every enumerator had to report to the supervisor of their respective state and brief them on the developments of the fieldwork. Apart from supervising, each supervisor was also responsible to carry out the necessary back checks of the work out carried by enumerators in each district of their respective state and also be in touch with the local sales officer/OMC for any issues or clarity while conducting the fieldwork.

All the ROs were monitored by Nielsen supervisors without the knowledge of enumerators, who were locally sourced. It was ensured that all the 2000 ROs were contacted on their land line numbers to confirm the presence of the enumerator on the field and to confirm that necessary signature with stamping was done on the daily sheets from the authorized representative of respective RO. Also, a feedback from all the ROs was taken regarding the enumerators.

d. Time period

The time periods were selected in consultation with PPAC. The first phase of survey was from January till March 2012, the second phase of survey was from July till September 2012, the third phase of survey was from October till December 2012 and the last phase of survey was from April till June 2013.

6.0 Geographical coverage

The survey carried out in sixteen States constitutes 85% of the total sales of diesel and petrol in India. Zone-wise states covered as part of the survey are as follows:

Table 3: Geographical Coverage

Zones	States
East	Assam, Bihar, Orissa, West Bengal
North	New Delhi, Haryana, Punjab, Rajasthan, Uttar Pradesh
South	Andhra Pradesh, Karnataka, Kerala, Tamil Nadu
West	Gujarat, Madhya Pradesh, Maharashtra

a. State wise coverage

Table 4: State Wise Coverage

State	Total Districts covered	Total RO covered	IOCL	HPCL	BPCL
Andhra Pradesh	7	89	34	31	24
Assam	8	100	84	8	8
Bihar	12	173	88	36	49
Delhi	3	42	25	9	8
Gujarat	8	108	48	31	28
Haryana	7	99	46	28	25
Karnataka	9	117	54	32	31
Kerala	4	59	31	14	14
Madhya Pradesh	16	178	74	50	54
Maharashtra	12	154	50	46	58
Orissa	9	112	53	27	32
Punjab	6	87	36	21	30
Rajasthan	10	145	65	40	40
Tamil Nadu	10	131	47	37	47
Uttar Pradesh	23	325	163	74	88
West Bengal	6	87	37	20	30
TOTAL	150	2006	935	504	567

b. List of States, Districts and number of retail outlets covered

Figure 7: Distribution amongst Category of Retail Outlets

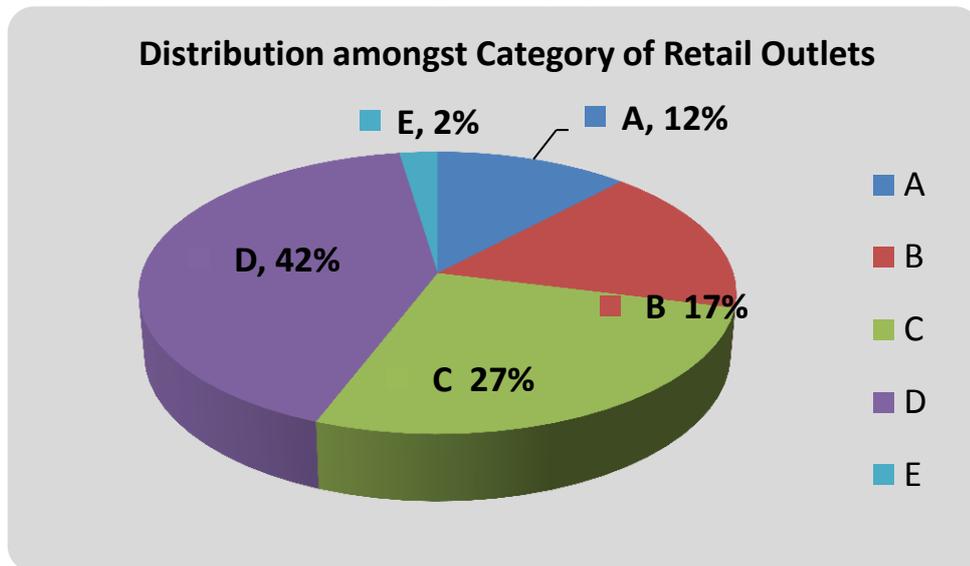


Table 5: District Wise RO Coverage

State	District	Retail Outlets Covered
Andhra Pradesh	Anantapur	12
	Hyderabad	13
	Medak	14
	Nellore	14
	Srikakulam	14
	Visakhapatnam	14
	Vijayanagaram	12
	Assam	Barpeta
Dhubri		12
Lakhimpur		13
Nagaon		13
Kamrup Metropolitan		18
Golaghat		13
Tinsukia		12
Karimganj		10
Bihar		Begusarai
	Bhagalpur	13
	Darbhanga	13
	Gaya	14
	Muzaffarpur	13
	Nalanda	13
	Patna	14
	Purnea	13
	Rohtas	14

State	District	Retail Outlets Covered
	Saharsa	12
	Vaishali	13
	West Champaran	14
Delhi	East	14
	North West	14
	South	14
Gujarat	Ahmedabad	14
	Anand	14
	Bharuch	9
	Mehsana	14
	Patan	14
	Rajkot	13
	Surat	12
	Surendranagar	14
Haryana	Bhiwani	15
	Gurgaon	14
	Hissar	15
	Karnal	13
	Palwal	12
	Panipat	13
	Sonepat	14
Karnataka	Bangalore	12
	Belgaum	13
	Chikaballapur	14
	Chitradurga	14
	Davangere	17
	Gulbarga	13
	Kolar	11
	Mysore	13
	Tumkur	12
Kerala	Kannur	13
	Wayanad	12
	Trivandrum	15
	Ernakulam	12
Madhya Pradesh	Ashoknagar	14
	Bhopal	13
	Damoh	13
	Dewas	13
	Dhar	13
	Gwalior	13
	Indore	13
	Khandwa	12
	Mandsaur	12
Morena	13	

State	District	Retail Outlets Covered	
	Neemach	12	
	Rajgarh	17	
	Rewa	14	
	Sagar	13	
	Shajapur	12	
	Ujjain	13	
	Maharashtra	Ahmednagar	13
Bhandara		12	
Dhule		13	
Kolhapur		13	
Mumbai		14	
Mumbai Sub Urban		13	
Nagpur		13	
Nasik		13	
Pune		13	
Satara		13	
Solapur		14	
Thane		13	
Odisha		Khurda	20
		Boudh	3
	Cuttack	19	
	Gajapati	3	
	Kendrapara	14	
	Keonjhar	13	
	Bhadrak	13	
	Puri	19	
	Sundergarh	14	
	Punjab	Bhatinda	11
Faridkot		13	
Patiala		13	
Sangrur		15	
Ludhiana		13	
Tarn Taran		13	
Rajasthan		Ajmer	14
	Banswara	14	
	Barmer	14	
	Bharatpur	14	
	Bhilwara	14	
	Chittorgarh	14	
	Jaipur	14	
	Jodhpur	14	
	Kota	14	
	Udaipur	14	
	Tamil Nadu	Chennai	16

State	District	Retail Outlets Covered
	Coimbatore	13
	Erode	13
	Karur	13
	Namakkal	15
	Perambalur	14
	Krishnagiri	13
	Tuticorin	13
	Thiruvarur	13
	Tirupur	13
Uttar Pradesh	Agra	14
	Allahabad	14
	Bareilly	14
	Basti	14
	Ballia	14
	Bijnore	13
	Bulandshahar	14
	Deoria	14
	Faizabad	14
	Gorakhpur	14
	Goutam Budh Nagar	14
	Ghaziabad	14
	Kanpur Nagar	14
	Lucknow	14
	Mathura	14
	Mau	14
	Meerut	14
	Mirzapur	14
	Pilibhit	14
	Sitapur	14
	Saharanpur	14
	Unnao	14
	Varanasi	14
West Bengal	Bardhaman	14
	Darjeeling	14
	Kolkata	14
	Malda	13
	North 24 Parganas	14
	Purba Madinipur	14

7.0 All India Consolidated Retail Results

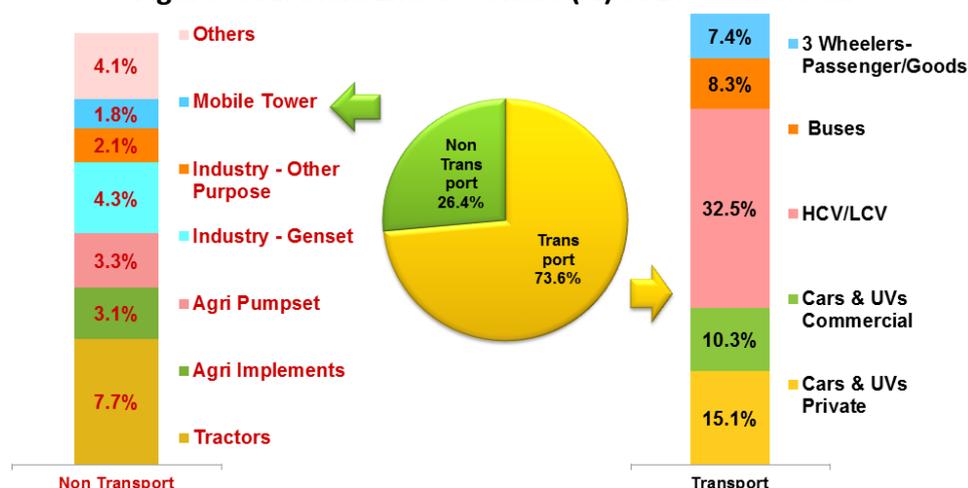
This section talks about the all India aggregate consumption of diesel and petrol through retail sales. This section also entails zone-wise and state-wise consumption of Diesel and Petrol. As data pertaining to state-wise direct sales of diesel by OMCs is not available, the state-wise consumption pattern of diesel is based on retail sales only. As regards petrol, since around 99% of the petrol sold is through the retail outlets, the state-wise as well as the all India consumption pattern is based on retail sales only. After completion of the first round of field survey (January to March, 2012), the results of were presented to the Ministry and to the OMCs. It was observed that there was under-representation of highway outlets having substantial share in diesel sale in the sample, which would distort the results. Therefore, the sample was revised and made representative before conducting the 2nd, 3rd and 4th rounds. For aggregation purposes, therefore, the results of the first round have not been taken into account. The figures and tables presented in this section are based on data collected over three rounds - July to September of 2012, October to December of 2012 and April to June of 2013.

a. All India Consolidated Findings – Retail sales

Diesel

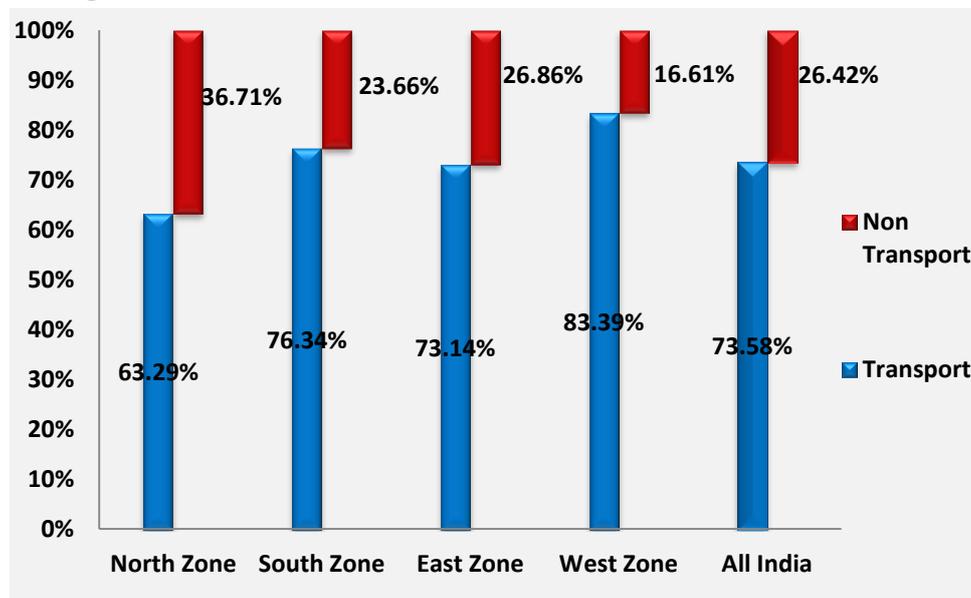
At an aggregate all India level, under the transport sector, diesel consumption is maximum in HCV/LCV followed by private cars and UVs. This huge variance in consumption is due to, the large distances that are travelled by commercial vehicles vis-à-vis passenger vehicles.

Figure 8: All India End-use Share (%) of Diesel in Retail



On the other hand for all India basis, in the non-transport sector, diesel consumption is maximum in tractors followed by industry genset. Plausible reason can be that, tractors are not necessarily used only for agricultural purposes. Today they are also used for commercial purposes, such as for transporting construction material such as bricks, stones, mined sand as well as other goods. As the cost remains low for using tractors for the transportation of these materials not only due to lesser fuel consumption, but also because these vehicle enjoy various exemptions like not having to pay toll on highways.

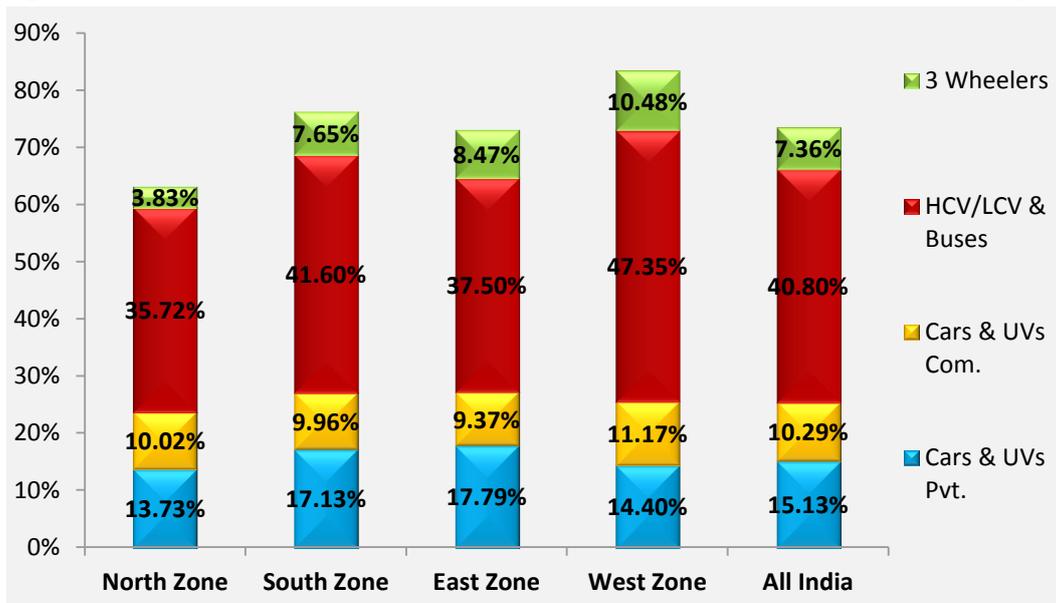
Figure 9: All India End-use % Share of Diesel in Retail – Zone Wise



North zone has the highest share of diesel consumption in non-transport sector and West zone has the highest consumption of diesel in the transport sector.

In the North zone, the diesel consumption share in transport sector is comparatively less than that of non-transport sector when compared to the other three zones. This is due to the extensive agricultural activities in the states considered under North zone (especially Punjab and Haryana) where majority of people make their livelihood through agriculture and therefore, to have high crop yield they might be making extensive use of tractors and other agricultural equipment's like power tillers etc. that run on diesel.

Figure 10: All India End-use % Share of Diesel in Retail – Zone Wise for Transport

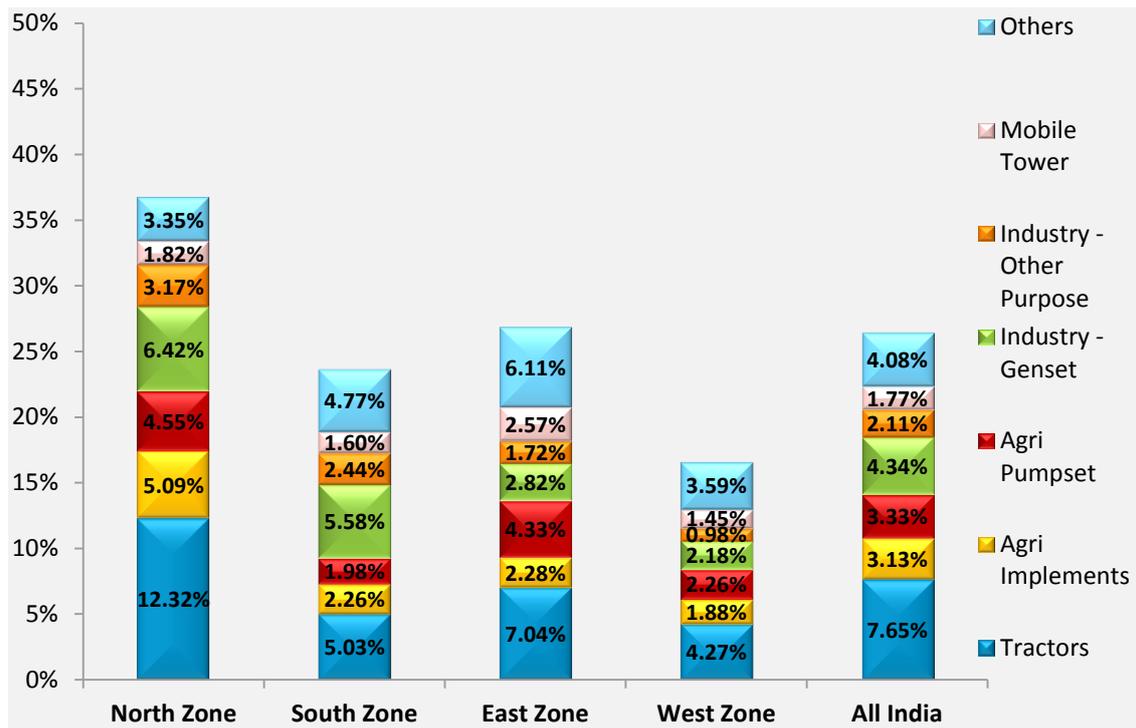


At an all India level, the diesel consumption by volume in the transport sector is the highest in the commercial and buses category (40.80%) followed by cars and UVs (25.42%). Consumption by Private cars and UV is 15.13%.

Here, the interesting point to note is that the diesel consumption in the HCV/LCV for West zone is very high compared to North, East and South zone. This is presumed to be due to more commercial activities in West zone comprising of Maharashtra, Gujarat and Madhya Pradesh vis-à-vis the other three zones. For the financial year 2010-11, Maharashtra contributed 25 per cent⁹ of the country's industrial output and 23.2 per cent of its GDP; this might be the reason for high diesel consumption in the HCV/LCV for West zone.

⁹ <http://www.rediff.com/business/slide-show/slide-show-1-top-25-states-with-highest-gdp/20120223.htm>

Figure 11: All India End-use % Share of Diesel in Retail – Zone Wise for Non-Transport



At an all India level, the diesel consumption by volume in the Non-Transport sector is the highest in tractors (7.65%) followed by Industry genset (4.34%).

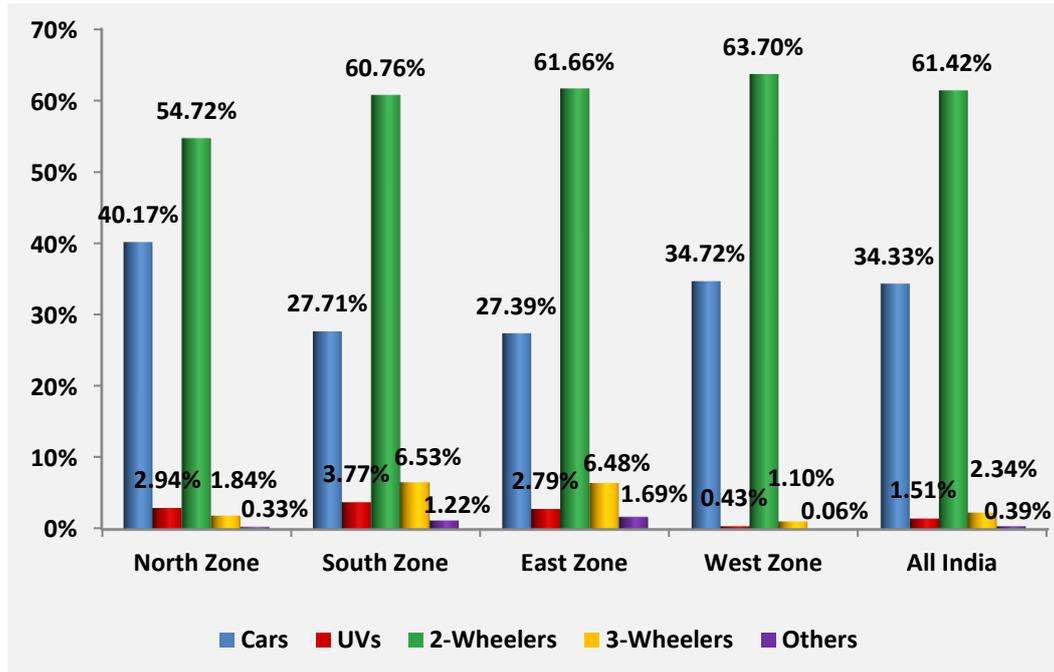
Though the shortage of electricity is a problem in states such as Delhi, Uttar Pradesh, Bihar, Tamil Nadu, Karnataka etc., the country faced a huge power deficit of over 12,000 MW¹⁰ during the peak hours in the last financial year, but it's somehow interesting to note that for some states this gap is significantly less vis-à-vis other states. This conclusion can be inferred from the above diagram, where the diesel consumption by volume for Industry gensets in West zone is almost 1/3rd to that of North Zone.

It is also interesting to note that the diesel consumption by volume for agri pumpset is least in South zone followed by West zone. However, it is presumed that this may differ year on year, as use of agri pumpset is inversely relational to the amount of rainfall. But still, the possibilities of better irrigational systems in South zone than the rest of the zones cannot be ruled out.

¹⁰ [http:// articles.economictimes.indiatimes.com/2013-04-14/news/38529356_1_peak-power-deficit-power-shortage-central-electricity-authority](http://articles.economictimes.indiatimes.com/2013-04-14/news/38529356_1_peak-power-deficit-power-shortage-central-electricity-authority)

Petrol

Figure 12: Petrol-Retail Consumption Break-up (All India) – Zone Wise Aggregate



The consumption of petrol in terms of volume for 2-wheelers is highest in the West zone (63.7%) followed by East and South zone. North zone has the lowest consumption of petrol in terms of volume for 2-wheelers, and highest consumption of petrol for 4 wheelers.

The 3-wheeler consumption of petrol in terms of volume is almost equal in South and East zone, however for North and West zone, the consumption of petrol in terms of volume in 3-wheelers is almost negligible.

This is presumably because several auto drivers in North and West zone may have shifted to CNG due to one of the following reasons:

- Auto drivers learnt the fact that it is more economical for them to run their 3- wheelers on CNG than on petrol.
- Due to government mandate on use of CNG in 3 wheelers

b. All India Zone wise findings - Retail sales

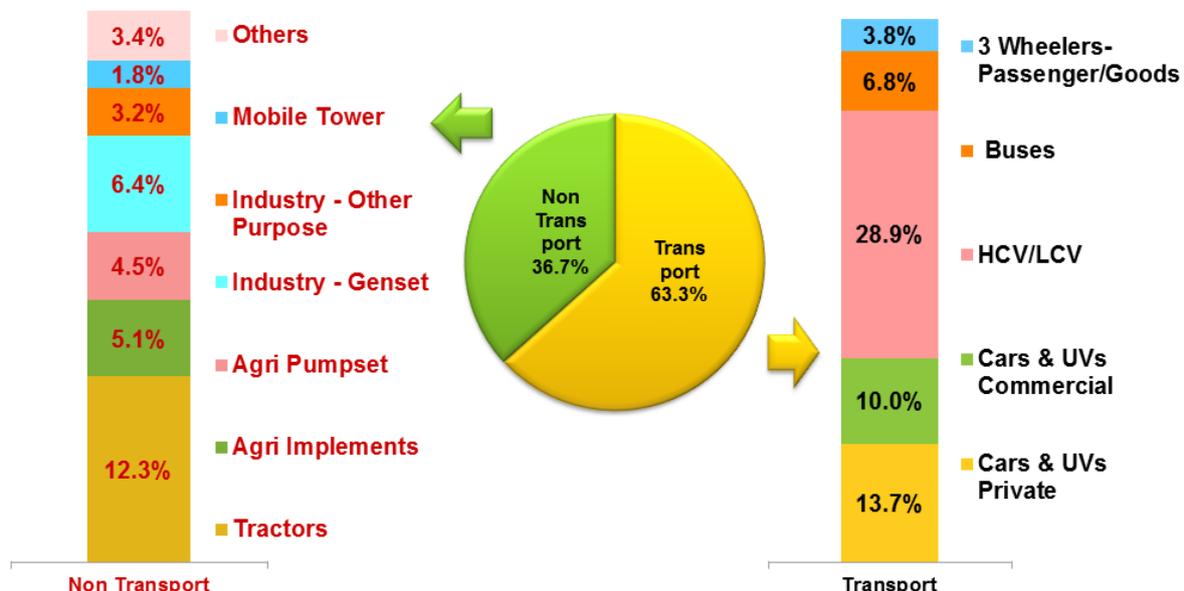
i. North Zone’s break up in consumption of Diesel and Petrol - Exclusively Retail

In the Transport sector of North zone, diesel consumption is maximum in HCV/LCV (28.9%), followed by Private Cars and UVs (13.7%).

In the Non-Transport sector, diesel consumption is the maximum in tractors (12.3%).

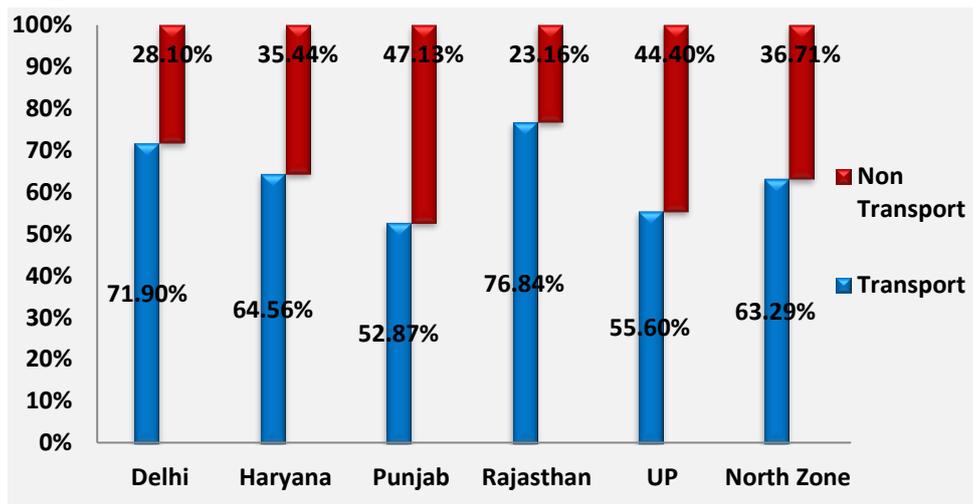
Diesel consumption in tractors, Agri-implements and Agri-pump sets congregated together is approximately 22% of the total diesel consumption in North zone. This tells that agriculture is the main industry in North zone of India. Surprisingly, for South, West and East zones, the diesel consumption in tractors, Agri-implements and Agri-pump sets grouped together is only 13.6%, 9.3% and 8.5% of the total diesel consumption in respective zones.

Figure 13: North Zone End-use Share (%) of Diesel in Retail – Final



Diesel consumption in the transport sector of North zone is maximum in the state of Rajasthan and least in Punjab. This may be due to lesser agricultural activity in Rajasthan.

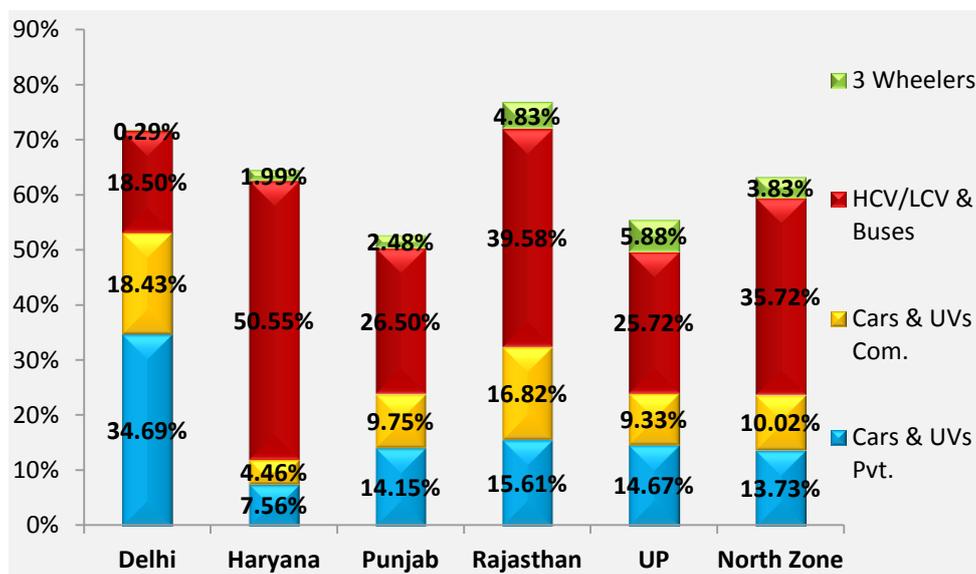
Figure 14: North Zone End-use % Share of Diesel in Retail – State Wise



In North zone, Delhi has the highest diesel consumption in private cars and UVs at 34.7%. It is interesting to note that in Haryana, there is diesel consumption of only 4.5% in commercial cars and UVs. This is presumably because, for this study only the cars and UVs with yellow number plates have been taken into account under the commercial cars and UVs segment. However, there are many cars and UVs without the yellow plates that are being used for commercial purposes, which have not been considered.

Diesel consumption in HCV/LCV and Buses segment in Haryana is the highest, presumably because long distance commercial vehicles are refuelling diesel in Haryana due to price advantage as compared to neighbouring states.

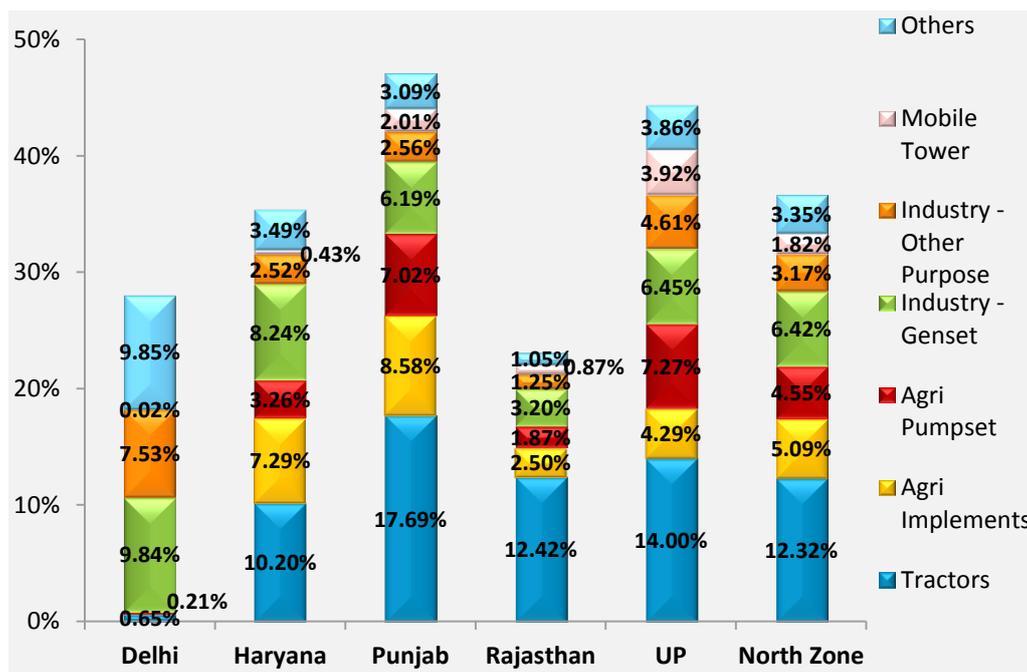
Figure 15: North Zone End-use % Share of Diesel in Retail – State Wise for Transport



In Delhi, the diesel consumption for Industrial back up power purposes is almost 17.3%. This is presumably because of the shortfall of power supply. About 58 per cent of the shortfall in the state is met by purchasing power through long-term power purchase agreements (PPA) with power generators in other states and a further 13 per cent of the shortfall is met by purchasing power on a short-term basis from other states or on the spot market¹¹. In coming times, the situation may worsen, as the states that Delhi relies on for its additional power, need to bridge their deficits and might be less willing to meet Delhi’s continued and growing need for power.

In Uttar Pradesh, the diesel consumption for running of mobile towers is 3.9%. This presumably is because Uttar Pradesh has the highest number of BTS installed in a state in India, almost 12 per cent¹², and to keep the mobile towers operational, diesel is essential.

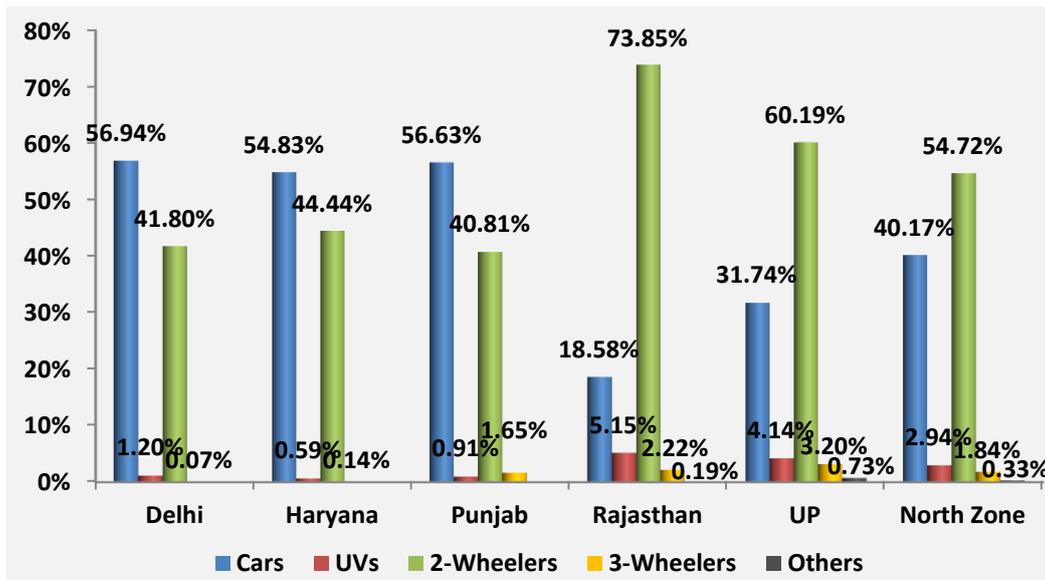
Figure 16: North Zone End-use % Share of Diesel in Retail – State Wise for Non-Transport



¹¹ <http://www.thehindu.com/todays-paper/tp-national/tp-newdelhi/sun-holds-key-to-end-delhis-power-shortage/article4947300.ece>

¹² <http://telecomtalk.info/india-has-736654mobile-towers-and-only-96112bts-are-3g-enabled/103422/>

Figure 17: Petrol-Retail Consumption Break-up (North Zone) – State Wise



The state of Rajasthan leads in North zone in consumption of petrol by 2-wheelers (73.85%) whereas Delhi leads in consumption of petrol in cars (56.94%).

Interesting point to note is that in Delhi, the petrol consumption for 3 wheelers is almost zero. This may be due to the mandate by state government on use of only CNG for 3 wheelers.

Another point noteworthy is that the state of Rajasthan leads amongst all states in percentage consumption of petrol by UVs.

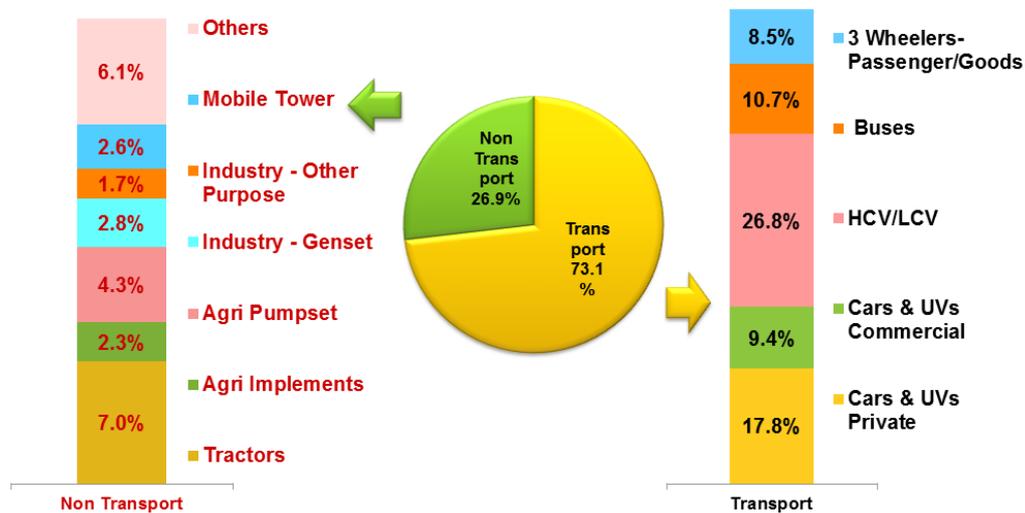
ii. East Zone’s break up in consumption of Diesel and Petrol - Exclusively Retail

In the Transport sector of East zone, diesel consumption is maximum in HCV/LCV (26.8%) followed by Private Cars and UVs (17.8%). In the Non-Transport sector, diesel consumption is the maximum in tractors (7.0%).

In East zone, the diesel consumption for running of mobile towers is very significant at 2.6%. This presumably is due to the lack of power source at high altitudes because of hilly terrain. In fact the peak power deficit in the seven-sister states of North-east India - Assam, Meghalaya, Manipur, Tripura, Mizoram, Arunachal Pradesh and Nagaland - deteriorated to 11 per cent from

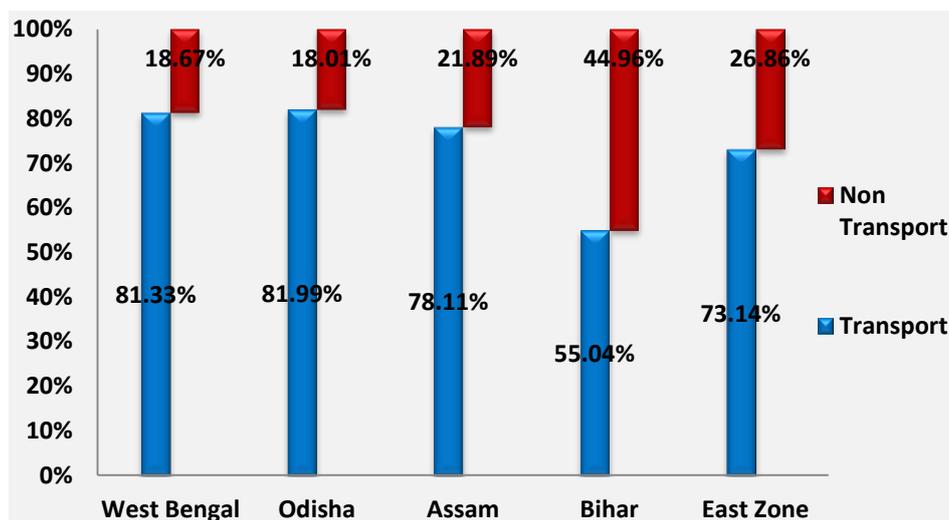
8.7 per cent¹³ in 2012. In such a case, generators remain to be the only option for mobile service providers to keep the Base Transceiver Station (BTS) operational.

Figure 18: East Zone End-use Share (%) of Diesel in Retail – Final



In the East zone, share of diesel consumption in non-transport sector is maximum in the state of Bihar and least in Odisha.

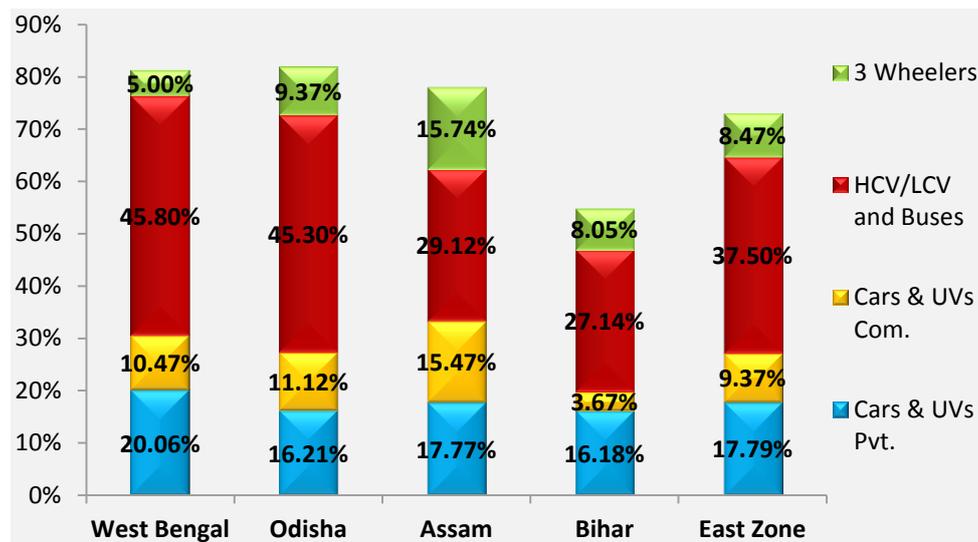
Figure 19: East Zone End-use % Share of Diesel in Retail – State Wise



¹³ http://articles.economictimes.indiatimes.com/2013-09-16/news/42114483_1_peak-power-deficit-august-2012-power-shortage

It is interesting to note that like Haryana, in Bihar there is a diesel consumption of only 3.7% in commercial cars and UVs. Again, this is presumably because for this study, only the cars and UVs with yellow number plates have been taken into account under the commercial cars and UVs segment. However, there are many cars and UVs without the yellow plates that are being used for commercial purposes.

Figure 20: East Zone End-use % Share of Diesel in Retail – State Wise for Transport



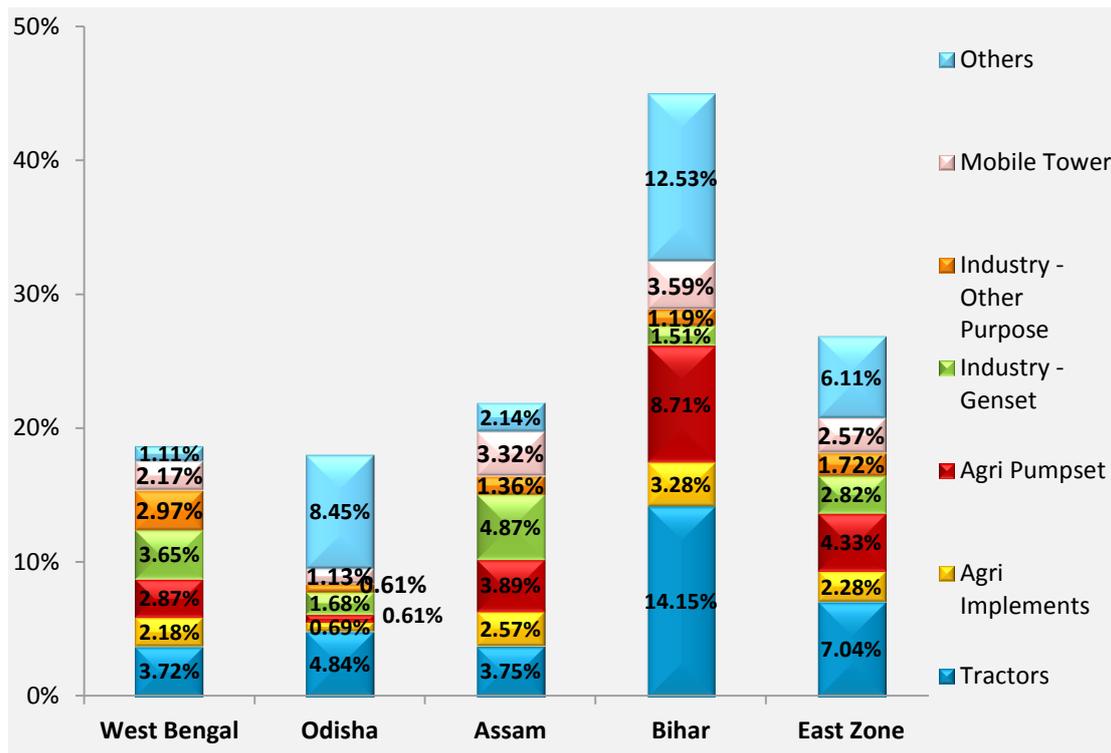
In Bihar, diesel consumption for running of mobile towers is 3.6%, the highest (by percentage of consumption) of all the four states under consideration in East zone. This is presumably because there are frequent power-cuts, some of them are for several hours. In fact, to some readers it might come as a surprise that till April, 2013, there were still 22,484 villages and hamlets¹⁴ in Bihar without power, including those that got de-electrified. And as we know many of the BTS's are located in remote areas and to keep them operational, diesel is essential.

It is also interesting to note that in Bihar, diesel consumption for running of Agri pump set is 8.7%. It is the highest (by percentage of consumption) of all the 16 states under consideration. This is presumably a reflection of the poor irrigational facilities in Bihar or poor rainfall¹⁵ during the time of survey that might have resulted in extensive use of Agri pumps for irrigation.

¹⁴ http://www.telegraphindia.com/1130428/jsp/bihar/story_16834284.jsp

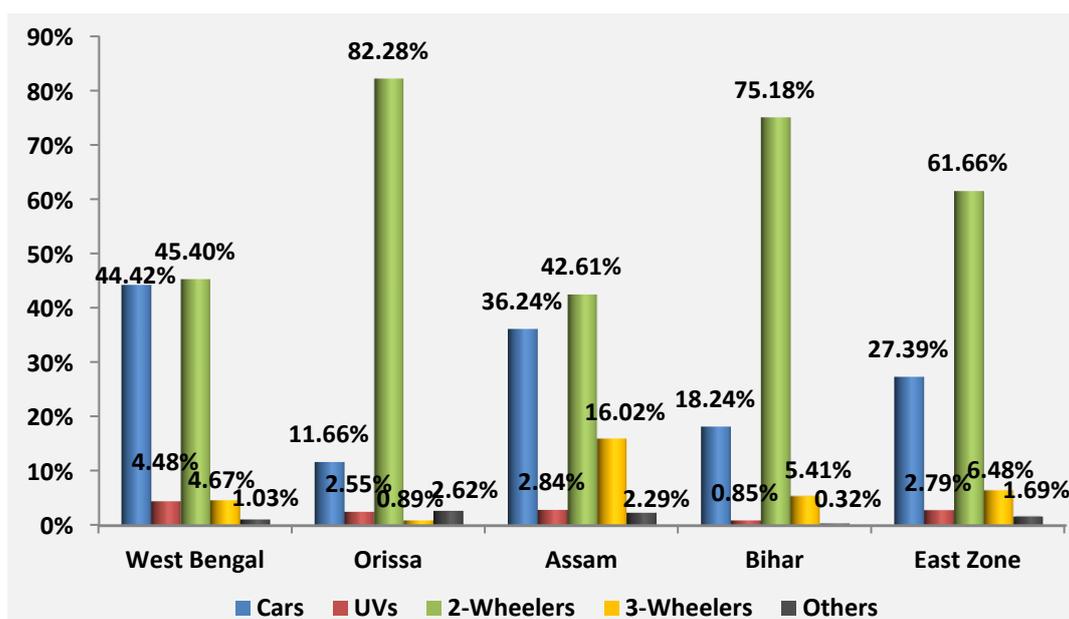
¹⁵ <http://news.oneindia.in/2013/07/24/poor-monsoon-hits-paddy-sowing-in-bihar-1266781.html>

Figure 21: East Zone End-use % Share of Diesel in Retail – State Wise for Non-Transport



The state of Odisha leads in East zone in the consumption of petrol by 2-wheelers at 82.28%, whereas West Bengal leads in consumption of diesel in cars at 44.42%. This is presumably because West Bengal is more urban than Odisha and has one of the metropolitan cities (Kolkata) of India as its capital.

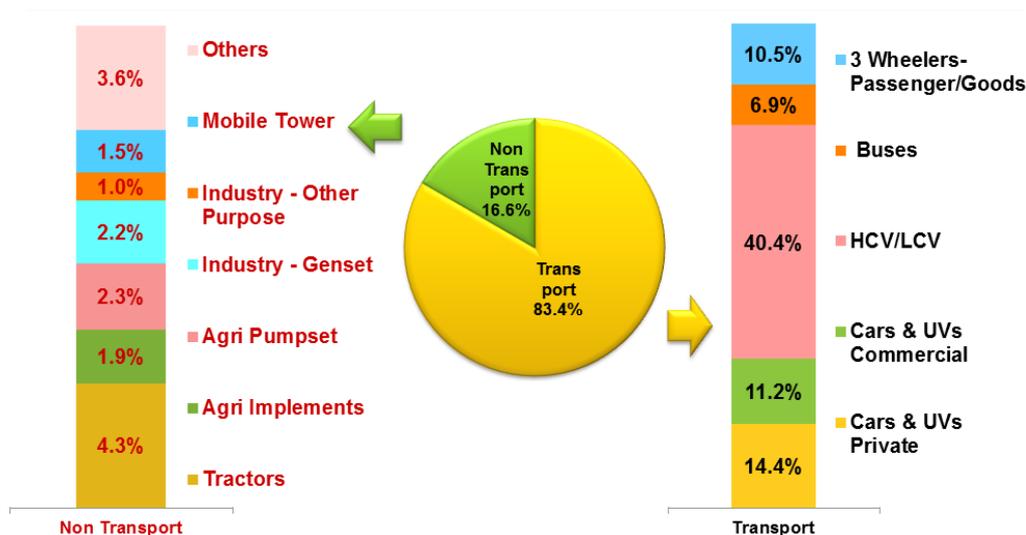
Figure 22: Petrol-Retail Consumption Break-up (East Zone) – State Wise



iii. West Zone’s break up in consumption of Diesel and Petrol - Exclusively Retail

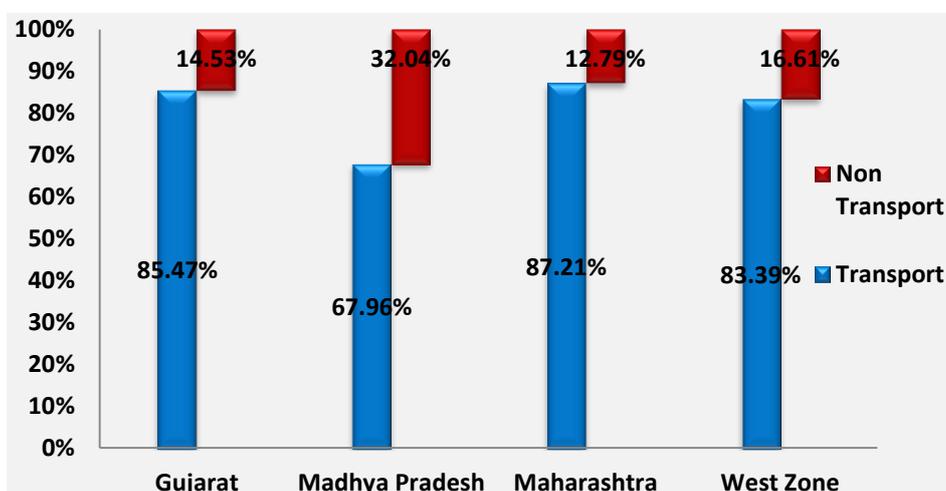
In the Transport sector of West zone, diesel consumption is maximum in HCV/LCV (40.4%) followed by Private Cars and UVs (14.4%). In the Non-Transport sector, diesel consumption is the maximum in tractors (4.3%). In the West zone, only 12.3% of the diesel consumption is there in Non-Transport sector, excluding diesel consumption in tractor. Whereas, for North, East and South zone the diesel consumption in Non-Transport sector (excluding diesel consumption in tractor) is 24.4%, 19.9% and 18.7% respectively.

Figure 23: West Zone End-use Share (%) of Diesel in Retail – Final



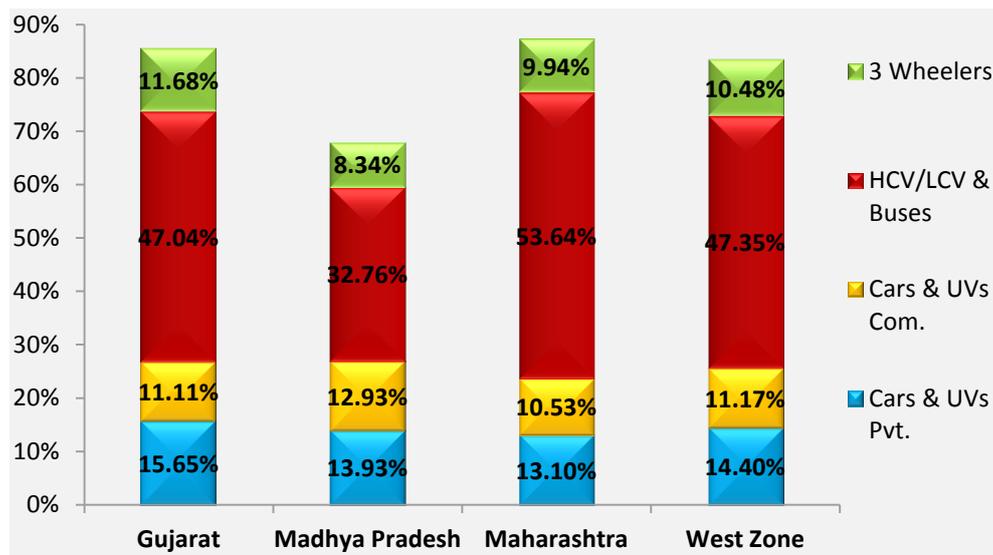
In the West zone, share of diesel consumption in the transportation segment is maximum in the state of Maharashtra (87.21%) and least in the state of Madhya Pradesh (67.96%).

Figure 24: West Zone End-use % Share of Diesel in Retail – State Wise



Both Gujarat and Maharashtra have a very high diesel consumption in HCV/LCV and Buses, as both states have very large commercial hubs wherein various industries like automobile, chemical, textiles etc. are positioned. Moreover, both these states are the most industrialized states in the country, so the high consumption of diesel by HCV/LCV is expected in these states. Both these states are amongst the top 5 contributing states to the GDP of India.¹⁶

Figure 25: West Zone End-use % Share of Diesel in Retail – State Wise for Transport



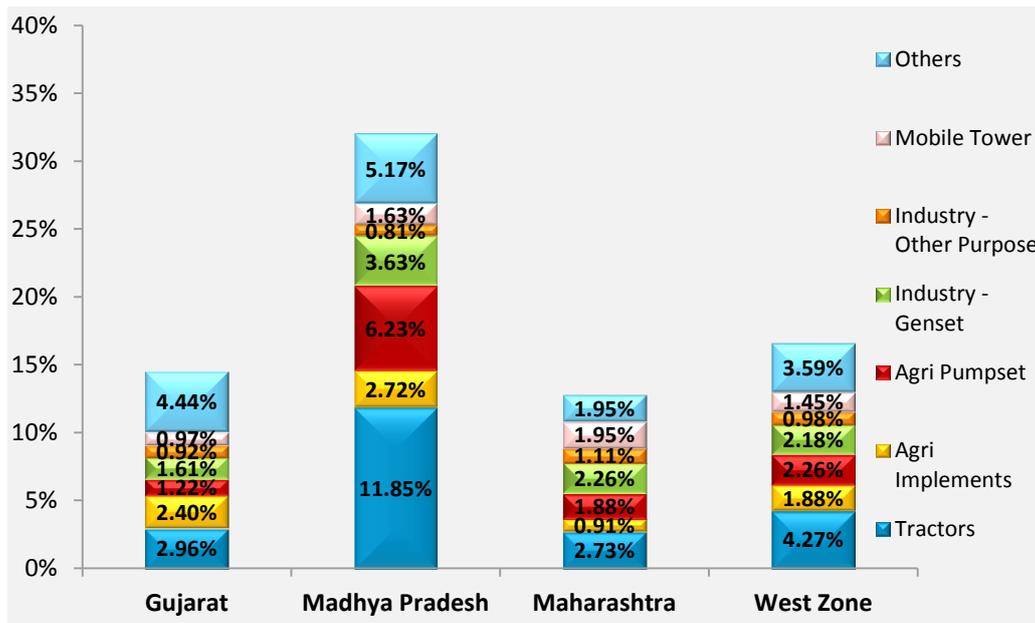
It is interesting to note that in contrast to Gujarat and Maharashtra, for Madhya Pradesh diesel consumption for running of agri pump set is 6.2%. However, this again, presumably is a reflection of the poor irrigational facilities in Madhya Pradesh or due to the fact the Madhya Pradesh is more agriculture dependent than Maharashtra and Gujarat.¹⁷

Another interesting point worth noting is the similarity in the composition of diesel consumption in the states of Gujarat and Maharashtra. It is presumably due to similar geographical location and like type of industries in these states or both.

¹⁶ http://en.wikipedia.org/wiki/List_of_Indian_states_by_GDP

¹⁷ Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India

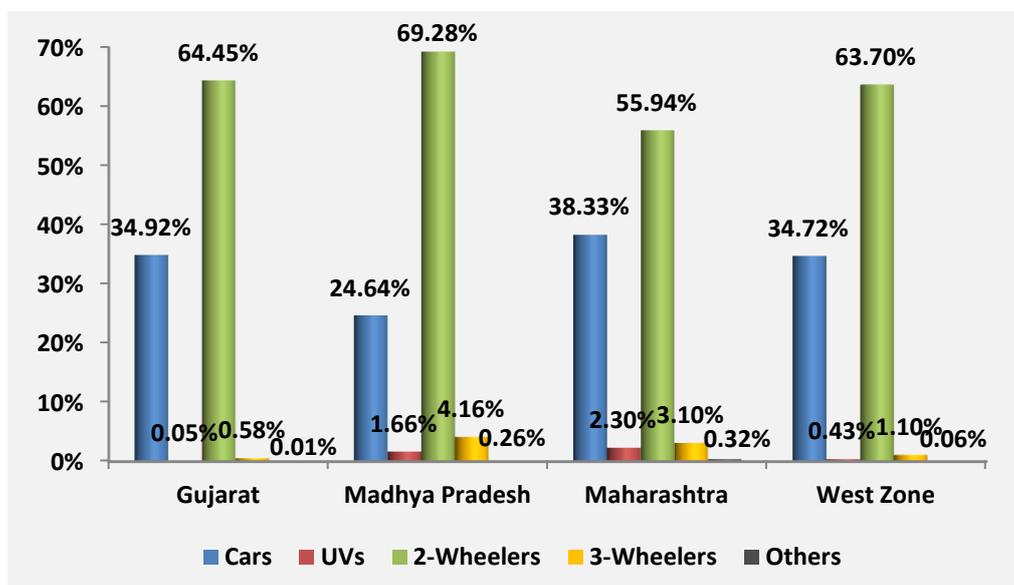
Figure 26: West Zone End-use % Share of Diesel in Retail – State Wise for Non-Transport



The state of Madhya Pradesh leads in West zone in consumption of petrol by 2-wheelers at 69.28%, whereas the state of Maharashtra leads in consumption of diesel in cars at 38.43%.

It is interesting to note that in Gujarat, consumption of petrol by volume in UVs is only 0.1%, the lowest (by percentage consumption of petrol) of all the 16 states under consideration. This is presumably because, people in Gujarat are now going for UVs that run on diesel.

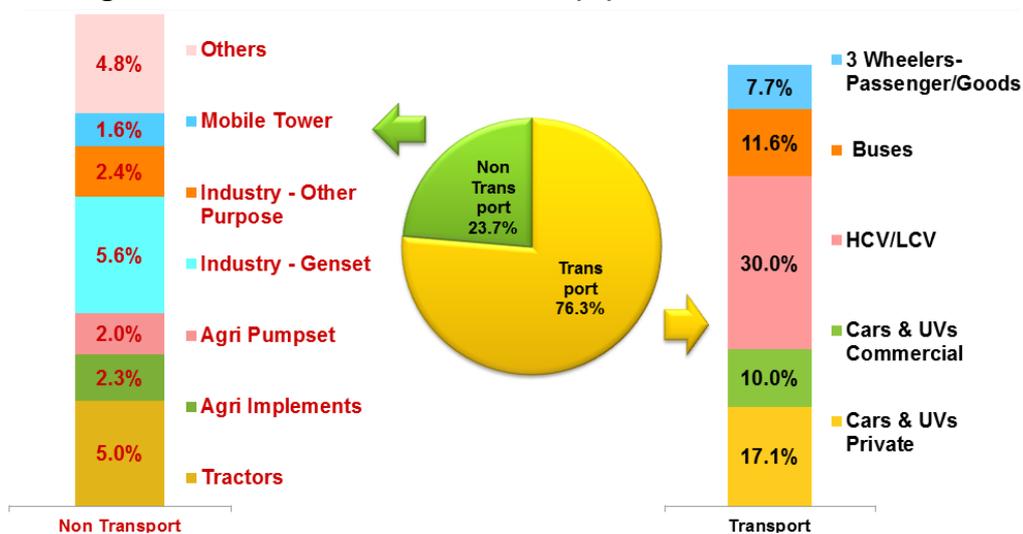
Figure 27: Petrol-Retail Consumption Break-up (West Zone) – State Wise



iv. South Zone’s break up in consumption of Diesel and Petrol - Exclusively Retail

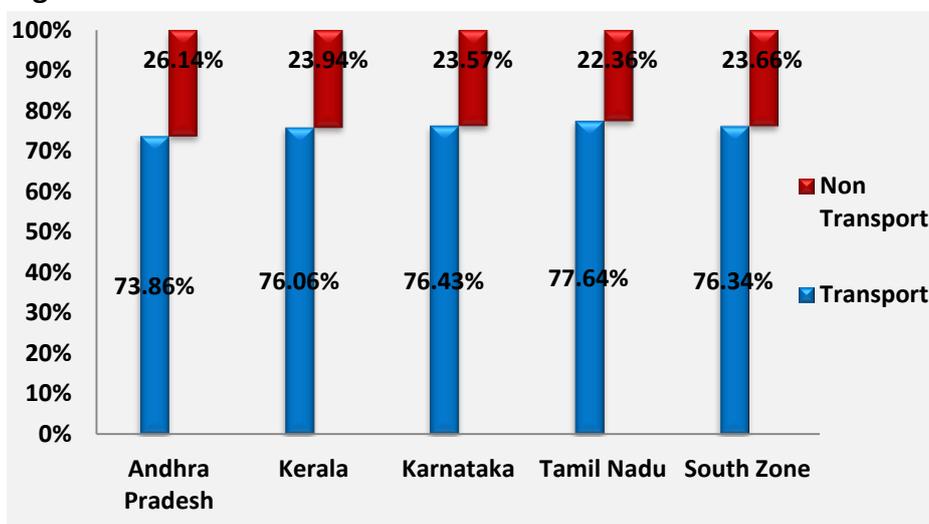
In the Transport sector of South zone, diesel consumption is maximum in HCV/LCV at 30.0%, followed by Private Cars and UVs at 17.1%. In the Non-Transport sector, diesel consumption is the maximum in Industry genset (5.6%). Diesel consumption in Buses is significantly higher in the South zone (11.6%), followed by East Zone (10.7%). It is presumably because South India has a better road infrastructure and many of the privately owned buses not only run intra state bus also interstate.

Figure 28: South Zone End-use Share (%) of Diesel in Retail – Final



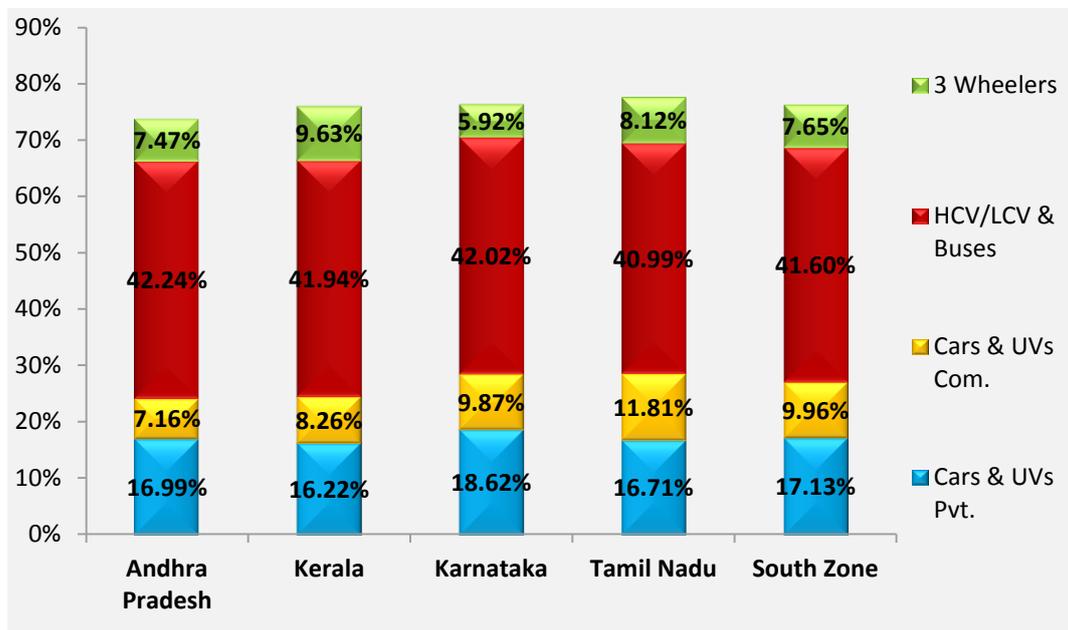
In the South zone, share of diesel consumption in transport is maximum in the state of Tamil Nadu (77.64%) and least in the state of Andhra Pradesh (73.86%).

Figure 29: South Zone End-use % Share of Diesel in Retail – State Wise



Unlike other zones, all the four states under South zone have a very similar diesel consumption pattern in Transport sector.

Figure 30: South Zone End-use % Share of Diesel in Retail – State Wise for Transport



Again, like Transport sector all the four states under South Zone have a very similar diesel consumption pattern in the overall Non-Transport sector.

Figure 31: South Zone End-use % Share of Diesel in Retail – State Wise for Non-Transport

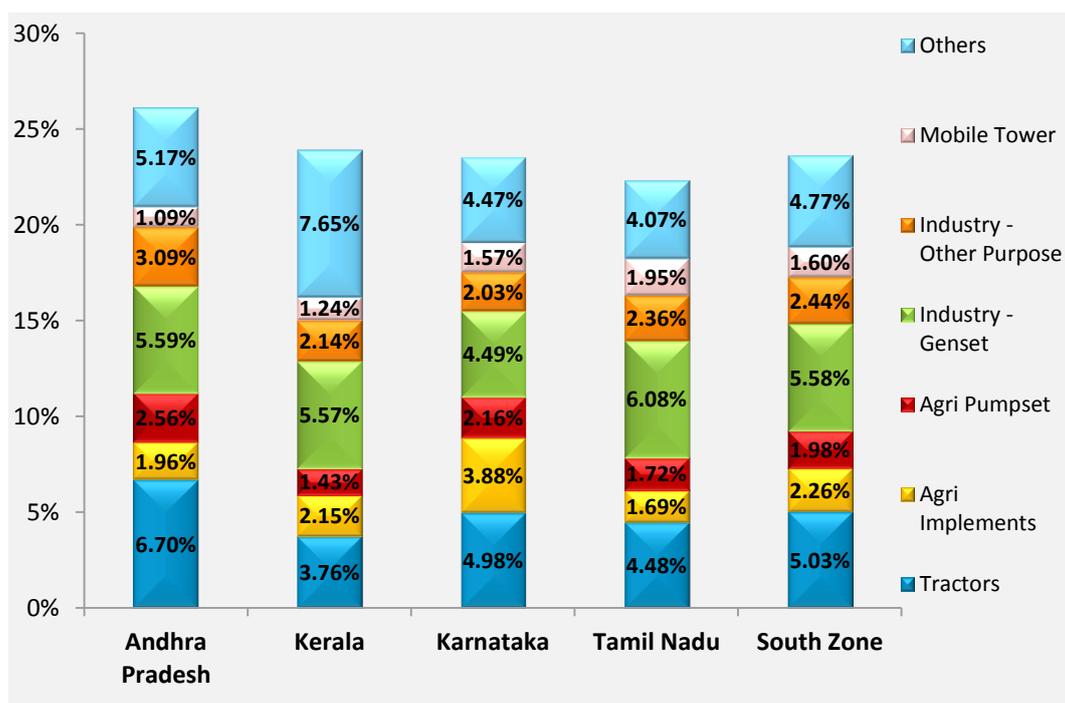
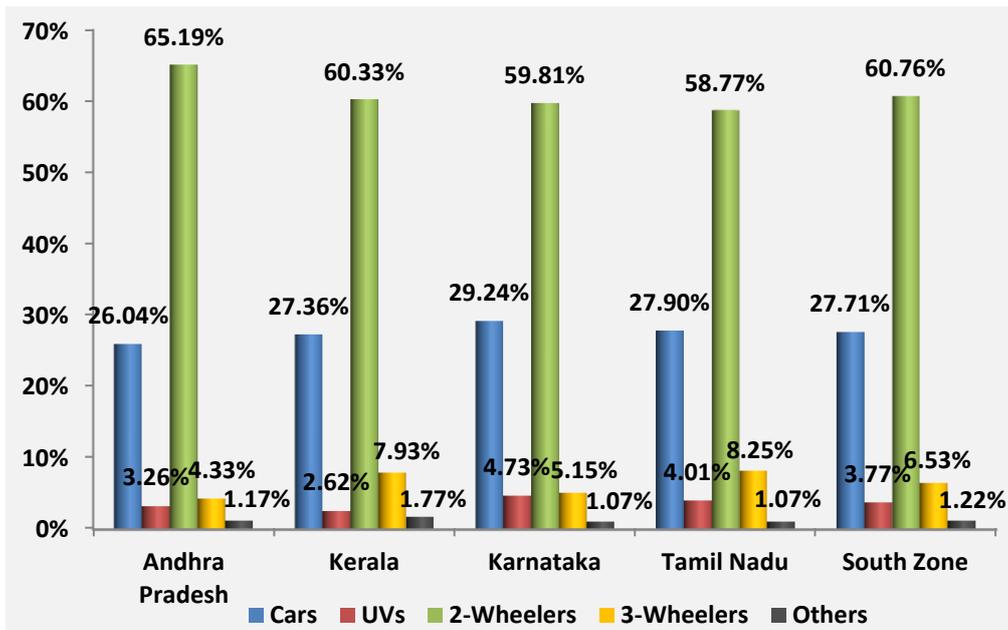


Figure 32: Petrol-Retail Consumption Break-up (South Zone) – State Wise



The state of Andhra Pradesh leads in South zone in consumption of petrol by 2-wheelers at 65.19%, whereas Karnataka leads in consumption of petrol in cars at 29.24%.

Tamil Nadu followed by Kerala has the highest percentage consumption of petrol in 3-wheelers at 8.2% and 7.9% respectively. This maybe due to very few CNG/ Auto LPG stations in these states.



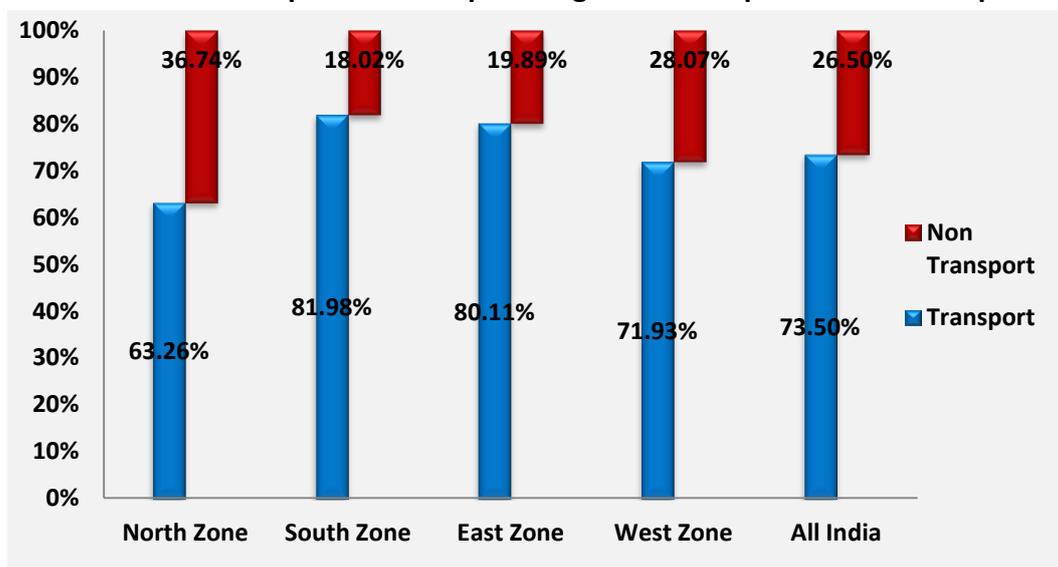
8.0 Survey Findings under different time periods – Retail Sales

July - September of 2012

All India

For the period July-September 2012, North zone has the highest share of diesel consumption in non-transport sector and South zone has the highest consumption of diesel in the transport sector.

Figure 33: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



At an all India level, for the period July-September 2012, the diesel consumption in the transport sector is the highest in the HCV/LCV and Buses category at 41.17%, followed by private cars and UVs at 14.73%.

Table 6: Diesel Consumption Break up Amongst Transport Sector Categories

July - September of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
North Zone	12.67%	9.69%	36.97%	3.93%
South Zone	14.14%	11.14%	43.31%	7.62%
East Zone	16.84%	10.61%	38.15%	9.35%
West Zone	18.31%	8.43%	46.10%	7.04%
All India	14.73%	10.11%	41.17%	6.52%

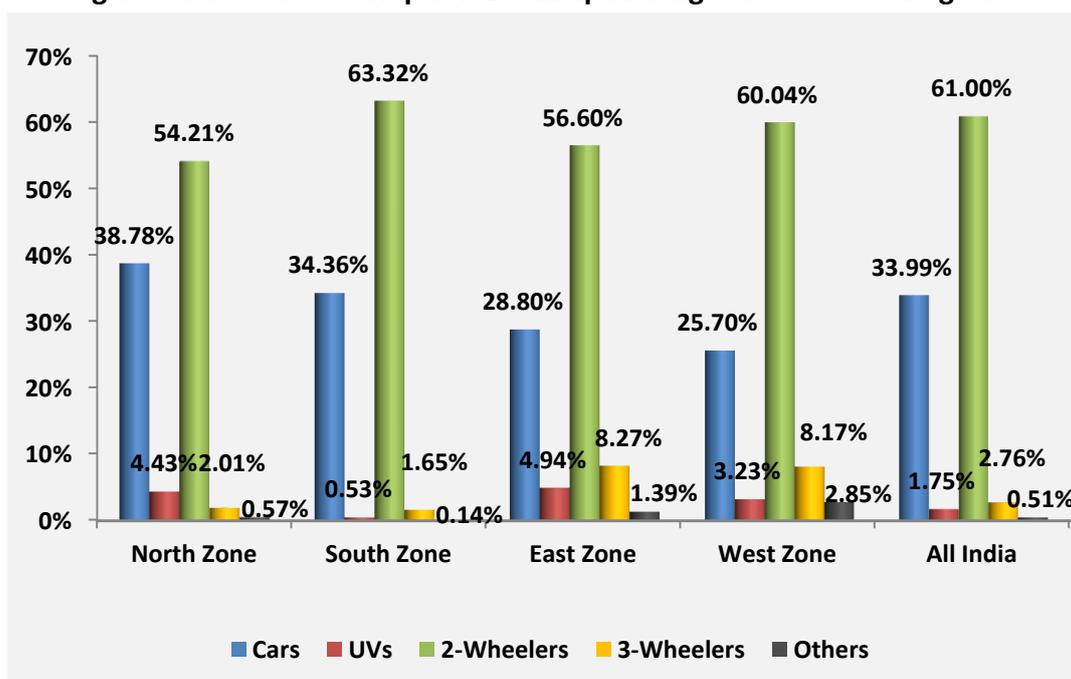
At an all India level, for the period July-September 2012, diesel consumption in the non-transport sector is the highest in the tractors category at 6.09%, followed by industry gensets at 4.46%. This is presumably because July is the last month of the Kharif season for sowing of Kharif crops and September is the first month for harvesting of crops sowed during Kharif season.

Table 7: Diesel Consumption Break up Amongst Non-Transport Sector Categories

July - September of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
North Zone	8.45%	4.75%	5.85%	7.91%	3.71%	2.28%	3.80%
South Zone	4.19%	2.74%	2.22%	2.32%	1.00%	1.58%	3.97%
East Zone	4.40%	2.51%	2.35%	3.64%	1.84%	1.29%	3.86%
West Zone	6.53%	2.63%	5.53%	2.00%	1.54%	3.29%	6.55%
All India	6.09%	3.39%	4.04%	4.46%	2.18%	2.05%	4.30%

For the period July-September 2012, the petrol consumption for 2- wheelers is highest in the South zone at 63.32%, followed by West and East zones.

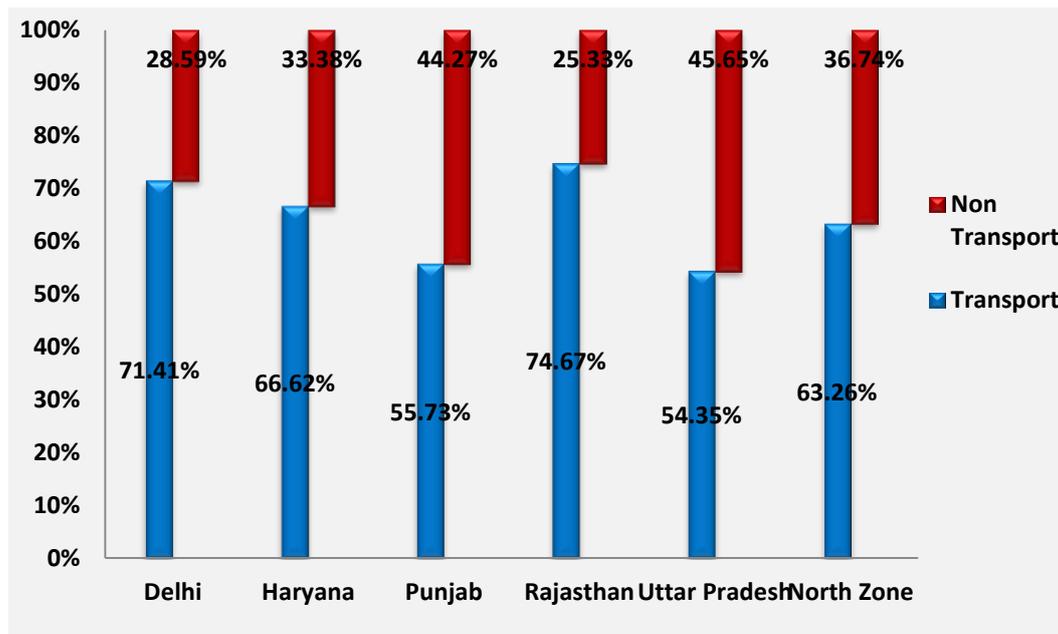
Figure 34: Petrol Consumption Break up Amongst the Sector Categories



North Zone

For the period July-September 2012, diesel consumption in the transport sector of North zone is maximum in the state of Rajasthan at 74.67% and least in Uttar Pradesh at 54.35%.

Figure 35: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector Wise



For the period July-September 2012, under transport sector, Delhi has the highest diesel consumption in private cars and UVs at 33.52% in North zone. This is apparently because Delhi has the highest number of vehicles in the country.

Table 8: Diesel Consumption Break up Amongst Transport Sector Categories

July - September of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
Delhi	33.52%	17.93%	19.93%	0.03%
Haryana	8.70%	5.68%	50.39%	1.86%
Punjab	13.24%	9.14%	28.42%	4.94%
Rajasthan	11.13%	14.34%	44.32%	4.88%
Uttar Pradesh	13.84%	9.40%	25.60%	5.51%
North Zone	12.67%	9.69%	36.97%	3.93%

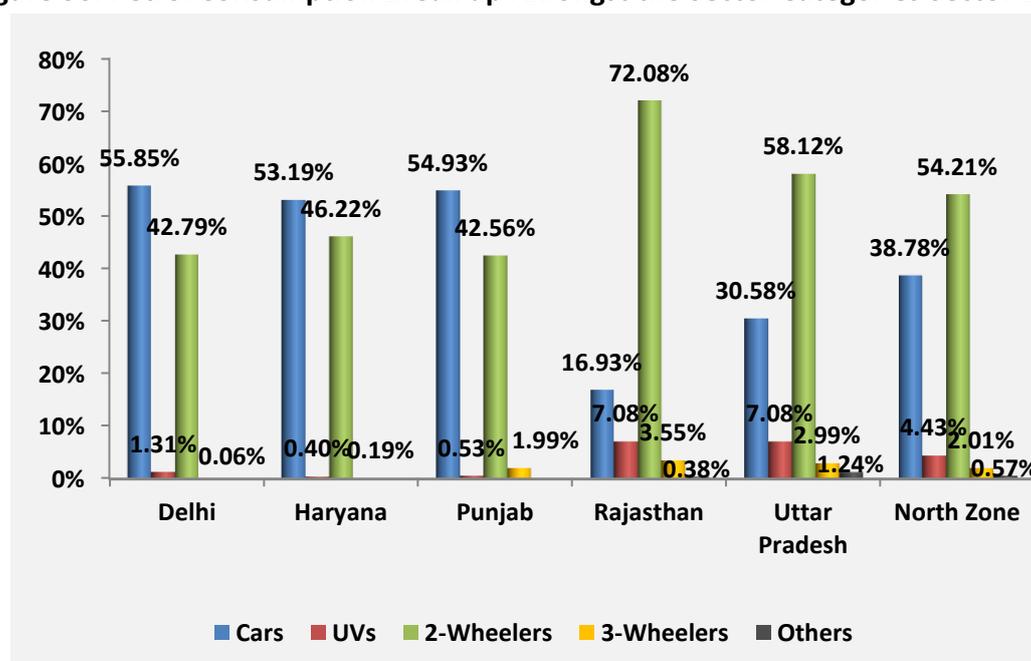
For the period July-September 2012, under non-transport sector, Punjab has the highest diesel consumption in tractors at 13.35% in North zone. It is presumably because Punjab is one of the foremost states in agricultural production not only in North zone but also in the entire country. Punjab contributes 13-14 per cent towards the total food grain production of the country.¹⁸

Table 9: Diesel Consumption Break up Amongst Non-Transport Sector Categories

July - September of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset-non-industry purposes) & Others
Delhi	0.93%	0.00%	0.34%	10.53%	11.08%	0.03%	5.68%
Haryana	7.12%	6.67%	5.38%	8.60%	2.49%	0.39%	2.72%
Punjab	13.35%	6.78%	6.75%	7.61%	3.94%	3.08%	2.77%
Rajasthan	10.02%	3.60%	3.69%	3.93%	1.40%	1.40%	1.29%
Uttar Pradesh	8.18%	3.73%	8.18%	9.44%	5.04%	4.64%	6.44%
North Zone	8.45%	4.75%	5.85%	7.91%	3.71%	2.28%	3.80%

For the period July-September 2012, the state of Rajasthan leads in North zone in consumption of Petrol by 2 wheelers at 72.08%, whereas Delhi leads in consumption of MS in cars at 55.85%.

Figure 36: Petrol Consumption Break up Amongst the Sector Categories Sector Wise

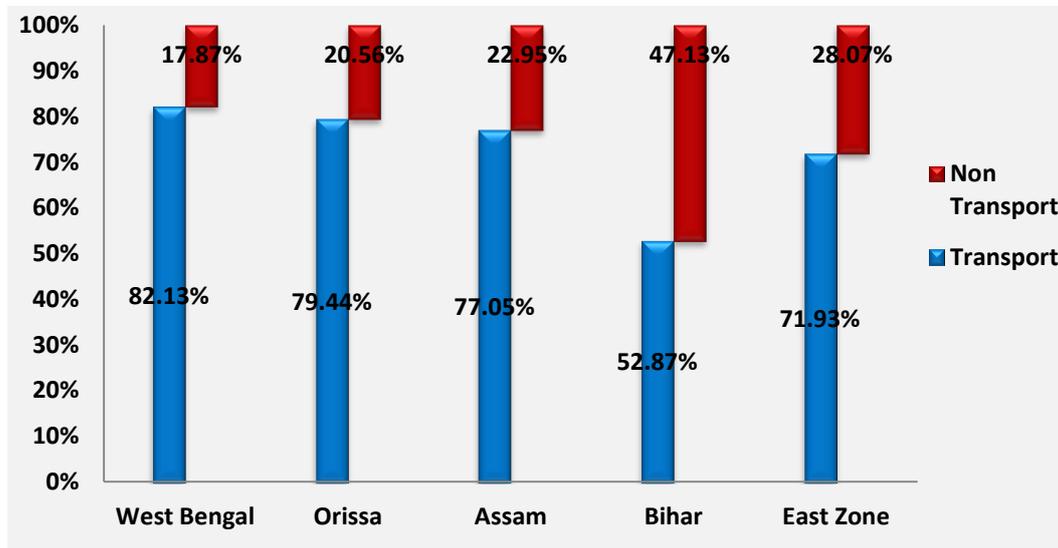


¹⁸ Agro--Economic Research Centre, Department of Economics and Sociology, Punjab Agricultural University

East Zone

For the period July-September 2012, diesel consumption in the transport sector of East zone is maximum in the state of West Bengal and least in Bihar.

Figure 37: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period July-September 2012, under transport sector, Orissa (19.34%) and West Bengal (19.31%) have the highest diesel consumption in private cars and UVs in East zone.

Table 10: Diesel Consumption Break up Amongst Transport Sector Categories

July - September of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
West Bengal	19.31%	8.79%	48.79%	5.24%
Orissa	19.34%	9.81%	44.43%	5.87%
Assam	19.04%	14.60%	29.18%	14.22%
Bihar	16.12%	3.83%	26.94%	5.98%
East Zone	18.31%	8.43%	38.15%	7.04%

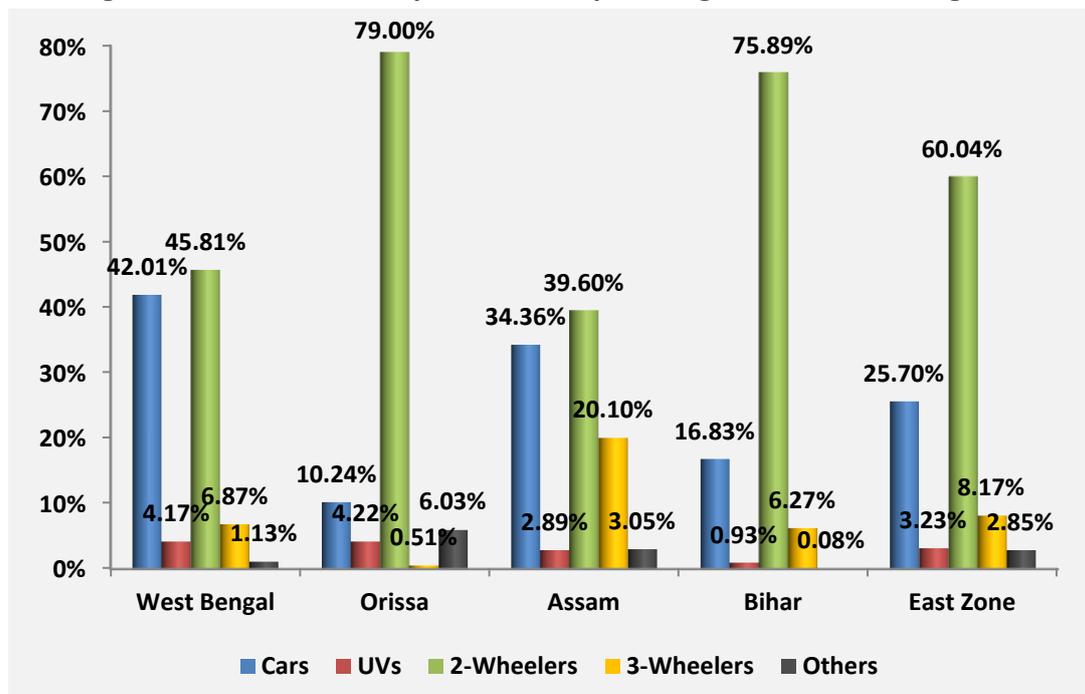
For the period July-September 2012, under non-transport sector, Bihar has the highest diesel consumption in tractors at 12.9% in East zone.

Table 11: Diesel Consumption Break up Amongst Non-Transport Sector Categories

July - September of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
West Bengal	2.63%	2.73%	2.87%	2.33%	2.70%	2.95%	1.66%
Orissa	4.09%	0.94%	0.94%	1.39%	1.24%	0.94%	10.99%
Assam	5.79%	2.91%	3.32%	3.59%	1.54%	3.46%	2.35%
Bihar	12.90%	3.45%	12.66%	1.15%	0.42%	5.10%	11.45%
East Zone	6.53%	2.63%	5.53%	2.00%	1.54%	3.29%	6.55%

For the period July-September 2012, the state of Orissa leads in East zone in consumption of petrol by 2 wheelers, whereas West Bengal leads in consumption of petrol in cars.

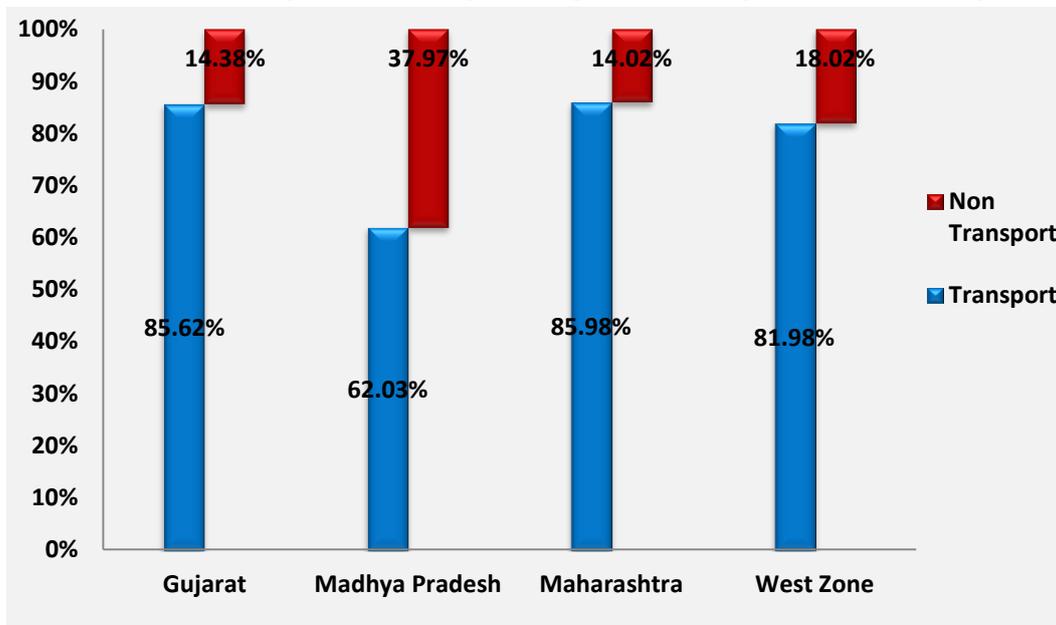
Figure 38: Petrol Consumption Break up Amongst the Sector Categories



West Zone

For the period July-September 2012, diesel consumption in the transport sector of West zone is maximum in two states namely, Gujarat and Maharashtra.

Figure 39: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period July-September 2012, under transport sector, Gujarat has the highest diesel consumption in private cars and UVs Private at 15.64% in West zone.

Table 12: Diesel Consumption Break up Amongst Transport Sector Categories

July - September of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
Gujarat	15.64%	11.09%	46.87%	12.02%
Madhya Pradesh	11.67%	12.09%	30.80%	7.47%
Maharashtra	13.37%	10.79%	51.60%	10.23%
West Zone	14.14%	11.14%	46.10%	10.61%

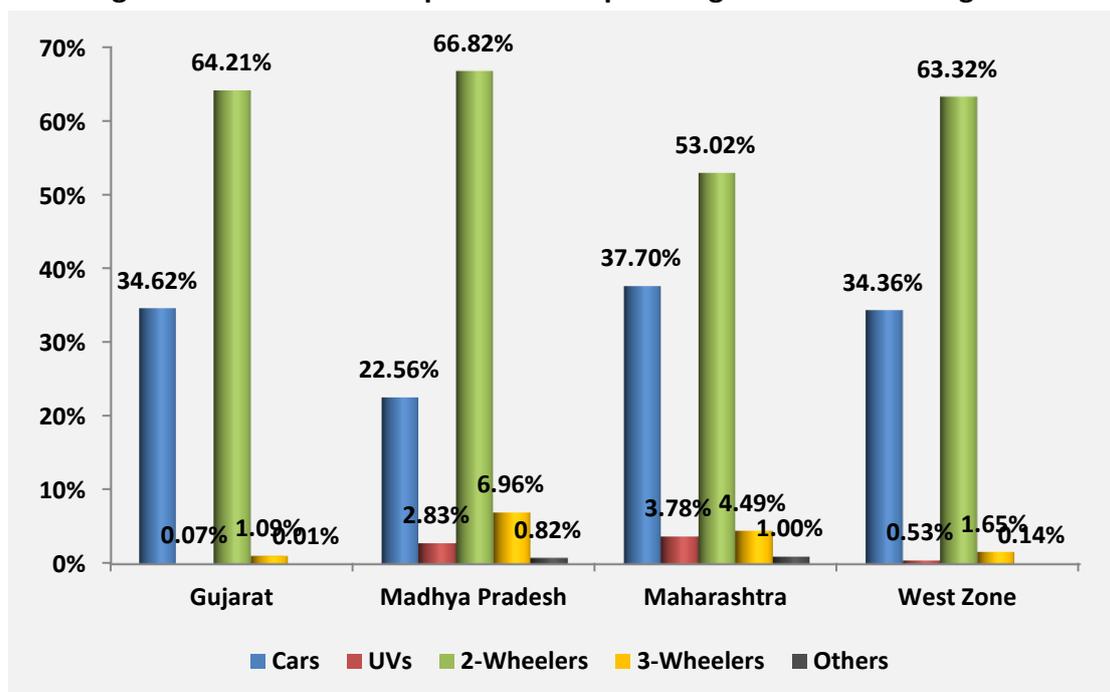
For the period July-September 2012, under non-transport sector, Madhya Pradesh has the highest diesel consumption in tractors at 12.17% in West zone.

Table 13: Diesel Consumption Break up Amongst Non-Transport Sector Categories

July - September of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
Gujarat	2.92%	3.52%	0.72%	1.23%	0.82%	0.97%	4.20%
Madhya Pradesh	12.17%	4.28%	7.89%	4.17%	0.96%	1.86%	6.63%
Maharashtra	2.36%	1.15%	1.64%	2.87%	1.24%	2.20%	2.57%
West Zone	4.19%	2.74%	2.22%	2.32%	1.00%	1.58%	3.97%

For the period July-September 2012, the state of Madhya Pradesh leads in West zone in consumption of petrol by 2 wheelers whereas Maharashtra leads in consumption of petrol in cars.

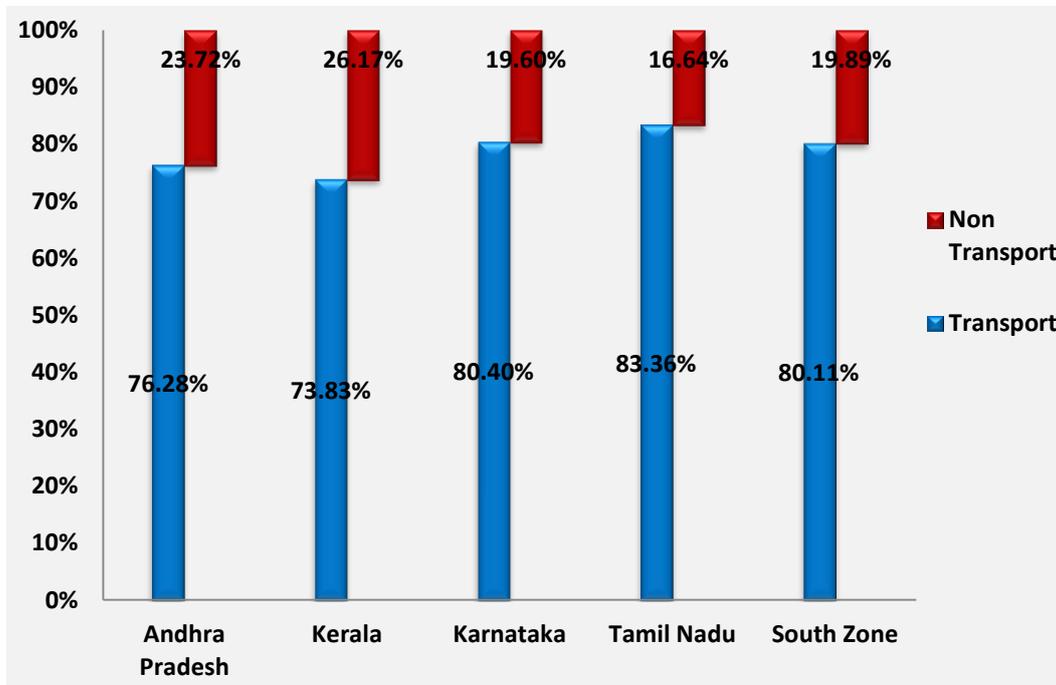
Figure 40: Petrol Consumption Break up Amongst the Sector Categories



South Zone

For the period July-September 2012, diesel consumption in the transport sector of South zone is maximum in the state of Tamil Nadu and least in Kerala.

Figure 41: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period July-September 2012, under transport sector, Karnataka has the highest diesel consumption in private cars and UVs at 17.45% in South zone.

Table 14: Diesel Consumption Break up Amongst Transport Sector Categories

July - September of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
Andhra Pradesh	16.47%	6.59%	43.96%	9.26%
Kerala	15.41%	9.23%	37.37%	11.81%
Karnataka	17.45%	11.10%	44.46%	7.38%
Tamil Nadu	17.07%	12.77%	43.76%	9.77%
South Zone	16.84%	10.61%	43.31%	9.35%

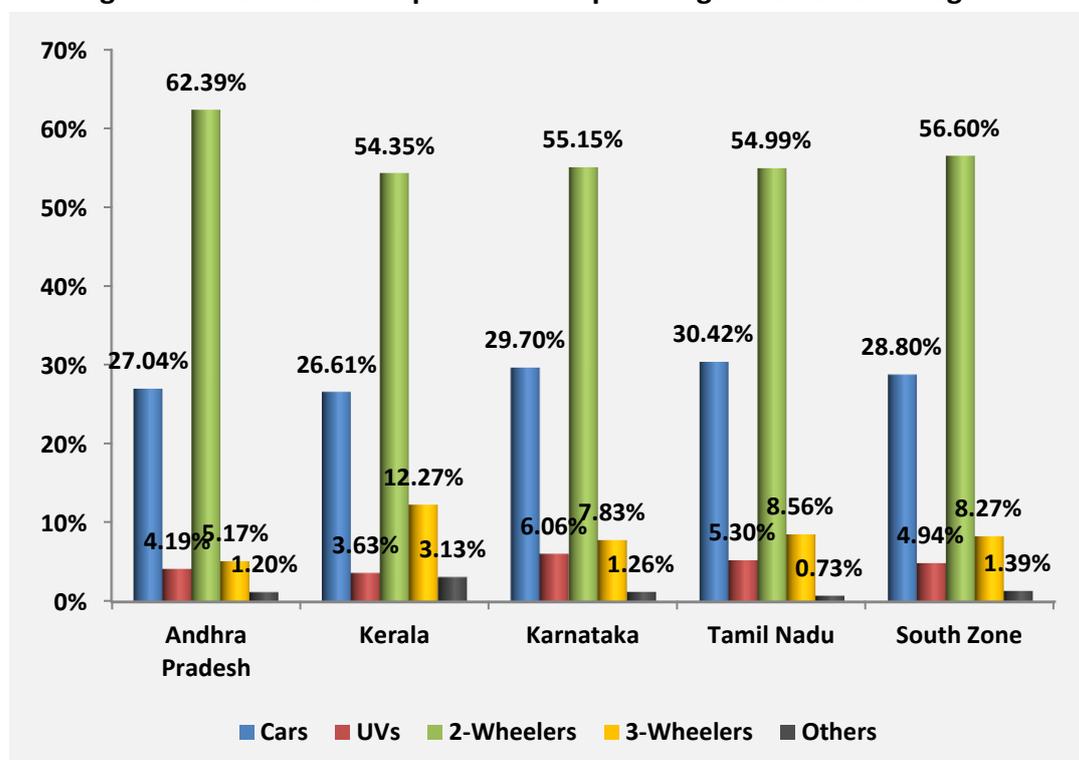
For the period July-September 2012, under non-transport sector, Tamil Nadu has the highest diesel consumption in tractors at 4.81% in South zone.

Table 15: Diesel Consumption Break up Amongst Non-Transport Sector Categories

July - September of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
Andhra Pradesh	4.77%	3.29%	3.46%	4.45%	3.33%	1.29%	3.13%
Kerala	2.25%	2.58%	1.38%	4.14%	2.72%	0.69%	12.40%
Karnataka	4.13%	4.35%	3.22%	3.00%	1.19%	1.23%	2.49%
Tamil Nadu	4.81%	1.24%	1.58%	3.41%	1.17%	1.45%	2.97%
South Zone	4.40%	2.51%	2.35%	3.64%	1.84%	1.29%	3.86%

For the period July-September 2012, the state of Andhra Pradesh leads in South zone in consumption of petrol by 2 wheelers whereas both Karnataka and Tamil Nadu lead in consumption of petrol in cars.

Figure 42: Petrol Consumption Break up Amongst the Sector Categories



October - December of 2012

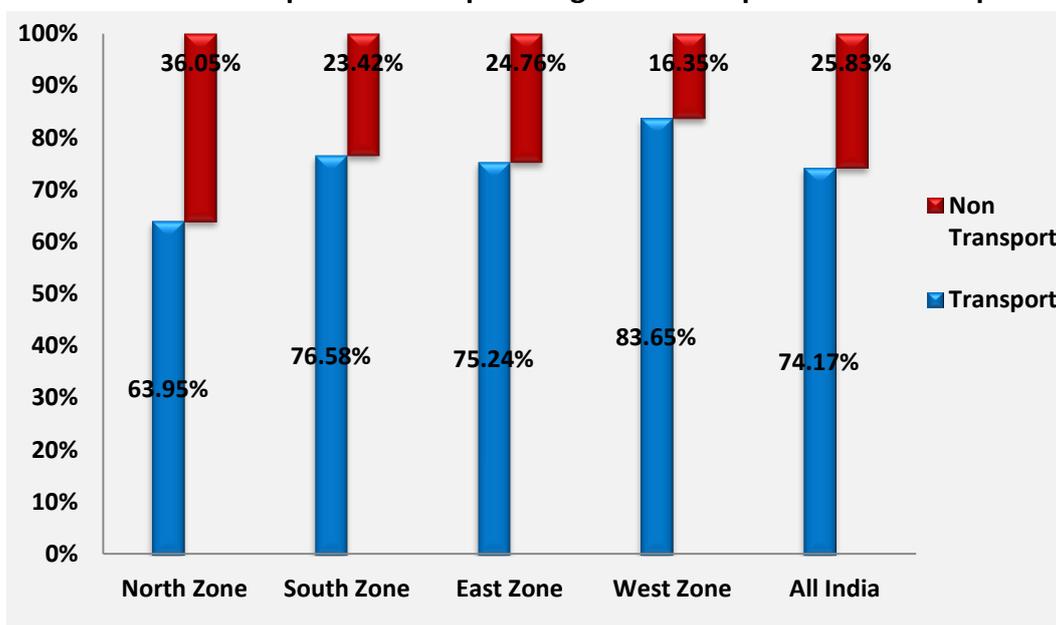
This is the period just after the increase of Rs. 5 per litre in diesel made in September, 2012

The diesel consumption for private and commercial cars and UVs taken together is highest for the period October-December 2012, of all the three periods under purview. This is probably because autumn and winter break for many schools and colleges fall in the months of October and December and during these holidays people plan for outings or vacations.

All India

For the period October-December 2012, North zone has the highest share of diesel consumption in non-transport sector and West zone has the highest consumption of diesel in the transport sector.

Figure 43: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



At an all India level, for the period October-December 2012, the diesel consumption in the transport sector is the highest in the HCV/LCV category and Buses category at 40.58% followed by private cars and UVs at 15.74%.

Table 16: Diesel Consumption Break up Amongst Transport Sector Categories

October - December of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers- Passenger/Goods
North Zone	14.25%	10.38%	35.67%	3.64%
South Zone	18.51%	10.17%	40.64%	7.26%
East Zone	18.65%	9.23%	38.48%	8.89%
West Zone	14.48%	11.45%	47.01%	10.72%
All India	15.74%	10.50%	40.58%	7.35%

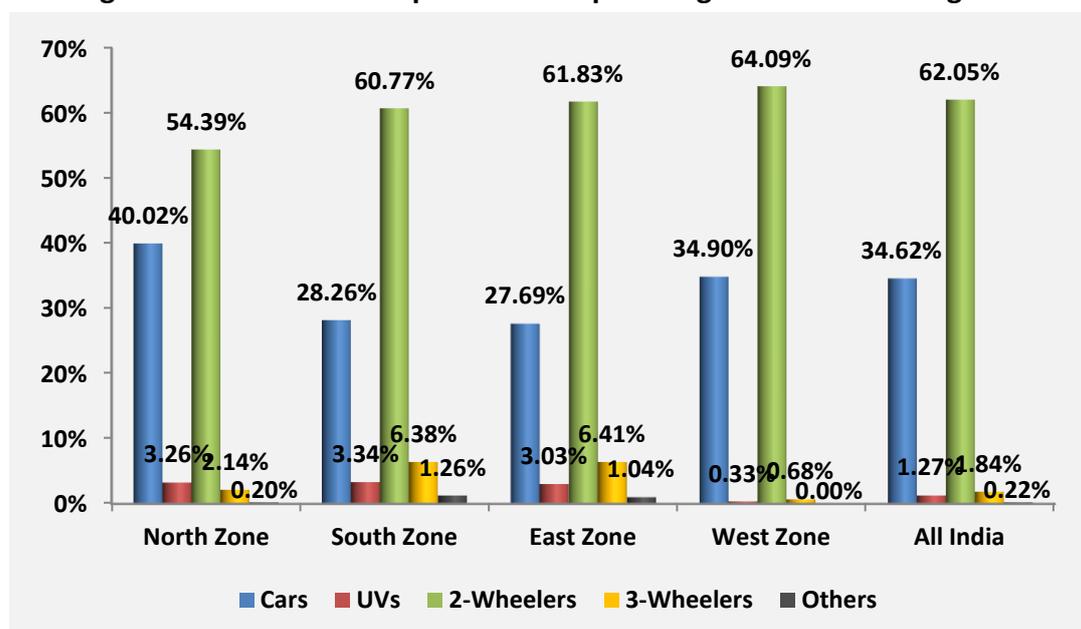
At an all India level, for the period October-December 2012, the diesel consumption in the non-transport sector is the highest in the tractors category at 8.05%. This is probably because October to December is the period for sowing of Rabi crops.

Table 17: Diesel Consumption Break up Amongst Non-Transport Sector Categories

October - December of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others
North Zone	13.07%	4.62%	4.48%	5.82%	3.20%	1.51%	3.35%
South Zone	5.14%	1.30%	3.16%	5.02%	2.50%	1.47%	4.83%
East Zone	6.42%	1.70%	4.81%	2.15%	1.86%	2.18%	5.65%
West Zone	4.85%	1.77%	2.25%	1.89%	0.74%	1.37%	3.47%
All India	8.05%	2.69%	3.60%	3.84%	2.08%	1.57%	4.00%

For the period October-December 2012, the petrol consumption for 2-wheelers is highest in the West zone at 64% followed by East and South zone.

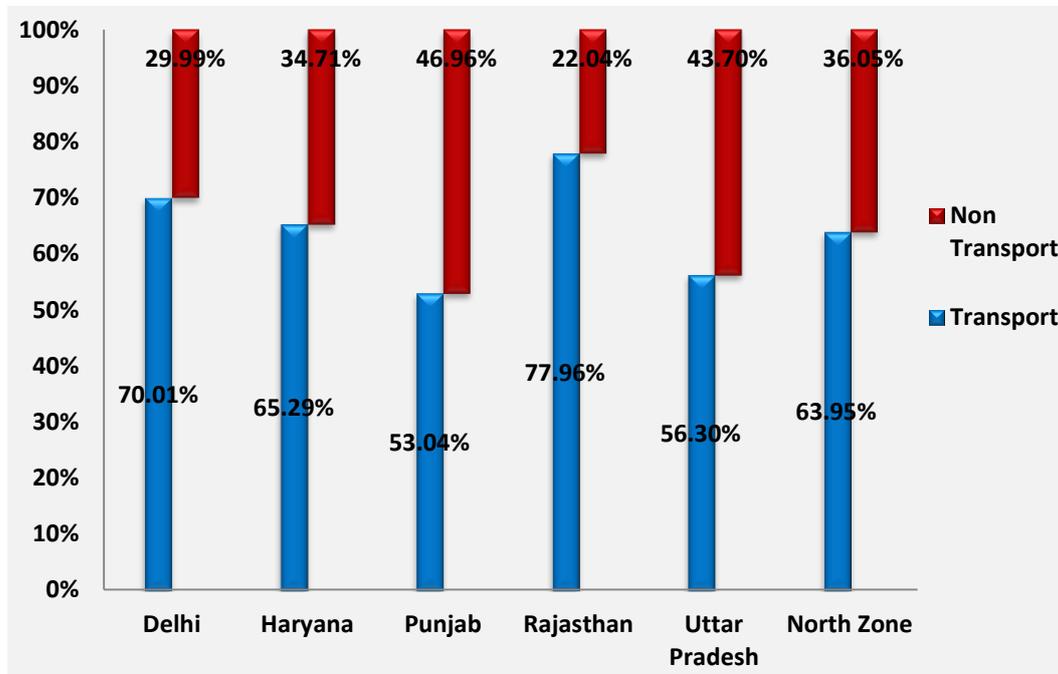
Figure 44: Petrol Consumption Break up Amongst the Sector Categories



North Zone

For the period October-December 2012, diesel consumption in the transport sector of North zone is maximum in the state of Rajasthan and least in Punjab.

Figure 45: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period October-December 2012, under transport sector, Delhi has the highest diesel consumption in private cars and UVs at 36.62% in North zone.

Table 18: Diesel Consumption Break up Amongst Transport Sector Categories

October - December of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers- Passenger/Goods
Delhi	34.62%	18.04%	17.32%	0.03%
Haryana	7.12%	4.61%	51.64%	1.92%
Punjab	14.58%	10.01%	27.33%	1.12%
Rajasthan	17.82%	16.62%	39.40%	4.12%
Uttar Pradesh	14.95%	10.27%	24.67%	6.41%
North Zone	14.25%	10.38%	35.67%	3.64%

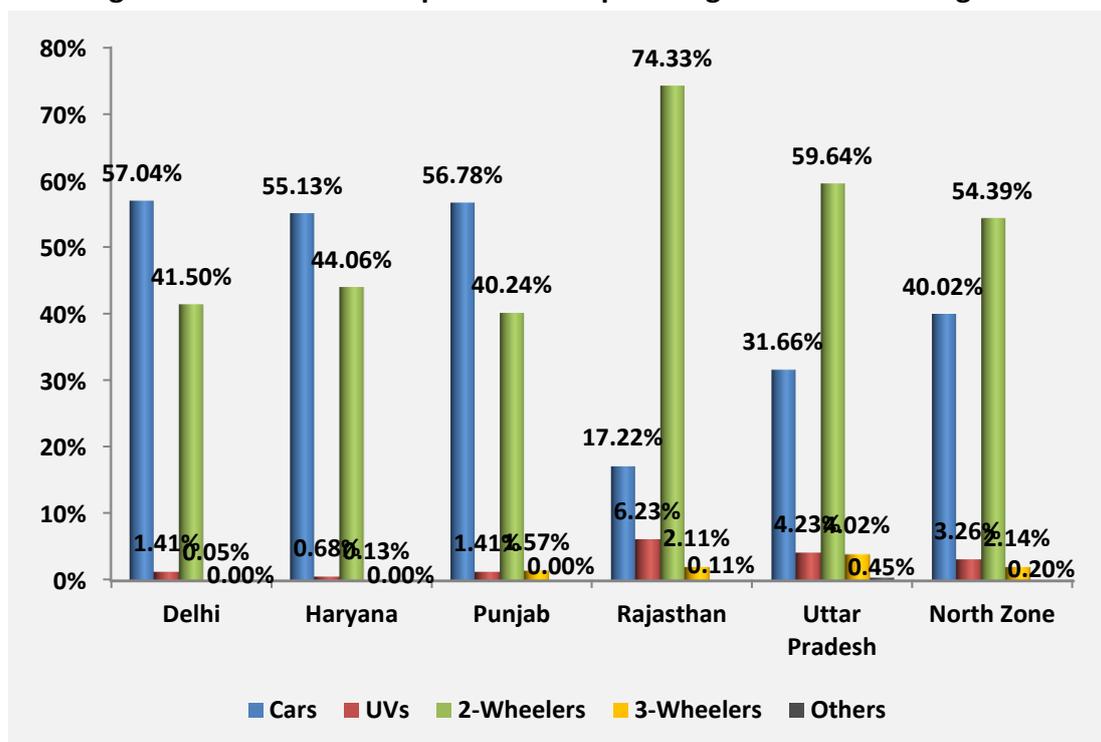
For the period October-December 2012, under non-transport sector, Punjab has the highest diesel consumption in tractors at 18.09% in North zone.

Table 19: Diesel Consumption Break up Amongst Non-Transport Sector Categories

October - December of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
Delhi	0.83%	0.00%	0.18%	10.79%	6.63%	0.03%	11.53%
Haryana	10.41%	6.98%	2.46%	8.04%	2.66%	0.35%	3.81%
Punjab	18.09%	8.07%	8.12%	5.04%	2.12%	2.19%	3.33%
Rajasthan	12.88%	1.89%	1.18%	2.67%	1.28%	0.58%	1.56%
Uttar Pradesh	15.58%	3.76%	7.87%	5.52%	4.89%	3.18%	2.90%
North Zone	13.07%	4.62%	4.48%	5.82%	3.20%	1.51%	3.35%

For the period October-December 2012, the state of Rajasthan leads in North zone in consumption of petrol by 2 wheelers, whereas both Delhi and Punjab lead in consumption of petrol in cars.

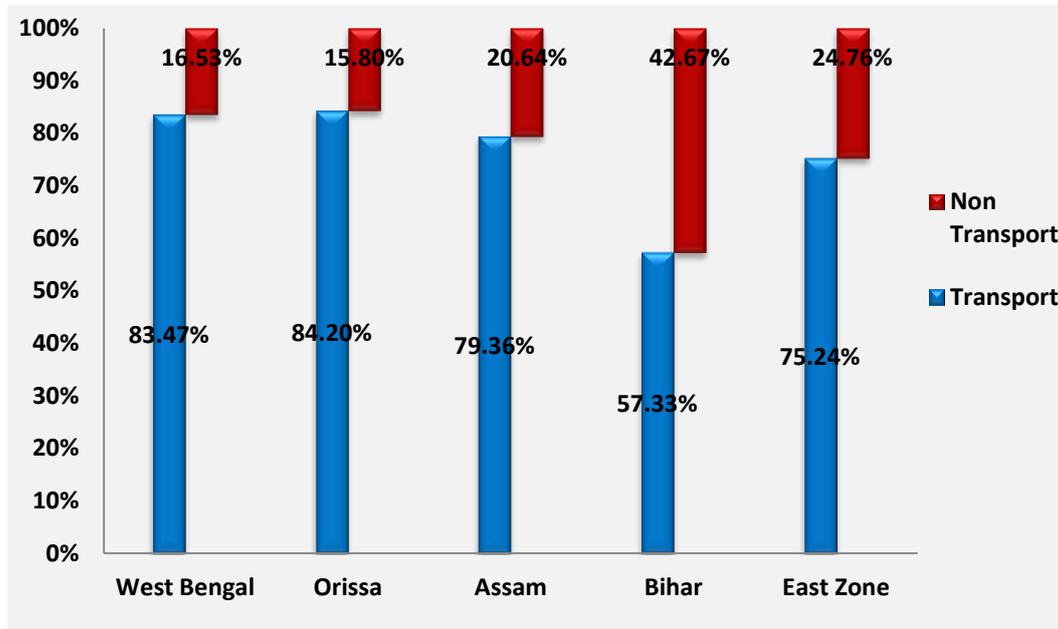
Figure 46: Petrol Consumption Break up Amongst the Sector Categories



East Zone

For the period October-December 2012, diesel consumption in the transport sector of East zone is maximum in the state of West Bengal and least in Bihar.

Figure 47: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period October-December 2012, under transport sector, West Bengal has the highest diesel consumption in private cars and UVs at 22.27% in East zone.

Table 20: Diesel Consumption Break up Amongst Transport Sector Categories

October - December of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers- Passenger/Goods
West Bengal	22.27%	10.02%	46.31%	4.87%
Orissa	13.17%	12.31%	49.10%	9.62%
Assam	18.23%	15.93%	28.66%	16.54%
Bihar	18.26%	2.67%	27.29%	9.11%
East Zone	18.65%	9.23%	38.48%	8.89%

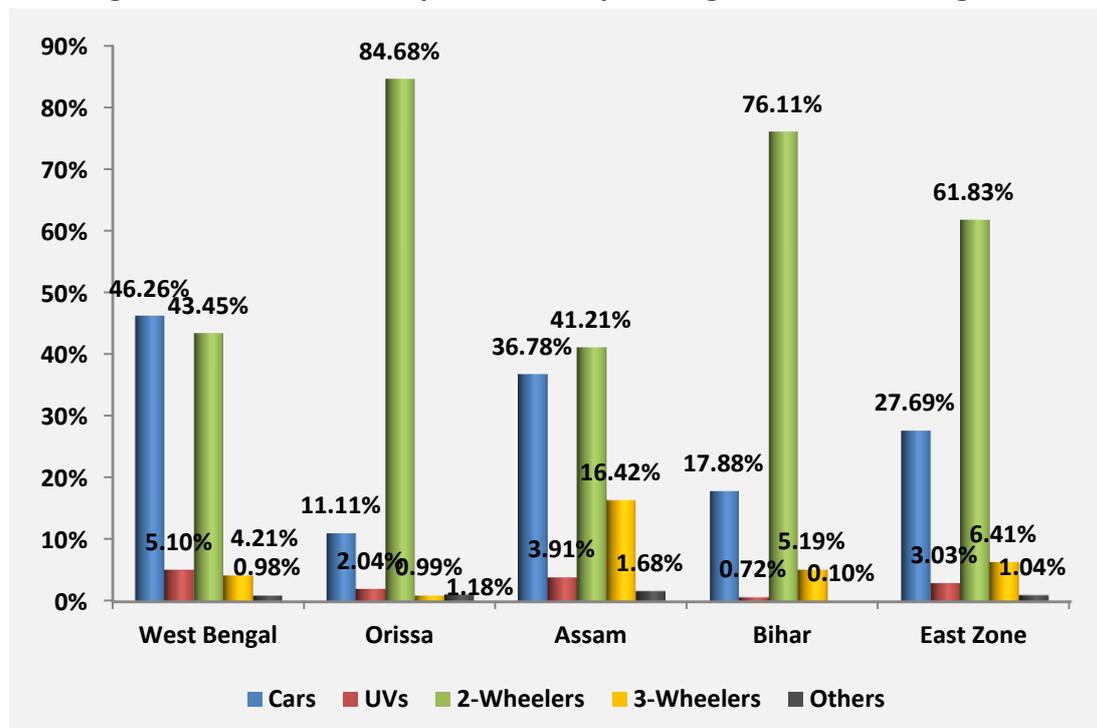
For the period October-December 2012, under non-transport sector, Bihar has the highest diesel consumption in tractors at 13.4% in East zone.

Table 21: Diesel Consumption Break up Amongst Non-Transport Sector Categories

October - December of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
West Bengal	3.58%	1.31%	3.27%	3.21%	3.26%	1.44%	0.46%
Orissa	5.02%	0.65%	0.57%	1.01%	0.29%	1.13%	7.13%
Assam	1.34%	1.89%	6.04%	4.87%	1.23%	3.28%	1.99%
Bihar	13.40%	2.78%	8.81%	0.21%	1.58%	3.16%	12.73%
East Zone	6.42%	1.70%	4.81%	2.15%	1.86%	2.18%	5.65%

For the period October-December 2012, the state of Orissa leads in East zone in consumption of petrol by 2-wheelers, whereas West Bengal leads in consumption of petrol in cars.

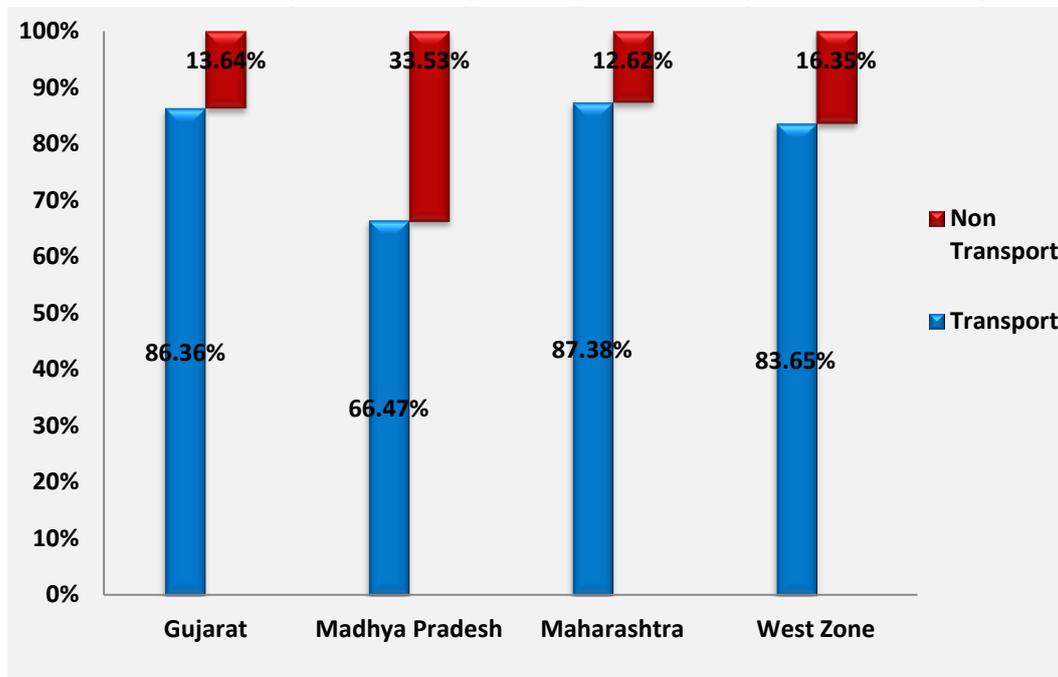
Figure 48: Petrol Consumption Break up Amongst the Sector Categories



West Zone

For the period October-December 2012, diesel consumption in the transport sector of West zone is maximum in the state of Maharashtra and least in Madhya Pradesh.

Figure 49: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period October-December 2012, under transport sector, Gujarat has the highest diesel consumption in private cars and UVs at 15.87% in West zone.

Table 22: Diesel Consumption Break up Amongst Transport Sector Categories

October - December of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers- Passenger/Goods
Gujarat	15.87%	11.22%	47.34%	11.93%
Madhya Pradesh	13.01%	15.21%	30.14%	8.11%
Maharashtra	13.44%	10.21%	53.38%	10.35%
West Zone	14.48%	11.45%	47.01%	10.72%

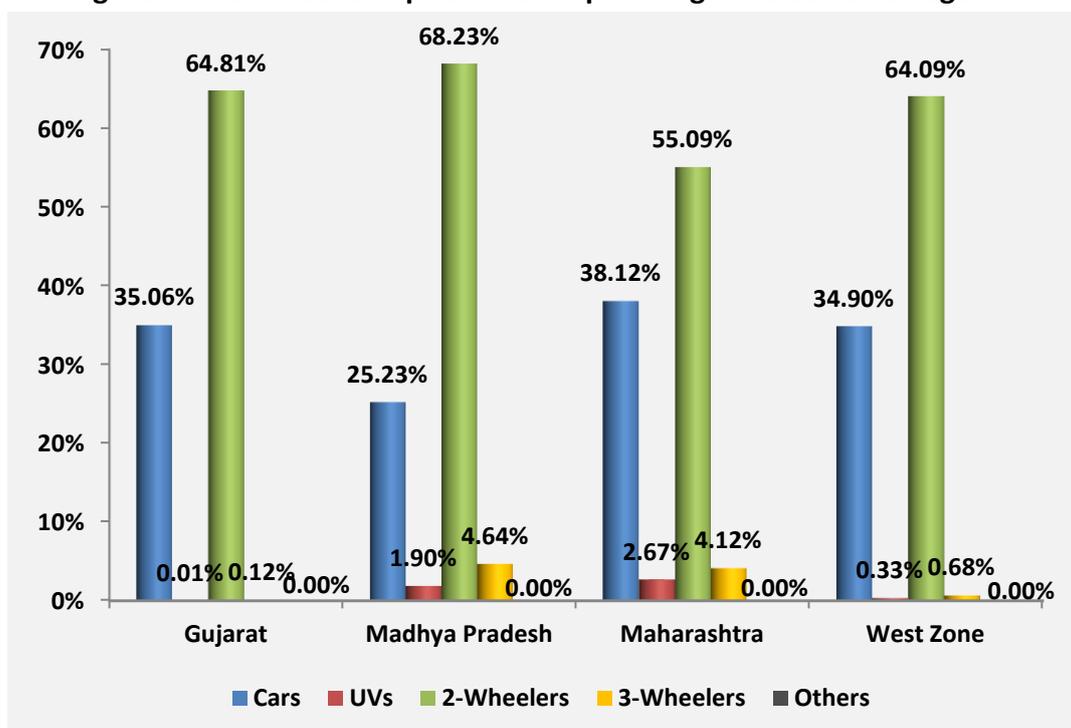
For the period October-December 2012, under non-transport sector, Madhya Pradesh has the highest diesel consumption in tractors at 14.32% in West zone.

Table 23: Diesel Consumption Break up Amongst Non-Transport Sector Categories

October - December of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
Gujarat	3.09%	2.31%	1.12%	1.34%	0.65%	1.01%	4.12%
Madhya Pradesh	14.32%	2.31%	6.76%	3.67%	0.33%	1.52%	4.62%
Maharashtra	3.11%	0.92%	1.76%	1.82%	1.02%	1.74%	2.25%
West Zone	4.85%	1.77%	2.25%	1.89%	0.74%	1.37%	3.47%

For the period October-December 2012, the state of Madhya Pradesh leads in West zone in consumption of petrol by 2-wheelers, whereas Maharashtra leads in consumption of petrol in cars.

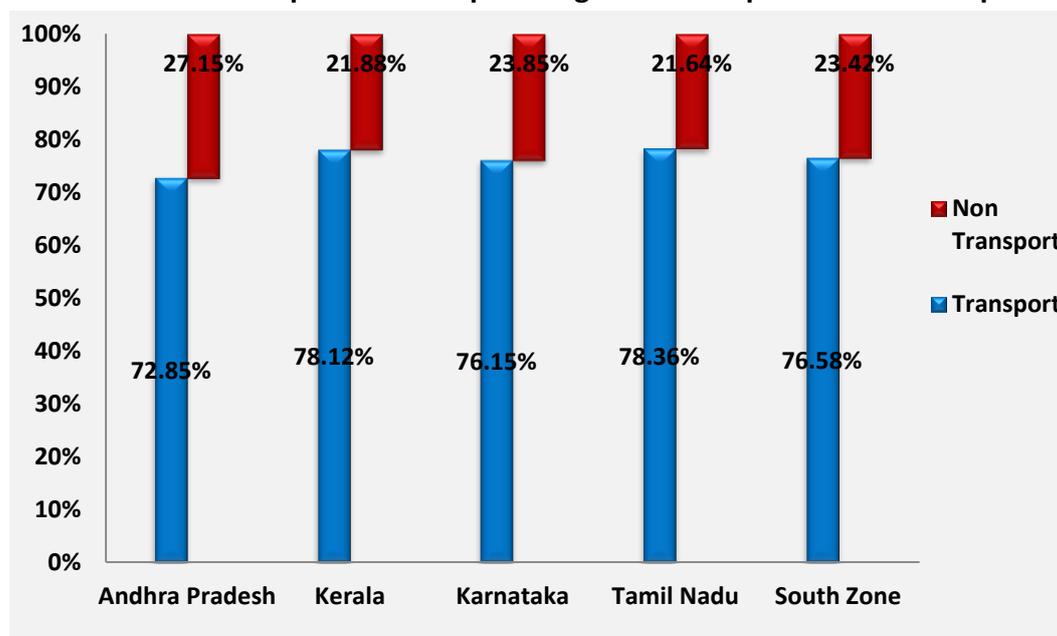
Figure 50: Petrol Consumption Break up Amongst the Sector Categories



South Zone

For the period October-December 2012, diesel consumption in the transport sector of South zone is maximum in two states, namely Kerala and Tamil Nadu and least in Andhra Pradesh.

Figure 51: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period October-December 2012, under transport sector, Karnataka has the highest diesel consumption in private cars and UVs at 20.23% in South zone.

Table 24: Diesel Consumption Break up Amongst Transport Sector Categories

October - December of 2012	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers- Passenger/Goods
Andhra Pradesh	18.29%	5.63%	42.78%	6.15%
Kerala	17.11%	7.41%	44.47%	9.13%
Karnataka	20.23%	9.12%	41.51%	5.29%
Tamil Nadu	18.13%	13.59%	38.30%	8.34%
South Zone	18.51%	10.17%	40.64%	7.26%

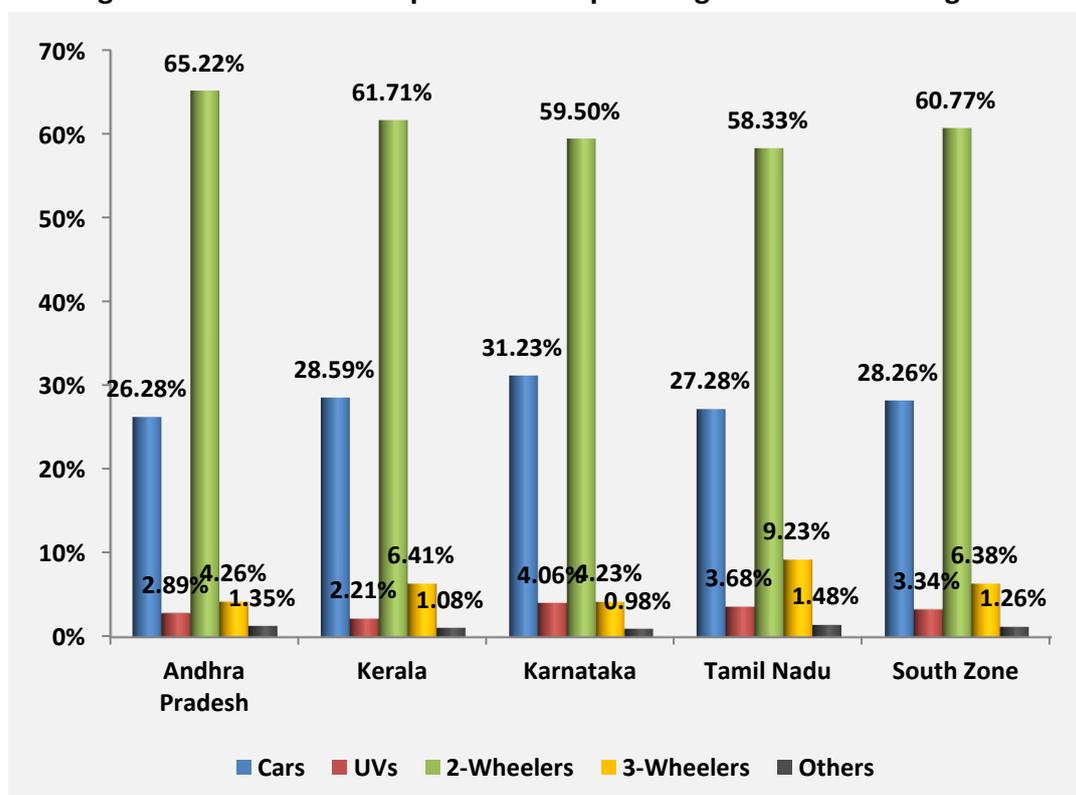
For the period October-December 2012, under non-transport sector, Andhra Pradesh has the highest diesel consumption in tractors at 7.09% in South zone.

Table 25: Diesel Consumption Break up Amongst Non-Transport Sector Categories

October - December of 2012	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
Andhra Pradesh	7.09%	1.48%	4.10%	5.02%	3.15%	0.79%	5.52%
Kerala	4.36%	1.68%	1.49%	5.68%	1.23%	1.21%	6.23%
Karnataka	5.39%	3.10%	2.75%	4.12%	2.11%	1.15%	5.23%
Tamil Nadu	4.20%	0.28%	3.23%	5.29%	2.63%	2.03%	3.98%
South Zone	5.14%	1.30%	3.16%	5.02%	2.50%	1.47%	4.83%

For the period October-December 2012, the state of Andhra Pradesh leads in South zone in consumption of petrol by 2-wheelers, whereas Karnataka leads in consumption of petrol in cars.

Figure 52: Petrol Consumption Break up Amongst the Sector Categories



April – June of 2013

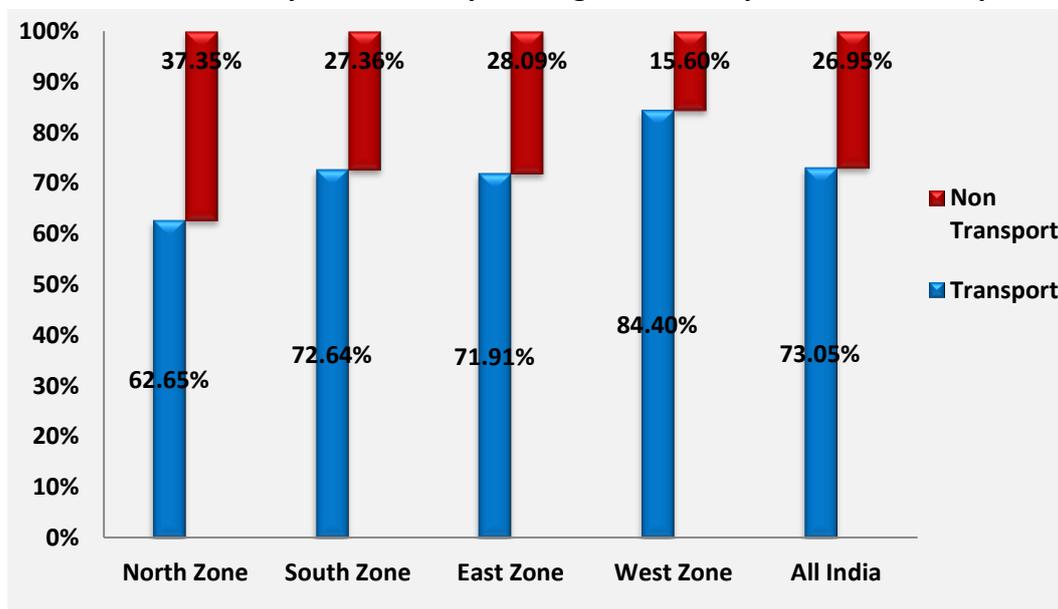
Dual pricing of diesel for retail and direct sales was made effective from mid-January, 2013. During this period, the share of diesel sold through retail outlets increased to nearly 90% from a level of 82-85% during the earlier rounds.

The diesel consumption in HCV/LCV and Buses is minimum for the period April-June 2013 vis-à-vis the other two periods i.e. July-September 2012 and October to December 2012. This is presumably because April, May and June are the hottest months of the year. Many truck drivers don't prefer to travel during the day in this period.

All India

For the period April-June 2013, North zone has the highest share of diesel consumption in non-transport sector and West zone has the highest consumption of diesel in the transport sector.

Figure 53: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



At an all India level, for the period April-June 2013, the diesel consumption in the transport sector is the highest in the HCV/LCV category and Buses category at 40.68% followed by private cars and UVs at 14.9%.

Table 26: Diesel Consumption Break up Amongst Transport Sector Categories

April – June of 2013	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
North Zone	14.20%	9.94%	34.60%	3.91%
South Zone	16.05%	9.16%	40.96%	6.48%
East Zone	16.17%	10.59%	35.61%	9.55%
West Zone	14.55%	10.93%	48.78%	10.14%
All India	14.90%	10.23%	40.68%	7.24%

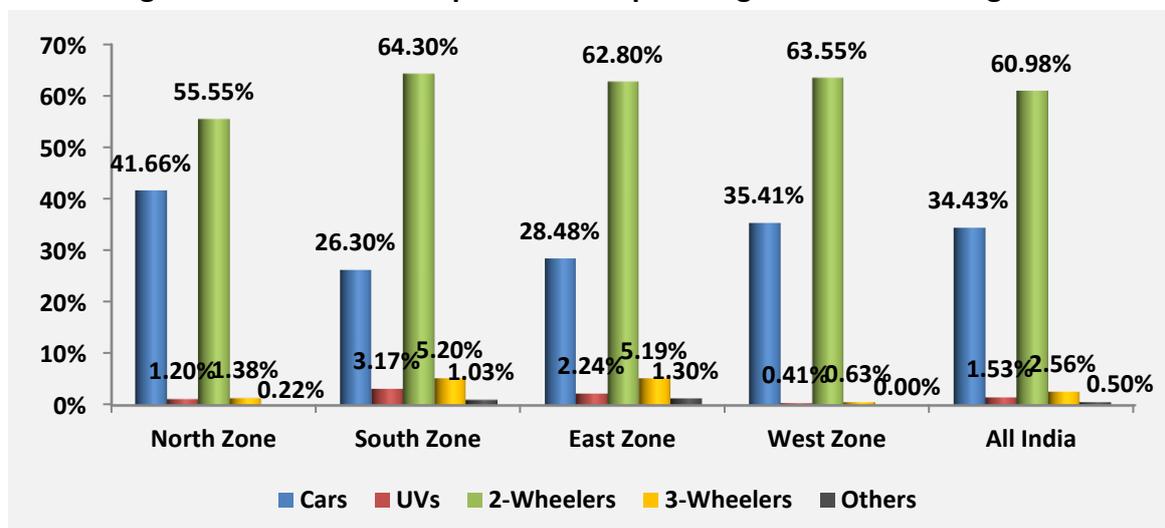
At an all India level, for the period April-June 2013, the diesel consumption in the non-transport sector is the highest in the tractors category at 8.71% followed by industry gensets at 4.74%. This is presumably because December to January is the period for harvesting of Zaid Rabi crops, May to July is the period for sowing of Kharif crops and April is the last month in the harvesting season of Rabi crop.

Table 27: Diesel Consumption Break up Amongst Non-Transport Sector Categories

April – June of 2013	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset-non-industry purposes) & Others
North Zone	15.20%	5.88%	3.38%	5.62%	2.65%	1.69%	2.94%
South Zone	5.50%	2.98%	0.49%	7.91%	2.93%	2.00%	5.55%
East Zone	8.37%	2.59%	2.42%	4.55%	1.75%	2.25%	6.17%
West Zone	3.79%	1.21%	2.31%	2.33%	1.18%	1.41%	3.36%
All India	8.71%	3.34%	2.39%	4.74%	2.08%	1.72%	3.97%

For the period April-June 2013, the petrol consumption for 2-wheelers is highest in both South and West zones at around 64% followed by East and North zones.

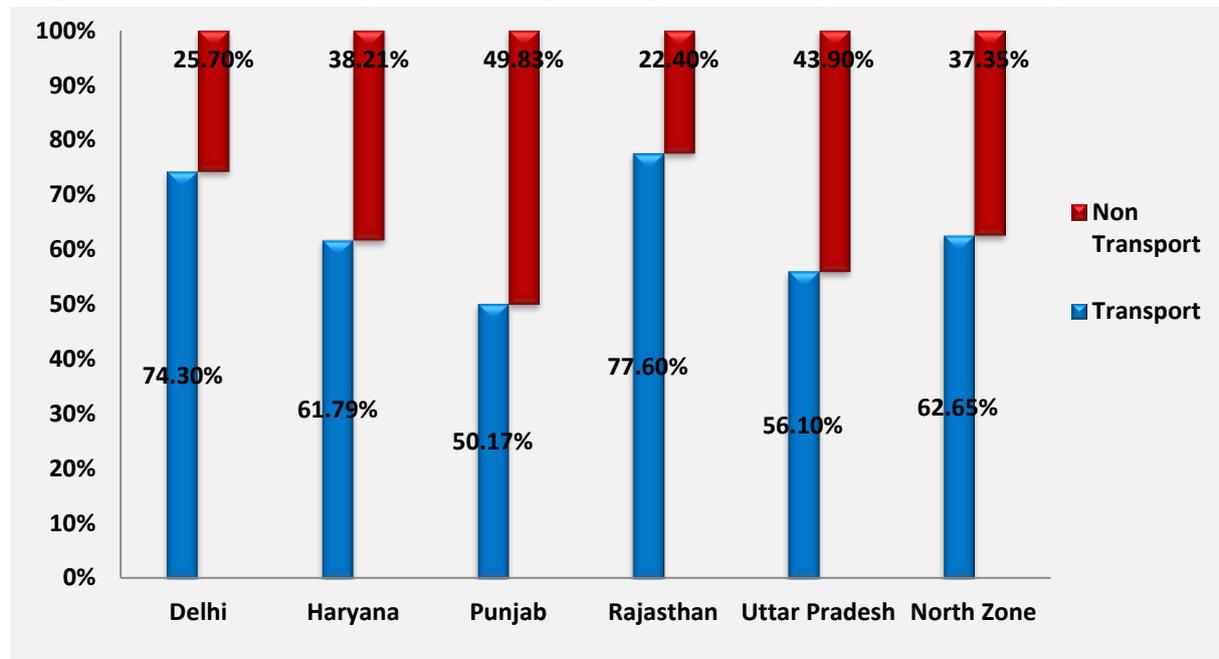
Figure 54: Petrol Consumption Break up Amongst the Sector Categories



North Zone

For the period April-June 2013, diesel consumption in the transport sector of North zone is maximum in the state of Rajasthan at 77.60% and least in Punjab.

Figure 55: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period April-June 2013, under transport sector, Delhi has the highest diesel consumption in private cars and UVs at 35.9% in North zone. This may be because most of the commercial vehicles in Delhi are running on CNG.

Table 28: Diesel Consumption Break up Amongst Transport Sector Categories

April – June of 2013	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
Delhi	35.90%	19.30%	18.30%	0.80%
Haryana	6.90%	3.10%	49.59%	2.20%
Punjab	14.50%	10.01%	23.96%	1.70%
Rajasthan	17.30%	19.20%	35.60%	5.50%
Uttar Pradesh	15.20%	8.30%	26.90%	5.70%
North Zone	14.20%	9.94%	34.60%	3.91%

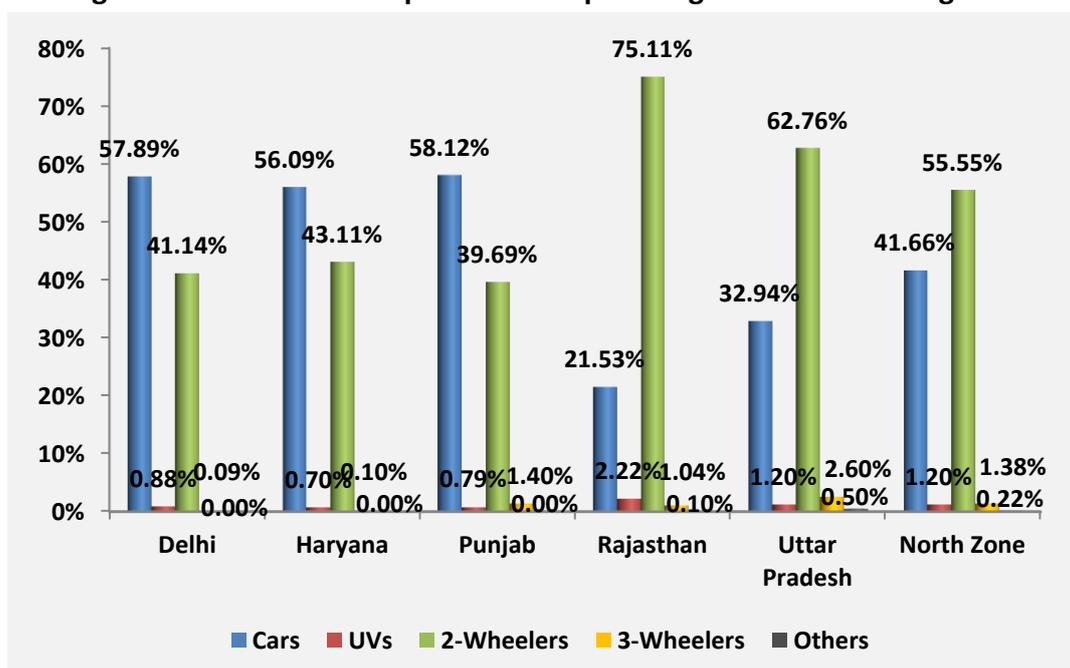
For the period April-June 2013, under non-transport sector, Punjab has the highest diesel consumption in tractors at 21.11% in North zone.

Table 29: Diesel Consumption Break up Amongst Non-Transport Sector Categories

April – June of 2013	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset-non-industry purposes) & Others
Delhi	0.19%	0.00%	0.11%	8.20%	5.00%	0.01%	12.19%
Haryana	13.02%	8.21%	1.98%	8.10%	2.40%	0.56%	3.94%
Punjab	21.11%	10.68%	6.14%	6.10%	1.80%	0.88%	3.12%
Rajasthan	14.06%	2.16%	0.98%	3.10%	1.10%	0.69%	0.31%
Uttar Pradesh	18.04%	5.39%	5.77%	4.50%	3.90%	3.98%	2.32%
North Zone	15.20%	5.88%	3.38%	5.62%	2.65%	1.69%	2.94%

For the period April-June 2013, the state of Rajasthan leads in North zone in consumption of petrol by 2-wheelers at 75.11%, whereas Punjab leads in consumption of petrol in cars at 58.12%.

Figure 56: Petrol Consumption Break up Amongst the Sector Categories

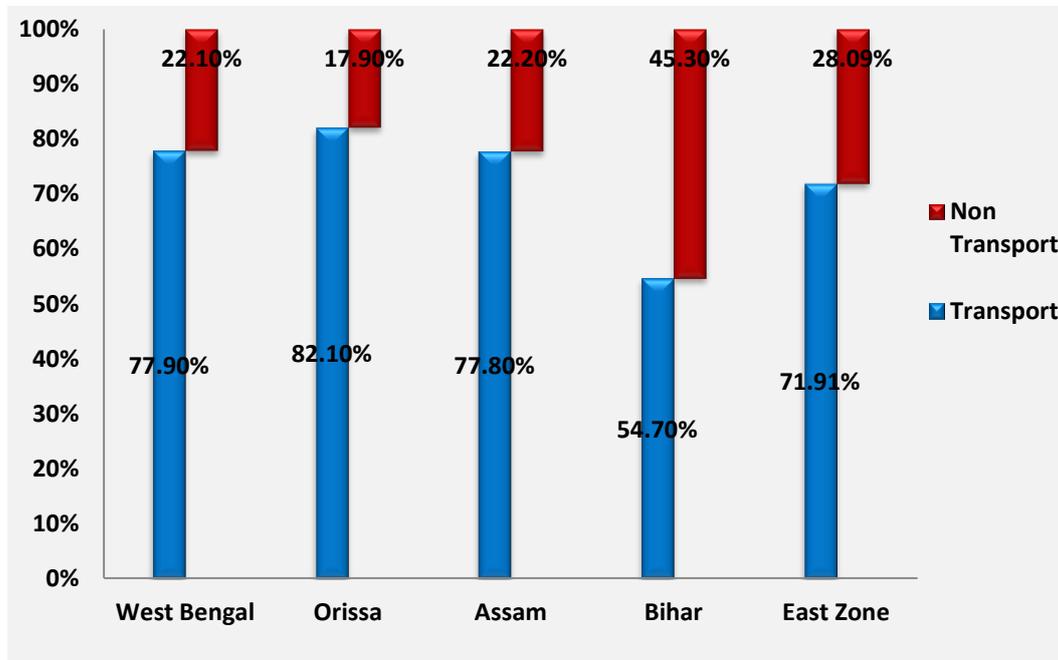


Considering all the three time periods, Delhi, Haryana and Punjab are the only states, all belonging to North zone, where the petrol consumption in cars is more than the petrol consumption in 2 wheelers. This is probably due to the lower prices of petrol in these states than the rest of the states under consideration. And also because of people preferring cars that run on petrol than diesel due to their lower initial costs and lower maintenance costs.

East Zone

For the period April-June 2013, diesel consumption in the transport sector of East zone is maximum in the state of Orissa and least in Bihar.

Figure 57: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period April-June 2013, under transport sector, West Bengal has the highest diesel consumption in private cars and UVs at 18.2% in East zone.

Table 30: Diesel Consumption Break up Amongst Transport Sector Categories

April – June of 2013	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
West Bengal	18.20%	12.80%	42.00%	4.90%
Orissa	16.50%	11.10%	41.60%	12.90%
Assam	15.80%	15.90%	29.60%	16.50%
Bihar	13.70%	4.70%	27.20%	9.10%
East Zone	16.17%	10.59%	35.61%	9.55%

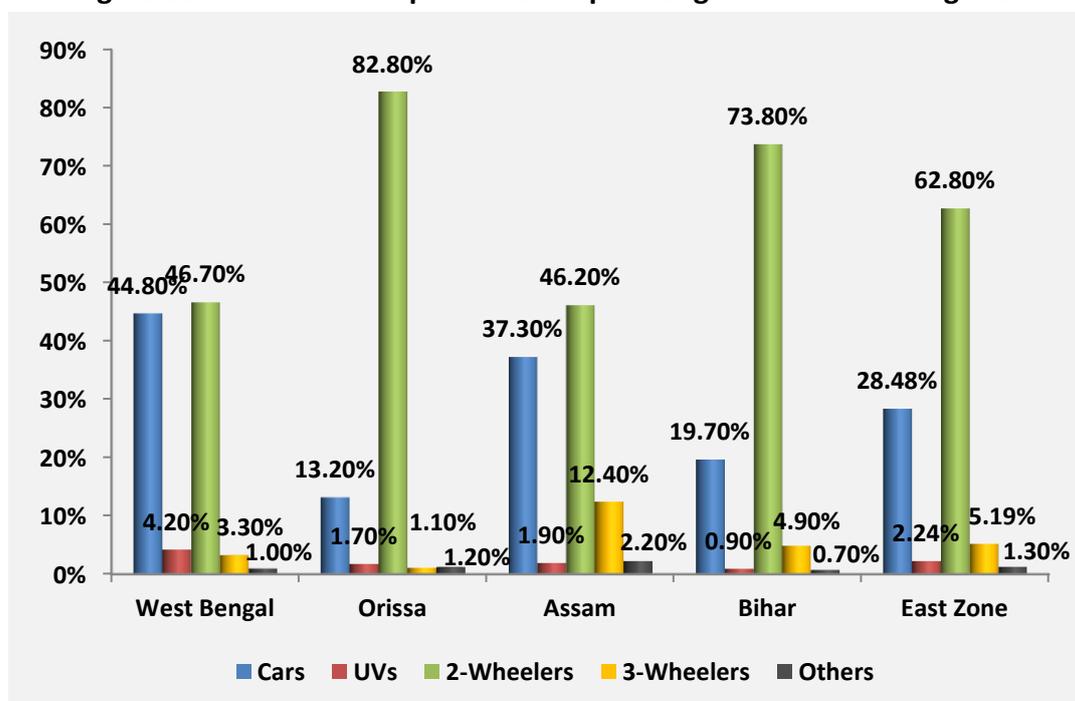
For the period April-June 2013, under non-transport sector, Bihar has the highest diesel consumption in tractors at 16.5% in East zone.

Table 31: Diesel Consumption Break up Amongst Non-Transport Sector Categories

April – June of 2013	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
West Bengal	5.05%	2.65%	2.40%	5.60%	2.90%	2.20%	1.30%
Orissa	5.44%	0.46%	0.30%	2.80%	0.30%	1.34%	7.26%
Assam	4.33%	2.99%	1.98%	6.30%	1.30%	3.22%	2.08%
Bihar	16.50%	3.71%	4.09%	3.50%	1.60%	2.40%	13.50%
East Zone	8.37%	2.59%	2.42%	4.55%	1.75%	2.25%	6.17%

For the period April-June 2013, the state of Orissa leads in East zone in consumption of petrol by 2-wheelers at 82.80%, whereas West Bengal leads in consumption of petrol in cars at 44.80%.

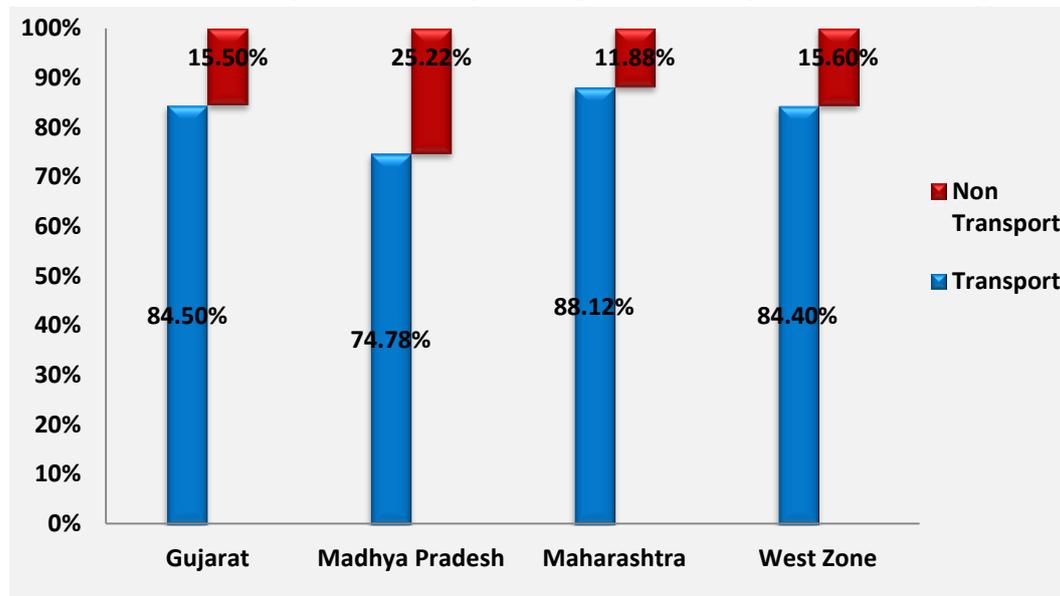
Figure 58: Petrol Consumption Break up Amongst the Sector Categories



West Zone

For the period April-June 2013, diesel consumption in the transport sector of West zone is maximum in the state of Maharashtra and least in Madhya Pradesh.

Figure 59: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period April-June 2013, under transport sector, Madhya Pradesh has the highest diesel consumption in private cars and UVs at 16.88% in West zone.

For Gujarat, diesel consumption in 3-wheelers-Passenger/Goods is decreasing period on period. Diesel consumption in 3-wheelers-Passenger/Goods in July-September 2012, October-December 2012 and April-June 2013 was 12.02%, 11.93% and 11.13% respectively. This is presumably because many of the 3-wheelers-Passenger/Goods might have shifted to CNG.

Table 32: Diesel Consumption Break up Amongst Transport Sector Categories

April – June of 2013	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
Gujarat	15.45%	11.02%	46.90%	11.13%
Madhya Pradesh	16.88%	11.51%	37.04%	9.35%
Maharashtra	12.56%	10.60%	55.67%	9.29%
West Zone	14.55%	10.93%	48.78%	10.14%

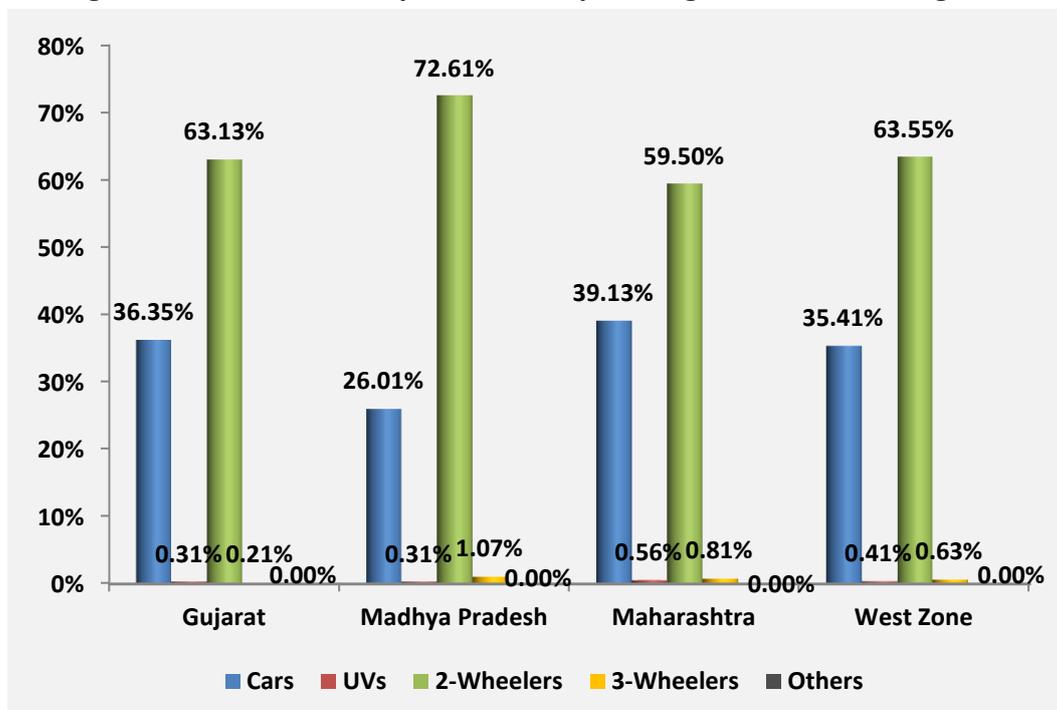
For the period April-June 2013, under non-transport sector, Madhya Pradesh has the highest diesel consumption in tractors at 9.2% in West zone.

Table 33: Diesel Consumption Break up Amongst Non-Transport Sector Categories

April – June of 2013	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
Gujarat	2.88%	1.48%	1.75%	2.22%	1.28%	0.94%	4.95%
Madhya Pradesh	9.20%	1.69%	4.22%	3.10%	1.13%	1.52%	4.36%
Maharashtra	2.69%	0.70%	2.21%	2.15%	1.09%	1.92%	1.12%
West Zone	3.79%	1.21%	2.31%	2.33%	1.18%	1.41%	3.36%

For the period April-June 2013, the state of Madhya Pradesh leads in West zone in consumption of petrol by 2-wheelers at 72.61%, whereas Maharashtra leads in consumption of petrol in cars at 39.13%.

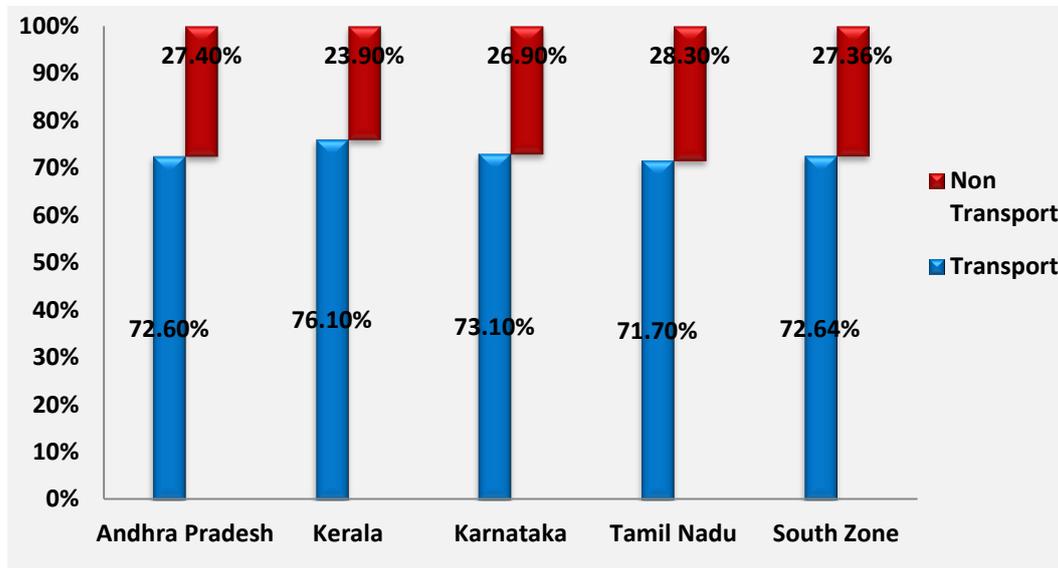
Figure 60: Petrol Consumption Break up Amongst the Sector Categories



South Zone

For the period April-June 2013, diesel consumption in the transport sector of South zone is maximum in the state of Kerala and least in Tamil Nadu.

Figure 61: Diesel Consumption Break up Amongst the Transport & Non-Transport Sector



For the period April-June 2013, under transport sector, Karnataka has the highest diesel consumption in private cars and UVs at 18.1% in South zone.

Table 34: Diesel Consumption Break up Amongst Transport Sector Categories

April – June of 2013	Diesel Transport			
	Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
Andhra Pradesh	16.20%	9.20%	40.10%	7.10%
Kerala	16.10%	8.20%	43.70%	8.10%
Karnataka	18.10%	9.50%	40.30%	5.20%
Tamil Nadu	15.00%	9.20%	41.10%	6.40%
South Zone	16.05%	9.16%	40.96%	6.48%

For the period April-June 2013, under non-transport sector, Andhra Pradesh has the highest diesel consumption in tractors at 8.11% in South zone. During April-June 2013, the diesel consumption in Industry – Gensets in Tamil Nadu is 9.3%. This is due to the deficit in power rising to 34.1%, the highest in the country, from last year's 17.5%.¹⁹

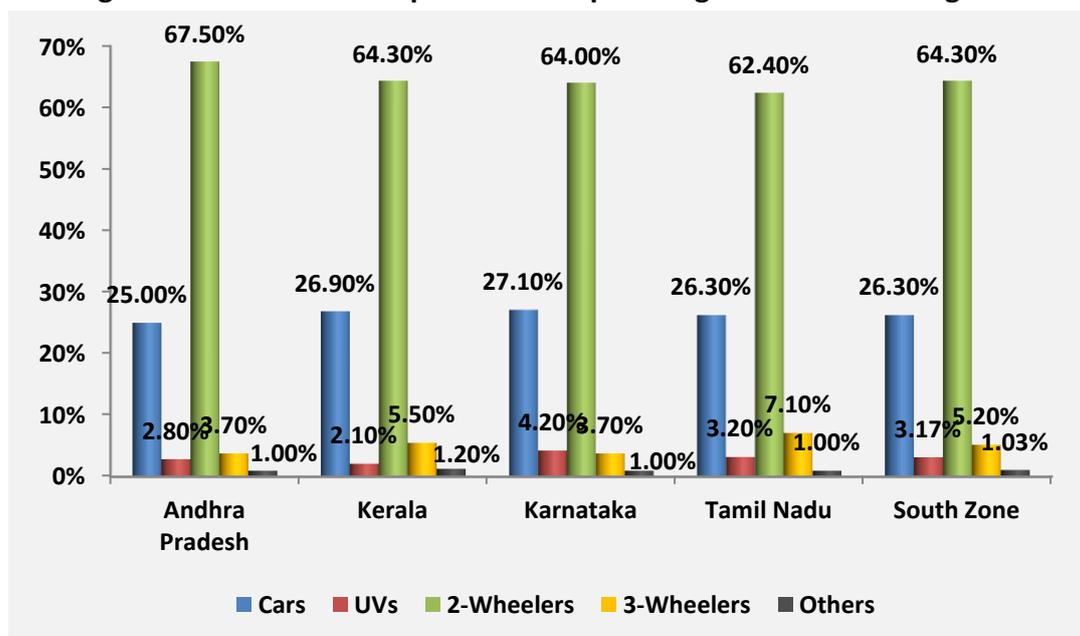
¹⁹ Central Electricity Authority (CEA), http://articles.timesofindia.indiatimes.com/2013-09-05/india/41799899_1_eastern-and-western-grids-southern-grid-power-demand

Table 35: Diesel Consumption Break up Amongst Non-Transport Sector Categories

April – June of 2013	Diesel Non-Transport						
	Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset-non-industry purposes) & Others
Andhra Pradesh	8.11%	1.19%	0.20%	7.20%	2.80%	1.19%	6.71%
Kerala	4.57%	2.22%	1.41%	6.80%	2.50%	1.77%	4.63%
Karnataka	5.36%	4.21%	0.63%	6.20%	2.70%	2.28%	5.52%
Tamil Nadu	4.44%	3.48%	0.38%	9.30%	3.20%	2.34%	5.16%
South Zone	5.50%	2.98%	0.49%	7.91%	2.93%	2.00%	5.55%

For the period April-June 2013, the state of Andhra Pradesh leads in South zone in consumption of petrol by 2-wheelers at 67.50%, whereas both Kerala and Karnataka lead in consumption of petrol in cars at around 27%.

Figure 62: Petrol Consumption Break up Amongst the Sector Categories



9.0 All India Composite Results for Diesel – Retail and Direct Sales

a. Survey Findings under different time periods – Retail and Direct Sales

July - September of 2012

For the period July-September 2012, diesel consumption in transport sector is 69.80% and in non-transport sector it is 30.20%. For this period, diesel consumption is maximum in HCV/LCV at 28.78%, followed by private Cars and UVs at 12.49%.

Table 36: All India End-use Share (%) of Diesel in Retail and Direct – July - September of 2012

End Use Segment	Overall % (Only Retail)	Retail Sales Volume (TMT)	Direct Sales Volume (TMT)	Overall Volume (Retail and Direct) (TMT)	Overall % (Retail and Direct)
CARS/UVs					
Cars & UVs - Private	14.73	2315.26	-	2315.26	12.49
Cars & UVs - Commercial	10.11	1589.09	-	1589.09	8.57
3 Wheelers-Passenger/Goods	7.49	1177.28	-	1177.28	6.35
COMMERCIAL VEHICLES					
HCV/LCV	33.94	5334.69	-	5334.69	28.78
Buses	7.23	1136.41	649	1785.41	9.63
OTHER TRANSPORT					
Aviation/Shipping	-	-	96	96.00	0.52
Railways	-	-	642	642.00	3.46
AGRICULTURE					
Tractors	6.09	957.76	133	2125.36	11.46
Agri Implements	3.39	532.93			
Agri Pumpset	4.04	634.67			
OTHERS					
Industry - Genset	4.46	700.83	54	754.83	4.07
Industry - Other Purpose	2.18	342.49	687	1029.49	5.55
Mobile Tower	2.05	321.56	-	321.56	1.73
Others (Genset for non-industry purposes) & Others	4.30	675.26	692	1367.26	7.38
TOTAL	100.00	15718.23	2953.00	18538.23	100.00

For June-September 2012, nearly 36% of the total diesel consumed by Buses is directly supplied by Oil Marketing Companies (OMCs) to State Transport Corporations (STC).

October - December of 2012

For the period July-September 2012, diesel consumption in transport sector is about 70% and in non-transport sector it is about 30%. For this time period, diesel consumption is maximum in HCV/LCV at 27.06%, followed by private Cars and UVs at 13.42%.

Table 37: All India End-use Share (%) of Diesel in Retail and Direct: October - December of 2012

End Use Segment	Overall % (Only Retail)	Retail Sales Volume (TMT)	Direct Sales Volume (TMT)	Overall Volume (Retail and Direct) (TMT)	Overall % (Retail and Direct)
CARS/UVs					
Cars & UVs - Private	15.74	2769.76	-	2769.76	13.42
Cars & UVs - Commercial	10.50	1848.99	-	1848.99	8.96
3 Wheelers- Passenger/Goods	7.35	1294.16	-	1294.16	6.27
COMMERCIAL VEHICLES					
HCV/LCV	31.74	5586.92	-	5586.92	27.06
Buses	8.84	1555.86	660	2215.86	10.73
OTHER TRANSPORT					
Aviation/Shipping	-	-	99	99.00	0.48
Railways	-	-	634	634.00	3.07
AGRICULTURE					
Tractors	8.05	1417.17	221	2744.58	13.29
Agri Implements	2.69	473.02			
Agri Pumpset	3.60	633.40			
OTHERS					
Industry - Genset	3.84	676.17	54	730.17	3.54
Industry - Other Purpose	2.08	366.39	734	1100.39	5.33
Mobile Tower	1.57	275.86	-	275.86	1.34
Others (Genset for non-industry purposes) & Others	4.00	704.31	640	1344.31	6.51
TOTAL	100.00	17602.01	3042.00	20644.01	100.00

For October-December 2012, nearly 30% of the total diesel consumed by Buses is directly supplied by Oil Marketing Companies (OMCs) to State Transport Corporations (STC).

April – June of 2013

For the period April-June 2013, diesel consumption in transport sector is 70.63% and in non-transport sector it is 29.37%. For this time period, diesel consumption is maximum in HCV/LCV at 29.16%, followed by private Cars and UVs at 13.56%.

Table 38: All India End-use Share (%) of Diesel in Retail and Direct: April – June of 2013

End Use Segment	Overall % (Only Retail)	Retail Sales Volume (TMT)	Direct Sales Volume (TMT)	Overall Volume (Retail and Direct) (TMT)	Overall % (Retail and Direct)
CARS/UVs					
Cars & UVs - Private	14.90	2751.15	-	2751.15	13.56
Cars & UVs - Commercial	10.23	1889.57	-	1889.57	9.31
3 Wheelers-Passenger/Goods	7.24	1336.18	-	1336.18	6.58
COMMERCIAL VEHICLES					
HCV/LCV	32.05	5918.44	-	5918.44	29.16
Buses	8.63	1593.49	98	1691.49	8.33
OTHER TRANSPORT					
Aviation/Shipping	-	-	93	93.00	0.46
Railways	-	-	655	655.00	3.23
AGRICULTURE					
Tractors	8.71	1608.46	78	2744.37	13.52
Agri Implements	3.34	616.61			
Agri Pumpset	2.39	441.30			
OTHERS					
Industry - Genset	4.74	875.87	59	934.87	4.61
Industry - Other Purpose	2.08	383.34	445	828.34	4.08
Mobile Tower	1.72	318.38	-	318.38	1.57
Others (Genset for non-industry purposes) & Others	3.97	732.20	403	1135.20	5.59
TOTAL	100.00	18465.00	1831.00	20296.00	100.00

For April-June 2013, only 6 % of the total diesel consumed by Buses is directly supplied by Oil Marketing Companies (OMCs) to State Transport Corporations (STC). This drop is presumably because STCs are bulk consumers of diesel and after partial deregulation in diesel prices (mid-January 2013 onwards), OMCs have started charging the market price from STCs. Now most of the STC buses are purchasing diesel from city ROs late at night.

b. All India Diesel Aggregated & Consolidated Findings – Retail + Direct Sales

At an aggregate all India level, diesel consumption in transport sector is 70% and in non-transport sector it is 30%. At an all India level, diesel consumption is maximum in HCV/LCV at 28.25%, followed by private cars and UVs at 13.15%. Buses consume about 9.55% and railways about 3.24% of total diesel consumption.

The agriculture sector is a major consumer of diesel with 13% of the total consumption accounted for by it.

Diesel consumption by other segments is 17 per cent. This comprises of industry 9.02% (of which gensets 4.06 % and others for industrial purposes 4.96%), mobile towers (1.54%) and others 6.45% comprising of gensets for non-industrial purposes, civil construction, etc.

Table 39: All India End-use Share (%) of Diesel in Retail and Direct – All India Aggregate

End Use Segment	Retail Sales Volume (TMT)	Direct Sales Volume (TMT)	Overall Volume (Retail and Direct) (TMT)	Overall % (Retail and Direct)
CARS/UVs				
Cars & UVs - Private	2612.06	-	2612.06	13.15
Cars & UVs - Commercial	1775.88	-	1775.88	8.94
3 Wheelers-Passenger/Goods	1269.21	-	1269.21	6.39
COMMERCIAL VEHICLES				
HCV/LCV	5613.35	-	5613.35	28.25
Buses	1428.59	469	1897.59	9.55
OTHER TRANSPORT				
Aviation/Shipping	-	96	96.00	0.48
Railways	-	644	643.67	3.24
AGRICULTURE				
Tractors	1327.80	144	2582.44	13.00
Agri Implements	540.85			
Agri Pumpset	569.79			
OTHERS				
Industry - Genset	750.96	56	806.63	4.06
Industry - Other Purpose	364.07	622	986.07	4.96
Mobile Tower	305.27	-	305.27	1.54
Others (Genset for non-industry purposes) & Others	703.92	578	1282.26	6.45
TOTAL	17261.75	2608.67	19870.41	100.00

10.0 Findings of the household / customer survey

During the study in all the rounds, in-depth survey had been carried out of those who are buying loose diesel i.e. in cans/ barrels, instead of taking fuel in the tanks of their vehicle. The survey had been carried out both in urban and rural outlet with a limited sample size. The total number of observations was 4000 i.e. 1000 in each round. The consumption in pump sets has seen a decline in certain pockets. Secondly the ROs surveyed in the outskirts have seen a great off take in terms of other activities such as road construction, gensets, and bakery applications. The all India major findings are enumerated below:

- In majority of the cases, bearer of the can / barrels simply asks for certain quantity of diesel, with less knowledge about exact application of that diesel. The tracer survey reveals that majority is getting consumed to run generator sets under different application areas, e.g. running gen set at mobile tower, running gen set at the factory/ office, running gen set for hotels, hospitals as well as for commercial and housing complex. This kind of activity is very much rampant in case of urban outlet. Whereas in case of highway or rural outlets, it is mainly consumed for running pump set & other agri equipment as an alternative to electricity. Even in case of rural areas, they carry diesel to nearby villages for storage and consumption whenever needed.
- In urban areas, one of the interesting applications is to use diesel as fuel especially for bakery and sweetmeat industry.
- The average purchase per transaction varies widely in the range of 25 to 200 liters. There is no consistency in terms of frequency of purchase.

11.0 Conclusion

Following conclusions can be made from the data collected during the field work:

Diesel

- At an aggregate all India level, under the transport sector, diesel consumption is maximum in HCV/LCV and Buses followed by private Cars and UVs. The large number of additions of the modern and improved technology diesel vehicles on the roads during the past couple of years may have contributed to the higher trend in consumption of diesel in private cars and UVs. Whereas in non-transport sector, diesel consumption is maximum in tractors segment followed by industry generators. This is apparently because tractors are not necessarily used only for agricultural purpose, but they are also used for commercial purposes and as a means for transporting people.
- In North Zone, under transport sector, diesel consumption is maximum in HCV/LCV and Buses at 35.72%, followed by Private Cars and UVs at 13.73%. Whereas under non-transport sector, diesel consumption in tractors, agri implements and agri pump sets congregated together is approximately 22% of the total diesel consumption in North zone. This is perhaps because agriculture is the main activity in North India.
- In East zone, under transport sector, diesel consumption is maximum in HCV/LCV and Buses at 37.5%, followed by Private Cars and UVs at 17.79%. Whereas under non-transport sector, diesel consumption for running of mobile towers is very significant at 2.6%. This is probably due to the lack of power source at high altitudes because of hilly terrain and low density rural areas. In such a case, generators remain to be the only option for mobile service providers to keep the BTS operational.
- In West zone, under transport sector, diesel consumption is maximum in HCV/LCV and Buses at 47.35%, followed by Private Cars and UVs at 14.4%. Whereas, diesel consumption is only 12.3% in non-transport sector, excluding diesel consumption in tractor. For North, East and South zones, the diesel consumption in non-transport sector (excluding diesel consumption in tractor) is 24.4%, 19.9% and 18.7% respectively.

- In South zone, under transport sector, diesel consumption is maximum in HCV/LCV and Buses at 41.6%, followed by Private Cars and UVs at 17.13%. Whereas, under non-transport sector, South zone is the only zone where diesel consumption in Industry genset (5.58%) is more than the diesel consumption in tractors (5.03%). This presumably may be because of huge power deficit in the Southern states.

Petrol:

- At an aggregate all India level, North zone has the lowest consumption of petrol in terms of volume for 2-wheelers, and highest consumption of petrol by 4 wheelers.
- In North zone, the state of Rajasthan leads in consumption of petrol by 2-wheelers, whereas Delhi leads in consumption of petrol in cars.
- In East zone, the state of Orissa leads in East zone in consumption of petrol by 2- wheelers, whereas West Bengal leads in consumption of petrol in cars. This is presumably because West Bengal is more urban than Orissa and has one of the metropolitan cities (Kolkata) of India as its capital.
- In West zone, the state of Madhya Pradesh leads in the consumption of petrol by 2- wheelers, whereas the state of Maharashtra leads in the consumption of petrol in cars.
- In South zone, the state of Andhra Pradesh leads in consumption of petrol by 2- wheelers, whereas Karnataka leads in consumption of petrol in cars.

12.0 Appendix

- **Details of Retail Sales of Diesel – Zone wise**

The following table shows the diesel consumption across categories for each zone:

Table 40: Zone-wise – Aggregate consumption of diesel - Retail Sales

End Use Segment	North	East	West	South	Overall
	(%)				
CARS/UVs					
Cars & UVs - Private	13.73	17.79	14.40	17.13	15.13
Cars & UVs - Commercial	10.02	9.37	11.17	9.96	10.29
3 Wheelers-Passenger/Goods	3.83	8.47	10.48	7.65	7.36
COMMERCIAL VEHICLES					
HCV/LCV and Buses	35.72	37.50	47.35	41.60	40.80
AGRICULTURE					
Tractors	12.32	7.04	4.27	5.03	7.65
Agri Implements	5.09	2.28	1.88	2.26	3.13
Agri Pumpset	4.55	4.33	2.26	1.98	3.33
OTHERS					
Industry - Genset	6.42	2.82	2.18	5.58	4.34
Industry - Other Purpose	3.17	1.72	0.98	2.44	2.11
Mobile Tower	1.82	2.57	1.45	1.60	1.77
Others (Genset for non-industry purposes) & Others	3.35	6.11	3.59	4.77	4.08

HIGHEST	LOWEST
---------	--------

- In **North** zone, in the transport sector, diesel consumption is maximum in Heavy or Light Commercial Vehicles and Buses (35.72%) followed by Private Cars and UVs (13.73%), whereas in the non-transport sector, diesel consumption is the maximum in Tractors (12.32%). The diesel consumption in Tractors is the highest in North zone compared to all other zones.
- In **East** zone, in the transport sector, diesel consumption is maximum in Heavy or Light Commercial Vehicles and Buses (37.5%) followed by Private Cars and UVs (17.79%) whereas in the non-transport sector, diesel consumption is the maximum in Tractors (7%). The diesel consumption in Private Cars and UVs is the highest in East zone compared to all other zones.
- In **West** zone, in the transport sector, diesel consumption is maximum in Heavy or Light Commercial Vehicles and Buses (47.35%) followed by

Private Cars and UVs (14.4%) whereas in the non-transport sector, diesel consumption is the maximum in Tractors (4.3%). The diesel consumption in HCV/LCV and Buses is the highest in West zone compared to all other zones.

- In **South** zone, in the transport sector, diesel consumption is maximum in Heavy or Light Commercial Vehicles and Buses (41.6%) followed by Private Cars and UVs (17.13%) whereas, in the non-transport sector, diesel consumption is the maximum in Industry genset (5.6%).

● **Details of Retail Sales of Petrol – Zone wise**

The following table shows the petrol consumption across categories for each zone:

Table 41: Zone-wise – Aggregate consumption of Petrol - Retail Sales

	North Zone	East Zone	West Zone	South Zone	All India
Cars	40.17%	27.39%	34.72%	27.71%	34.33%
UVs	2.94%	2.79%	0.43%	3.77%	1.51%
2-Wheelers	54.72%	61.66%	63.70%	60.76%	61.42%
3-Wheelers	1.84%	6.48%	1.10%	6.53%	2.34%
Others	0.33%	1.69%	0.06%	1.22%	0.39%
	HIGHEST	LOWEST			

- In **North** zone, petrol consumption is maximum in 2 wheelers (54.72%) followed by Cars (40.17%). The petrol consumption in Cars is the highest in North zone and in 2-wheelers it is the lowest compared to all other zones.
- In **East** zone, petrol consumption is maximum in 2 wheelers (61.66%) followed by Cars (27.39%). The petrol consumption in Cars is the lowest in East zone compared to all other zones.
- In **West** zone, petrol consumption is maximum in 2 wheelers (63.7%) followed by Cars (34.72%). The petrol consumption in 2-wheelers is the highest in West zone compared to all other zones.
- In **South** zone, petrol consumption is maximum in 2 wheelers (60.76%) followed by Cars (27.71%). The petrol consumption in 3-wheelers is the highest in South zone compared to all other zones.

- **Details of Retail Sales of Diesel – State wise**

The following table shows the diesel consumption across transport categories for all 16 states:

Table 42: State-wise – Consumption of Diesel in Transport Sector - Retail Sales

S. No.	States	Diesel Transport			
		Cars & UVs Private	Cars & UVs Commercial	HCV/LCV & Buses	3 Wheelers-Passenger/Goods
		(%)			
1	Andhra Pradesh	16.99	7.16	42.24	7.47
2	Assam	17.77	15.47	29.12	15.74
3	Bihar	16.18	3.67	27.14	8.05
4	Delhi	34.69	18.43	18.49	0.29
5	Gujarat	15.65	11.11	47.04	11.68
6	Haryana	7.56	4.46	50.54	1.99
7	Karnataka	18.62	9.87	42.02	5.92
8	Kerala	16.22	8.26	41.94	9.63
9	Madhya Pradesh	13.93	12.93	32.75	8.34
10	Maharashtra	13.10	10.53	53.64	9.94
11	Orissa	16.21	11.12	45.29	9.37
12	Punjab	14.15	9.75	26.49	2.48
13	Rajasthan	15.61	16.82	39.58	4.83
14	Tamil Nadu	16.71	11.81	41.00	8.12
15	Uttar Pradesh	14.67	9.33	25.72	5.88
16	West Bengal	20.06	10.47	45.80	5.00
All India		15.13	10.29	40.80	7.36

- Diesel consumption by private cars & UVs is maximum in Delhi (34.69%) followed by West Bengal (20.06%) and lowest in Haryana (7.56%)
- Diesel consumption by commercial cars & UVs is again maximum in Delhi (18.43%) and lowest in Bihar (3.67%)
- In the states like Maharashtra and Haryana the diesel consumption by Heavy or Light commercial vehicles and buses is more than 50%.
- Diesel consumption by 3 Wheelers-Passenger/Goods is maximum in Assam (15.74%).

The following table shows the diesel consumption across non-transport categories for all 16 states:

Table 43: State-wise – Consumption of Diesel in Non-Transport Sector - Retail Sales

S. No.	States	Diesel Non-Transport						
		Tractors	Agri Implements	Agri Pumpset	Industry - Genset	Industry - Other Purpose	Mobile Tower	Others (Genset for non-industry purposes) & Others
		(%)						
1	Andhra Pradesh	6.70	1.96	2.56	5.59	3.09	1.09	5.17
2	Assam	3.75	2.57	3.89	4.87	1.36	3.32	2.14
3	Bihar	14.15	3.28	8.71	1.51	1.19	3.59	12.53
4	Delhi	0.65	0.00	0.21	9.84	7.53	0.02	9.85
5	Gujarat	2.96	2.40	1.22	1.61	0.92	0.97	4.44
6	Haryana	10.20	7.29	3.26	8.24	2.52	0.43	3.49
7	Karnataka	4.98	3.88	2.16	4.49	2.03	1.57	4.47
8	Kerala	3.76	2.15	1.43	5.57	2.14	1.24	7.65
9	Madhya Pradesh	11.85	2.72	6.23	3.63	0.81	1.63	5.17
10	Maharashtra	2.73	0.91	1.88	2.26	1.11	1.95	1.95
11	Orissa	4.84	0.69	0.61	1.68	0.61	1.13	8.45
12	Punjab	17.69	8.58	7.02	6.19	2.56	2.01	3.09
13	Rajasthan	12.42	2.50	1.87	3.20	1.25	0.87	1.05
14	Tamil Nadu	4.48	1.69	1.72	6.08	2.36	1.95	4.07
15	Uttar Pradesh	14.00	4.29	7.27	6.45	4.61	3.92	3.86
16	West Bengal	3.72	2.18	2.87	3.65	2.97	2.17	1.11
All India		7.65	3.13	3.33	4.34	2.11	1.77	4.08

- Diesel consumption by Tractors is maximum in Punjab (17.69%) followed by Bihar (14.15%) and lowest in Delhi (0.65%).
- Diesel consumption by Industry genset is maximum in Delhi (9.84%) followed by Haryana (8.24%).
- Diesel consumption by Mobile tower is maximum in Bihar (3.59%) followed by Assam (3.32%).

- **Details of Retail Sales of Petrol – State wise**

Table 44: State-wise – Consumption of Petrol - Retail Sales

S. No.	States	Petrol				
		Cars	UVs	2-Wheelers	3-Wheelers	Others
		(%)				
1	Andhra Pradesh	26.04	3.26	65.19	4.33	1.17
2	Assam	36.24	2.84	42.61	16.02	2.29
3	Bihar	18.24	0.85	75.18	5.41	0.32
4	Delhi	56.94	1.20	41.80	0.07	0.00
5	Gujarat	34.92	0.05	64.45	0.58	0.01
6	Haryana	54.83	0.59	44.44	0.14	0.00
7	Karnataka	29.24	4.73	59.81	5.15	1.07
8	Kerala	27.36	2.62	60.33	7.93	1.77
9	Madhya Pradesh	24.64	1.66	69.28	4.16	0.26
10	Maharashtra	38.33	2.30	55.94	3.10	0.32
11	Orissa	11.66	2.55	82.28	0.89	2.62
12	Punjab	56.63	0.91	40.81	1.65	0.00
13	Rajasthan	18.58	5.15	73.85	2.22	0.19
14	Tamil Nadu	27.90	4.01	58.77	8.25	1.07
15	Uttar Pradesh	31.74	4.14	60.19	3.20	0.73
16	West Bengal	44.42	4.48	45.40	4.67	1.03
	All India	34.33	1.51	61.42	2.34	0.39

- Petrol consumption by cars is maximum in Delhi (56.94%) and closely followed by Punjab (56.63%), while it is minimum in Orissa (11.66%).
- In the states like Orissa and Bihar, the petrol consumption by 2-wheelers is more than 75%.
- Petrol consumption by 3-Wheelers is maximum in Assam (16.02%).
- Petrol consumption by UVs is maximum in Rajasthan (5.15%) and minimum in Gujarat (0.05%).

The questionnaires used for the study are as follows:

1. QUESTIONNAIRE FOR RETAIL OUTLET

Retail Outlet Number **No. of Hours of Operation**
_From_____To_____
Qtr. No. **State Code** **District** **Oil Co.:**
BPC/HPC/IOC

<i>Name of Retail Outlet</i>			
<i>Address</i>			
<i>Contact Details</i>	<i>Proprietor Name</i>		<i>FAX No.</i>
	<i>Phone no.</i>		

1. Type of retail outlet

Type	Code (1/2/3/4)	Class of Market : A/B/C/D/E (PI Tick)	
COCO (1)/ 'A' Site RO(2)/Regular Outlet(3) / Rural Outlet (4)		No: of Dispensers –MS	
		No: of Dispensers -HSD	

2. Average monthly sales: (a)Petrol kL (b)Diesel kL
3. Is there any seasonality in sales of HSD (Diesel) at your RO? YES NO
4. If yes, please specify the peak, lean and average months for sale of Diesel:

S No.	Months	Peak Months (Yes/No)	Lean Months (Yes/No)	Average Sales
1	April			
2	May			
3	June			

5. Is there any seasonality in sales of MS (Petrol) at your RO? YES NO

6. If yes, please specify the peak, lean and average months for sale of MS (Petrol):

S No.	Months	Peak Months (Yes/No)	Lean Months (Yes/No)	Average Sales
1	April			
2	May			
3	June			

7. What are the Peak Hours and Lean Hours in a day for

S No.	FUEL	Peak Hrs	Lean Hours
1	MS		
2	HSD		

8. In HSD sales what is the ratio of Transport Non Transport

9. In your opinion /perception what is the % share of fuel from your RO (who are the user of fuel)

DIESEL Bought For	Share (%)	PETROL Bought for	Share (%)
Tractors		Cars	
Agri-implements		SUVs	
Agriculture Pump sets		2 wheeler	
Cars – Private Vehicles		3 –wheeler	
Cars- Commercial Vehicles		Others (Pls. specify)	
SUVs – Private Vehicles			
SUVs – Commercial Vehicles			
Comm. Vehicles- LCVs/HCVs			
Industry – Gensets			
Industry – Other Purposes			
Gensets (for non-industry - commercial or household use)			
Buses			
3 wheelers – passenger/goods			
Mobile Towers			
Others (Please Specify)			
Total	100%		100%

10. Average Number of vehicles of each type coming to your RO in one day : HSD
 _____ MS _____

Signature of Field Investigator: _____ Signature of RO Dealer: _____

2. OBSERVATION STUDY

(RETAIL OUTLET)

Retail Outlet Number

NAME & address of RO : _____

OIL COM: BPC/HPC/IOC (PL TICK)

State

District

Date: _____

Qtr No. DAY (1)/Tue(2)/Wed(3)/Thu(4)/Friday(5)/Sat(6)/Sun(7)

	Fuel Petrol 1 Diesel 2	Excl. 2 whlr (Y/N)						Fuel Petrol 1 Diesel 2	Excl. 2 whlr (Y/N)				
TOT-1			OPEN		CLOSE		TOT-17			OPEN		CLOSE	
TOT-2			OPEN		CLOSE		TOT-18			OPEN		CLOSE	
TOT-3			OPEN		CLOSE		TOT-19			OPEN		CLOSE	
TOT-4			OPEN		CLOSE		TOT-20			OPEN		CLOSE	
TOT-5			OPEN		CLOSE		TOT-21			OPEN		CLOSE	
TOT-6			OPEN		CLOSE		TOT-22			OPEN		CLOSE	
TOT-7			OPEN		CLOSE		TOT-23			OPEN		CLOSE	
TOT-8			OPEN		CLOSE		TOT-24			OPEN		CLOSE	
TOT-9			OPEN		CLOSE		TOT-25			OPEN		CLOSE	
TOT-10			OPEN		CLOSE		TOT-26			OPEN		CLOSE	
TOT-11			OPEN		CLOSE		TOT-27			OPEN		CLOSE	
TOT-12			OPEN		CLOSE		TOT-28			OPEN		CLOSE	
TOT-13			OPEN		CLOSE		TOT-29			OPEN		CLOSE	
TOT-14			OPEN		CLOSE		TOT-30			OPEN		CLOSE	
TOT-15			OPEN		CLOSE		TOT-31			OPEN		CLOSE	
TOT-16			OPEN		CLOSE		TOT-32			OPEN		CLOSE	

Note : Totalizer Opening and Closing reading should be for the duration of the Survey done during that day and not for full working hours of the Retail Outlet

In case of Tractors

Make of Tractor	Average Hours of Operation	Make of Tractor	Average Hours of Operation

Name & Signature of Field Investigator _____ Name & Signature of Outlet Dealer _____

3. CHECK LIST FOR HOUSEHOLD SURVEY

District: _____

City: _____

Name: _____

Add: _____

1. Do you purchase loose HSD in containers /barrels : Yes / No: _____
2. What is the average quantity of HSD purchased in last month: _____
3. For What purpose have you purchased:

Purpose*	Code	Sub Code	Purpose*	Code
GENERATOR	1	0	HARVESTOR	3
AGRICULTURE/PUMP SET	1	1	FISHING	4
INDUSTRIAL	1	2	TRACTORS	5
MOBILE TOWER	1	3	RE SALES	6
UNREGISTERED VEHICLE (JUGGAD)	2		OTHERS	

4. Frequency of Purchase: _____

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