

Chapter 5

Taxes and Subsidies in the Oil and Natural Gas Sector

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Chapter 5

Taxes and Subsidies in the Oil and Natural Gas Sector

In the oil and gas sector, the producer taxes for crude oil/natural gas are determined by the union government through MoPNG and Ministry of Finance, except royalty which is determined by the state government.

Producer taxes which the central government collects are:

- excise duties on the production of crude oil in the form of oil development cess and National Calamity Contingent Duty;
- customs duties on the import of crude oil;
- service tax on pipeline transmission services; and
- certain non-tax revenues, such as royalty, on the production of crude oil and natural gas from offshore regions, etc.

The producer tax which the state government collects is

- royalty (on the production of crude oil and natural gas from onshore regions) for production and sales.

Consumer taxes are collected by the state government in the form of

- sales tax/VAT;
- octroi, duties including electricity duty; and
- entry taxes.

The following discussions detail the components of producer and consumer taxes in the oil and gas sector.

1. Components of Producer and Consumer Taxes in the Oil and Gas Sector

1.1. Central Government Taxes and Duties levied on the Oil and Gas sector

Cess on Crude Oil

The Oil Industry (Development) Act of 1974 provided for the collection of cess as an excise duty on the production of indigenous crude. This cess is not applicable to crude oil production from blocks awarded under the NELP, Marginal Field Policy, and Hydrocarbon Exploration and Licensing Policy. The cess rate was changed from Rs60 per ton in 1974 to Rs4,500 per ton until February 2016. Subsequently in March 2016, with the fall in crude oil prices and request from oil producers, the government changed the oil industry development cess rate to ad valorem at 20% from earlier specific rate (OIDB, 2016). Table 5.1 details the cess revisions from 1974.

Table 5.1. Revisions in the Cess Collected on Crude Oil per Ton

Date	Revised Nominal Cess
23 July 1974	Rs60
13 July 1981	Rs 100
15 February 1983	Rs 300
1 March 1987	Rs 600
1 February to 28 February 2002	Rs 900
1 March 2002	Rs 1800
1 March 2006	Rs 2500
17 March 2012	Rs 4500
1 March 2016	20%

Source: OADB (2016).

Customs Duty

Customs duties are levied on the import of goods into India and are paid by the importers. The customs duties on imports comprise the following:

- Basic customs duty – levied on the assessable value of the imported goods according to the terms of the Customs Valuation Rules
- Additional customs duty – levied in lieu of excise duty on goods manufactured in India
- Special additional customs duty – levied in lieu of VAT payable on the sale of similar goods in India
- Cess (tax) – composed of education cess and secondary and higher education cess.

The duty rates are specified under the Customs Tariff Act, 1975, and are revised by the central government annually Deloitte (2016).

Excise Duty

The central value added tax or excise duty is the levy on manufacturing and production of 'excisable goods' in India according to the Central Excise Act, 1944. Excise duty is mostly imposed as a percentage of the transaction value of goods. However, for certain goods, the excise duty is based on the maximum retail price reduced by a prescribed abatement. In the oil and gas sector, petroleum products produced in India are levied excise duties. Concessions/exemptions to excise duty are available for some specified oil and gas products, such as crude oil, SKO, and LPG. No excise duty is levied on the domestic production of crude oil, which attracts the National Calamity Contingent Duty as well as an oil development cess. Also, excise duty is levied on certain petroleum products as a mix of specific and ad valorem duties EY (2015).

Service Tax

Since 1 July 2012, the negative list regime for the levy of service tax has been in force. Under this regime, any activity undertaken by one person on another person's behalf for consideration within the taxable territory (i.e. the whole of India, except Jammu and Kashmir)

is liable to service tax unless included in the negative list or notified as an exempt service. The rate of service tax has been increased in stages to 14% (Deloitte, 2016). In the oil and gas sector, effective 1 July 2012, the service tax is applied on the following:

- any service provided in the territorial waters, continental shelf, exclusive economic zone, or any other maritime zone as per the Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976;
- any service provided in the seabed and the subsoil underlying the territorial waters and the air space above its territory and territorial waters; and
- installations, structures, and vessels located in the continental shelf of India and the exclusive economic zone of India for the purposes of prospecting or extraction or production and supply of mineral oil and natural gas.

Notably, in the oil and gas sector, services in the production process such as the survey, exploration, and mining/production of oil and gas are liable to service tax EY (2015).

1.2. State/local government taxes and duties levied on the oil and gas sector

Producer Tax: Royalty on production of crude oil/natural gas:

Under Section 14 of the Petroleum and Natural Gas (PNG) Rules, 1959, Royalty is payable to the state government on the production of crude oil and natural gas from onshore regions and to the union government for production from offshore regions. Royalty on crude oil is regulated by Section 6A of the Oil Fields (Regulation and Development) Act 1948, the PNG Rules, 1959, and the PNG (Amendment) Rules, 2003. As per the related notifications, the rate of royalty for any mineral oil, which includes crude oil, shall not exceed 20% of the sale price of the mineral oil at the oil fields or well-head (DGH, 2015). The royalty rates under the respective regimes are as follows:

NELP blocks: Crude oil/condensate – 12.5% for onshore, 10% for offshore, and 5% for the first 7 years and 10% after 7 years for deep water (on ex-royalty basis)

Natural gas – 10% for onshore and offshore ex-royalty basis, 5% for the first 7 years and 10% after 7 years for deep water, on ex-royalty basis, beyond 400 m isobaths

Nomination blocks: Crude oil/condensate – 20% for onshore cum royalty basis, 10% for offshore cum royalty basis

Gas – 10% for both onshore and offshore cum royalty basis

Pre-NELP discovered fields: Crude oil/condensate, 20% for onshore cum royalty basis. Licensee pays at a specific rate of Rs481–528 per MT stipulated under the PSC and the difference in rate is paid by the centre to the states at Rs481–528 per MT as per the PSC for offshore.

Gas – 10% for both onshore and offshore on ex-royalty basis

Pre-NELP exploration blocks: Crude oil/condensate, 20% for onshore blocks cum royalty basis, 10% for offshore blocks cum royalty basis

Gas – 10% for both onshore and offshore on ex-royalty basis

Consumer Taxes: Sales Tax/VAT

The consumer taxes, particularly for the consumption of petroleum products, is a major source of revenue for the state government. It basically comprises sales tax/VAT or CST. VAT is levied on the sale of goods within a state, that is, where the goods move intra-state as a condition of sale and the CST is levied on the sale of goods from one state to other. The CST is levied at 2%⁶ or a rate equivalent to the local VAT rate in the dispatching state. In the oil and gas sector, crude oil has been declared under the CST Act as one of the 'goods of special importance' in inter-state trade and commerce; hence, VAT or the CST on the sale of crude oil cannot be levied higher than 5%. VAT rates are based on the nature of product and the state where they are sold EY (2015).

3.1. Octroi

The state government levies octroi when the product enters the state. It is applicable in only a few states in India. The octroi varies from 3% to 6% of the product value.

3.2. Entry Tax

Entry tax is a levy on the movement of goods from one state to another imposed by the state governments in India. It is levied by the recipient state to protect its tax base.

4. GST in the oil and gas sector

The current regime of indirect taxation is being replaced by the Goods and Sales Tax (GST), which came into effect on 1 July 2017. It subsumed the central taxes such as service tax, excise duty, and CST as well as state taxes, such as sales tax/VAT and entry tax. It is a dual component tax, consisting of central GST and state GST. The tax is levied concurrently by the centre and the states on every transaction of supply of goods and services. Certain petroleum products (crude oil, natural gas, high-speed diesel, petrol, aviation turbine fuel) remained outside the ambit of the GST until a date to be determined by the GST Council. Until then, the existing indirect taxation regime will continue for these items, implying that production/manufacture of these specific items would continue to attract excise duty and the sale of these products would be subject to VAT/CST as applied in the pre-GST regime. The specified petroleum products would, therefore, be subject to the current regime on the output side and to the GST regime on the procurement side, with the GST also applying to non-specified petroleum products. Rolling out of a single taxation structure will hopefully reduce multiple incidence of

⁶ Subject to the provision of declaration forms prescribed under the CST Act.

taxes and create a more streamlined structure for tax collection. However, for this study, the pre-GST regime is considered as it existed during the required study period 2015/16.

5. Subsidies

The only existing subsidised products in oil and gas sector are domestic LPG and PDS kerosene which together constitute majority of the total subsidy (around 98% of the total expenditure) in 2015/16; the rest is for consumption of natural gas in the northeastern states. The private sector has a very small share in the oil marketing segment largely because the sector is not entitled to receive any subsidy from the government on selling subsidised products.

In India, the subsidy transfer mechanism has been mainly in two forms – direct subsidy through cash transfers and under-recovery.

Direct Subsidy

Fiscal subsidy is the direct budgetary support provided on a specific basis to public sector OMCs in respect of designated subsidised petroleum products.

Under-recoveries to OMCs

The central government regulates prices so that government-owned OMCs – Indian Oil Corporation Ltd [IOCL], Bharat Petroleum Corporation Ltd, and Hindustan Petroleum Corporation Ltd – sell certain petroleum products below market rates, leading to ‘under-recoveries’. Under-recoveries are calculated as the difference between the market-determined price and the regulated price at which petroleum products are finally sold by the OMCs to the consumers after accounting the subsidy paid by the government. Since 2009/10, the government has been providing cash assistance as and when required, which varies from time to time. Under this mechanism, the under-recoveries are shared amongst government and upstream and downstream companies. This financially burdens upstream companies as they are to compensate a part of the subsidy as per the subsidy-sharing mechanism notified by the government. But the government has not been paying in fixed times and releases these quite late, thereby restricting the cash flows and liquidity of the OMCs. The under-recoveries compensation mechanism until 2008/09 was off-budget assistance in the form of government-backed ‘oil bonds’ issued to the OMCs. These were issued in tranches over a financial year and accounted as income in the OMCs’ profit and loss statements. Interest rates were set anywhere between 6% and 9% and the maturity period was up to 20 years. However, following the budget announcement in 2009/10, the government started providing cash subsidy to the oil companies in place of oil bonds.

The practice of sharing the under-recovery involved the sharing of subsidy burden by the government and upstream and downstream PSUs. In April 2015, the MoPNG notified the upstream producers, ONGC (Oil and Natural Gas Corporation) and Oil India, of the new subsidy-sharing formula that would be applicable to compensate the OMCs. The subsidy formula stated that if the crude oil average price in each quarter is less than US\$60/barrel, the upstream oil companies will not bear any subsidy costs. When oil prices are above

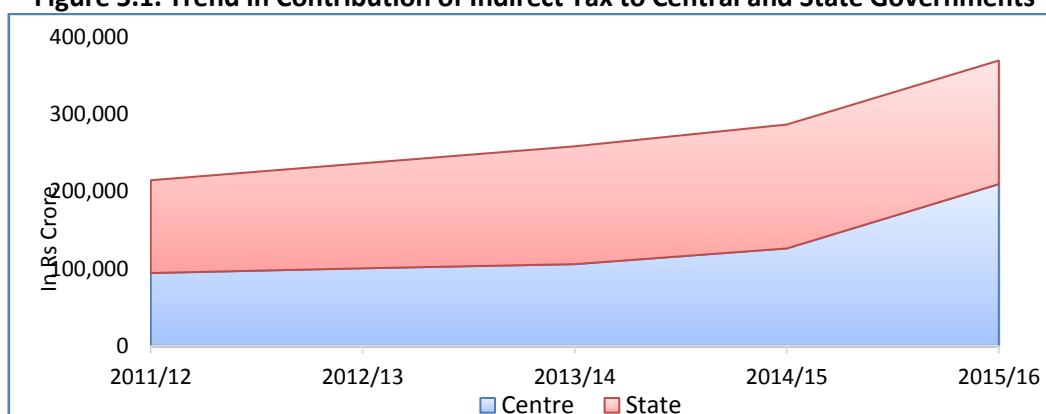
US\$60/barrel, upstream companies must bear 85% of the incremental cost above US\$60/barrel; and if oil price crosses US\$100/barrel, the oil companies will bear 90% of the incremental cost above the \$60/barrel price.

Noticeably, after the implementation of the direct benefit transfer for LPG (DBTL) in 2015/16, due to low crude oil prices, the government took almost the entire subsidy burden on the sale of domestic LPG for 2015/16 (MoPNG, 2016b).

2. Analysis of Taxation and Subsidies

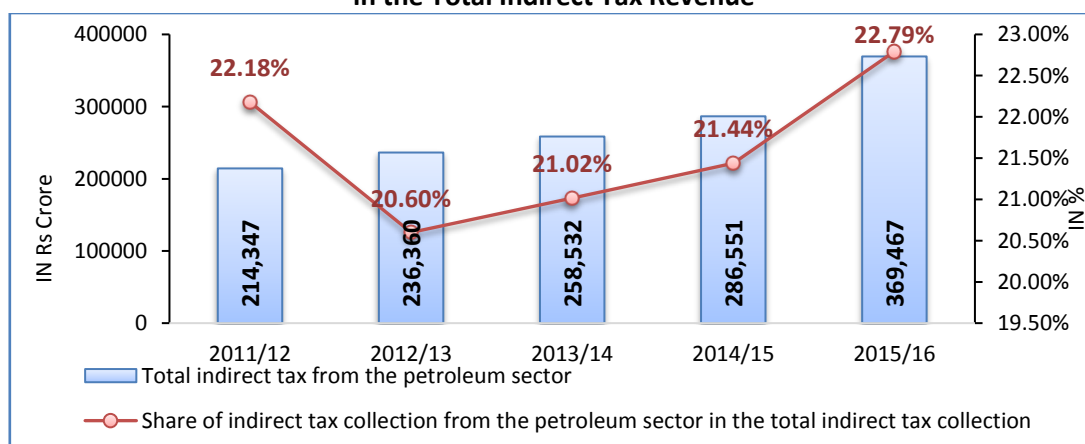
The oil and gas sector is one of the largest contributors to the Indian treasury and an important source of revenue (both via direct and indirect taxes) for the central and state governments of India. The indirect tax is an integral part in the end price of the products and the total collection from the oil and gas sector contributed around one-fourth of the total indirect tax collection across the sectors during 2015/16. The total collection of indirect taxes, contributed to state and central governments, is shown in Figure 5.1.

Figure 5.1. Trend in Contribution of Indirect Tax to Central and State Governments



Source: PPAC (2016b).

Figure 5.2. Total Indirect Tax Collection from the Petroleum Sector and its Share in the Total Indirect Tax Revenue

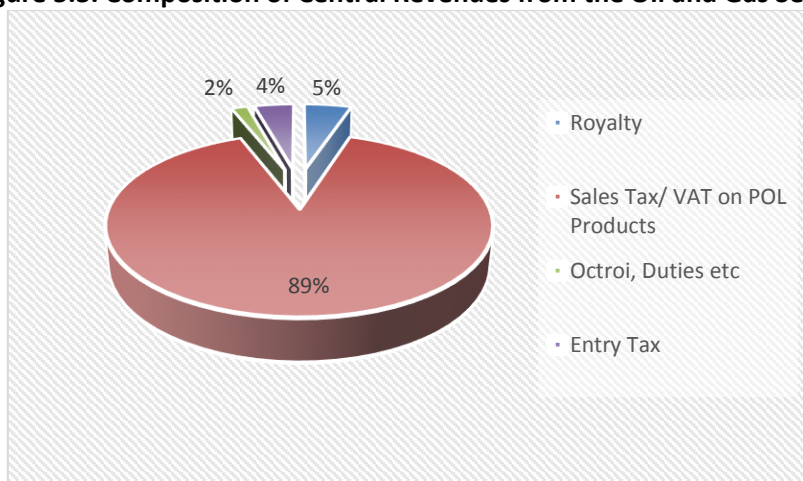


Sources: PPAC (2016b), Ministry of Finance (2017).

The tax collected by the central government grew at the rate of 23% from 2012/13 to 2015/16. On the other hand, the state government's indirect tax collection increased only at a CAGR of 5.6% between 2011/12 and 2015/16 (Figure 5.1). The trend in the share of state taxes in the overall indirect tax collection between 2010/11 and 2015/16 represents the fiscal imbalance between the centre and the states (Figure 5.2), mainly attributed to the global volatility in crude oil prices and the taxation structure.

The indirect tax composition of the central and state treasuries' revenue from the oil and gas sector for 2015/16 is shown in Figures 5.3 and 5.4. The excise duty is the main source of central revenue, contributing 85% of the total indirect tax collection during 2015/16, levied on the production of petroleum products (Figure 5.3). The second-largest collection is in the form of oil development cess, levied on the production of crude oil, collected by the OIDB and directed towards development and research in the oil and gas sector. In case of tax revenue to state governments, the biggest source is in the form of sales tax/VAT which constitutes 89% of the total indirect tax collection from the sector during 2015/16 (Figure 5.4). This is collected at the point of sale of crude oil, natural gas, and petroleum products as per the notified rates.

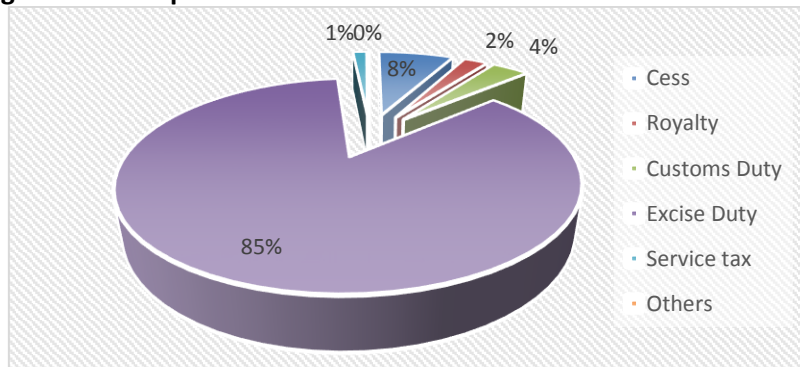
Figure 5.3. Composition of Central Revenues from the Oil and Gas Sector



POL = petroleum, oil, and lubricants.

Source: MoPNG (2016a).

Figure 5.4. Composition of State Revenues from the Oil and Gas Sector

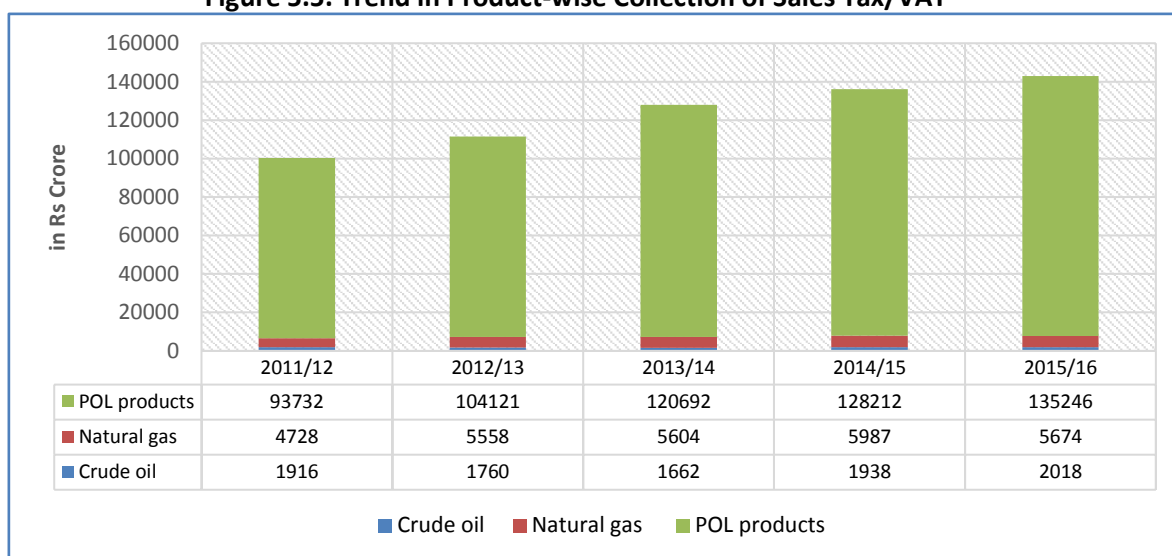


Source: MoPNG (2016a).

Besides these, the central and state governments also collect certain non-tax components, such as royalty, on oil and gas production. The direct taxes levied on the sector include corporate/income tax, dividend income to central and state governments, and dividend distribution tax and profit petroleum on exploration of crude oil/natural gas. However, this report focuses on the indirect taxation in the oil and gas sector.

The consumer taxes in the sector have grown by a CAGR of 9.2% from 2011/12 to 2015/16. The growth was mainly from the increased sales tax/VAT contribution from petroleum products, which increased at a CAGR of 9.6% between 2011/12 and 2015/16 (Figure 5.5).

Figure 5.5. Trend in Product-wise Collection of Sales Tax/VAT



POL = petroleum, oil, and lubricants.

Source: MoPNG (2016a).

On the subsidy side, the deregulation of petrol and diesel brought down the burden on the GoI from the oil and gas sector to about 12% of the total subsidy provided under the 2015/16 budget from 31% of the total subsidy provided in 2011/12. The petroleum subsidy in 2012/13 accounted for 1.05% of GDP, which later gradually declined to 0.26% by 2015/16. The average prices of international crude oil (Indian basket) declined by 45.14%, from US\$84.19 per barrel in 2014/15 to US\$46.18 per barrel in 2015/16. Consequently, the subsidy incidence also decreased by 50% over the same period. The oil and gas industry was the third most subsidised sector, with the government providing about Rs30,000 crore in 2015/16 (Table 5.2).

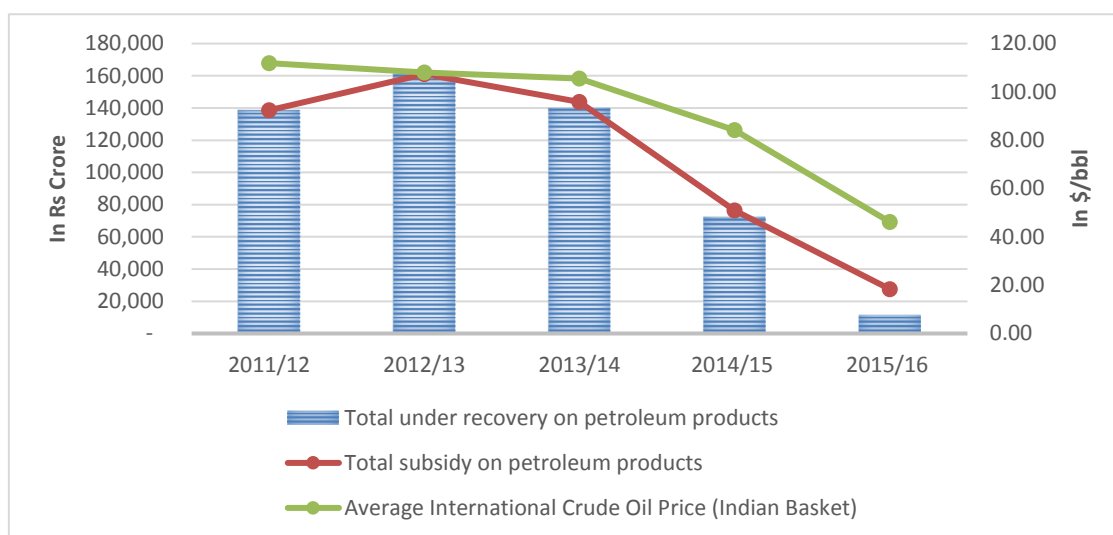
Table 5.2. Extent of Government Subsidies to the Oil and Gas Sector

Year	Total Subsidies (in Rs Crore)	Petroleum Subsidies from the Government Budget (in Rs Crore)	Petroleum Subsidy as % of Total Subsidy	Total Subsidy as % of GDP	Petroleum Subsidy from the Government Budget as a % of GDP
2011/12	217,941	68,484	31.4	2.49	0.78
2012/13	257,079	96,880	37.6	2.79	1.05
2013/14	254,632	83,998	33.4	2.59	0.86
2014/15	258,258	60,269	23.3	2.45	0.57
2015/16	257,801	30,000	11.64	2.27	0.26

Source: MoPNG (2016a), Authors' compilation.

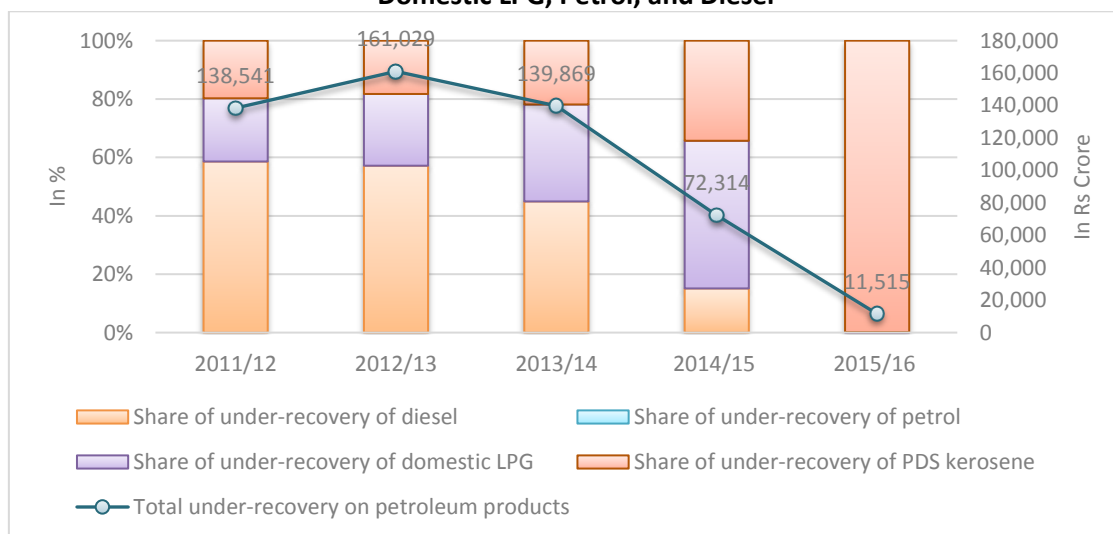
*Petroleum subsidies budgeted under Gol.

Figure 5.6. Trend in Total Under-recovery, Subsidies on Petroleum Products



Sources: PPAC (2018), OGD Platform India (2018).

Figure 5.7. Trend in Total Under-recovery vis-à-vis Share of Under-recovery of PDS Kerosene, Domestic LPG, Petrol, and Diesel



Source: PPAC (2018).

Also, there was a sharp fall of 93% in the under-recovery on petroleum products between 2012/13 and 2015/16 because of the deregulation of diesel in 2014 and reduced international crude oil prices (Figure 5.7).

Between 2012/13 to 2015/16, net indirect tax revenue grew by 61.5%, from 31% in 2012/13 when the crude oil price averaged at US\$108/bbl to 92.5% in 2015/16 when the crude oil price fell down and averaged US\$46/bbl. The share of under-recoveries out of the total indirect tax revenue from the petroleum sector decreased by 65% between 2012/13 and 2015/16, from 68% in 2012/13 to just 3% in 2015/16 under the prevailing crude oil prices which significantly reduced the impact on oil companies in realising their cash flows in a timely manner.

2.1. Crude Oil

The following section presents the analysis of the subsidies and taxes in the crude oil segment, including the methodology adopted for the study.

Methodology

Data was captured primarily through literature reviews of various government documents and annual reports of oil companies. Table 5.3 shows the components of subsidy and taxation rates for crude oil for 2015/16.

Table 5.3. Tax and Subsidy Components Considered in the Crude Oil Segment

Tax and Subsidy Components		Considerations of Crude Oil Segment Study
Royalty	Onshore production	✓
	Offshore production	✓
Customs duty (Imported crude)		✓
Oil development cess		✓
National calamity contingent duty		✓
Sales tax/value added tax		✓
Central sales tax		✓
Entry tax/octroi*		✗

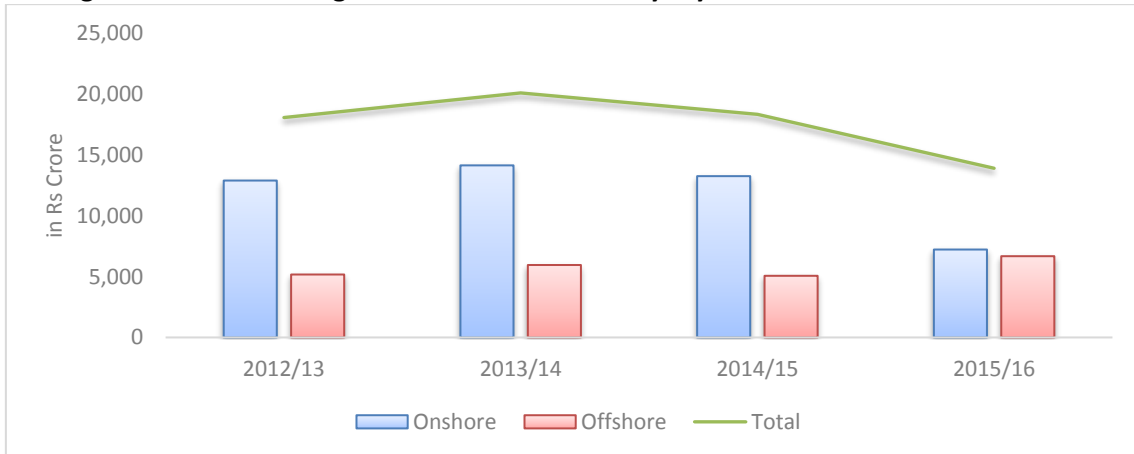
*Data not available in public domain.

Source: Authors' analysis.

Analysis:

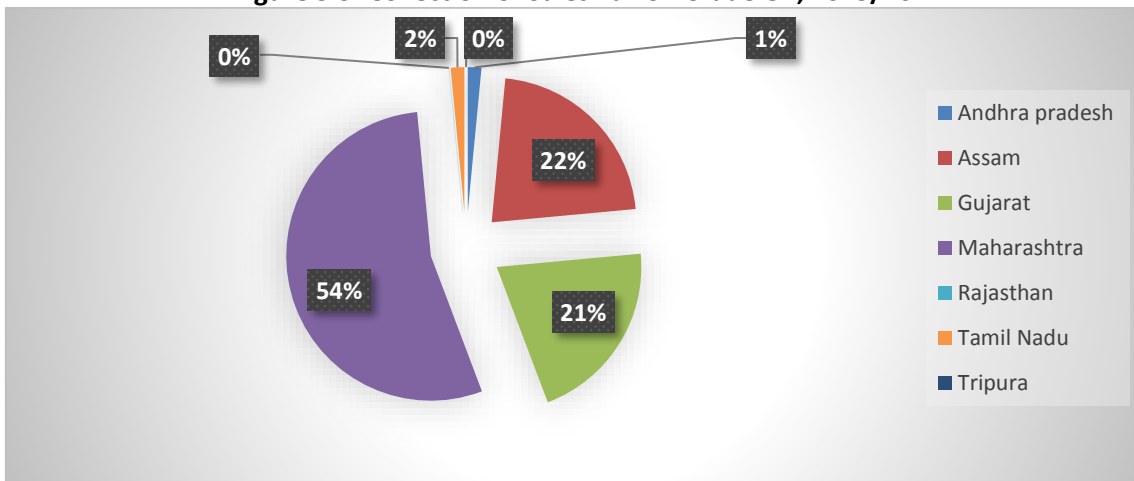
The literature review data has been represented in graphical format in order to bring out meaningful inferences about the revenue from different components of indirect taxes in crude oil segment.

Figure 5.8. Trend in Region-wise Collection of Royalty on the Production of Crude Oil



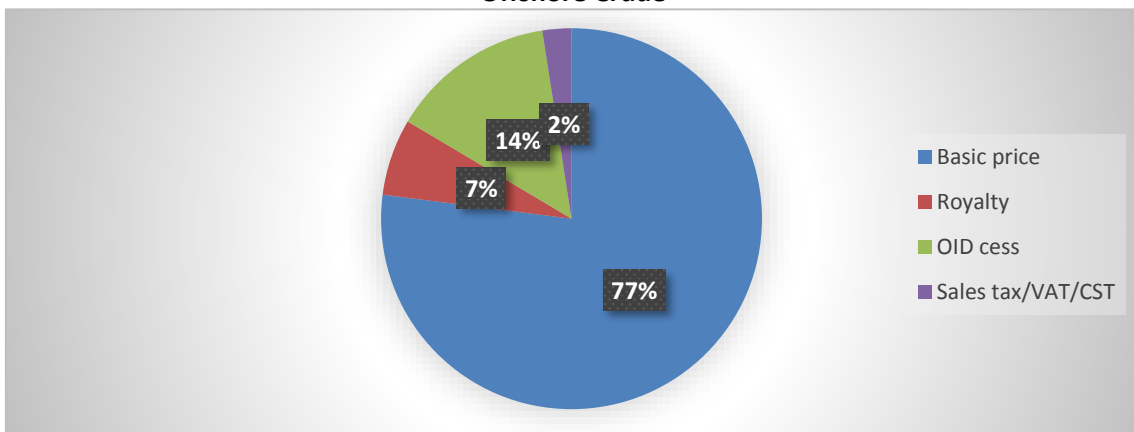
Source: MoPNG (2016a).

Figure 5.9. Collection of Sales Tax on Crude Oil, 2015/16



Source: MoPNG (2016a).

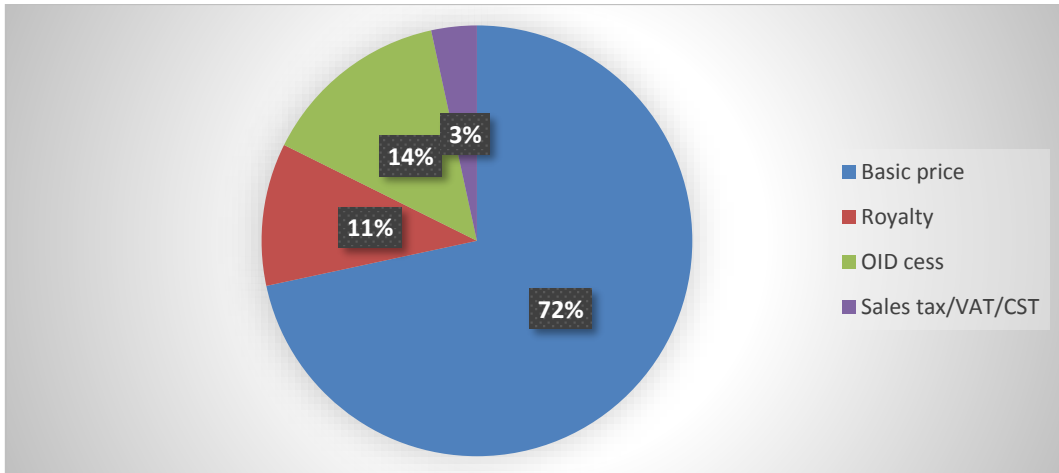
Figure 5.10. Representative Share of Cost Components including Taxes on a Barrel of Offshore Crude



CST = central sales tax, VAT = value added tax.

Source: MoPNG (2016a).

Figure 5.11. Representative Share of Cost Components including Taxes on a Barrel of Onshore Crude

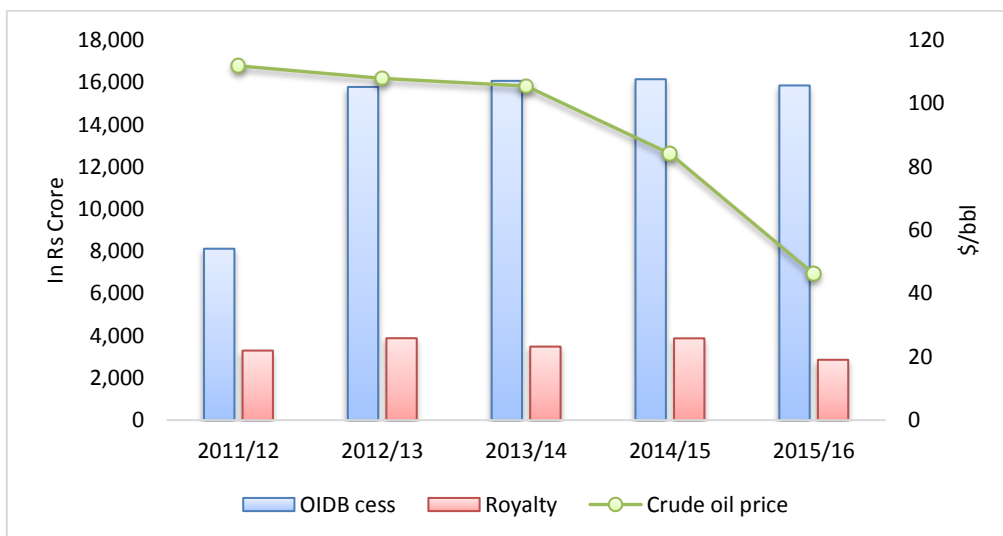


CST = central sales tax, OID = oil industry development, VAT = value added tax.
Source: MoPNG (2016a).

OIDB cess issue

The government levied a 20% OIDB cess as an excise duty for the domestic production of crude oil from nominated blocks given to PSU upstream companies, amounting to Rs4,500/MT until the end of 2015/16. As the price of crude oil dropped to US\$30–US\$40 per barrel, the fixed OIDB cess rate of Rs4,500/MT became a big burden to the oil producers as they were already facing losses, because of production costs. Therefore, the government revised the OIDB cess in the 2016 budget and made it 20% ad valorem, providing some relief to the oil producers at the prevailing prices. However, as crude oil prices went up, reaching US\$65/ barrel, the OIDB cess also went up higher than the earlier rate of Rs4,500/MT, again posing a challenge to the oil producers as they could not make profit. This impacted further investment and, hence, led to the development of new oil and gas fields in the sector.

Figure 5.12. Trend in the Collection of OIDB Cess and Royalty



Source: MoPNG (2016a).

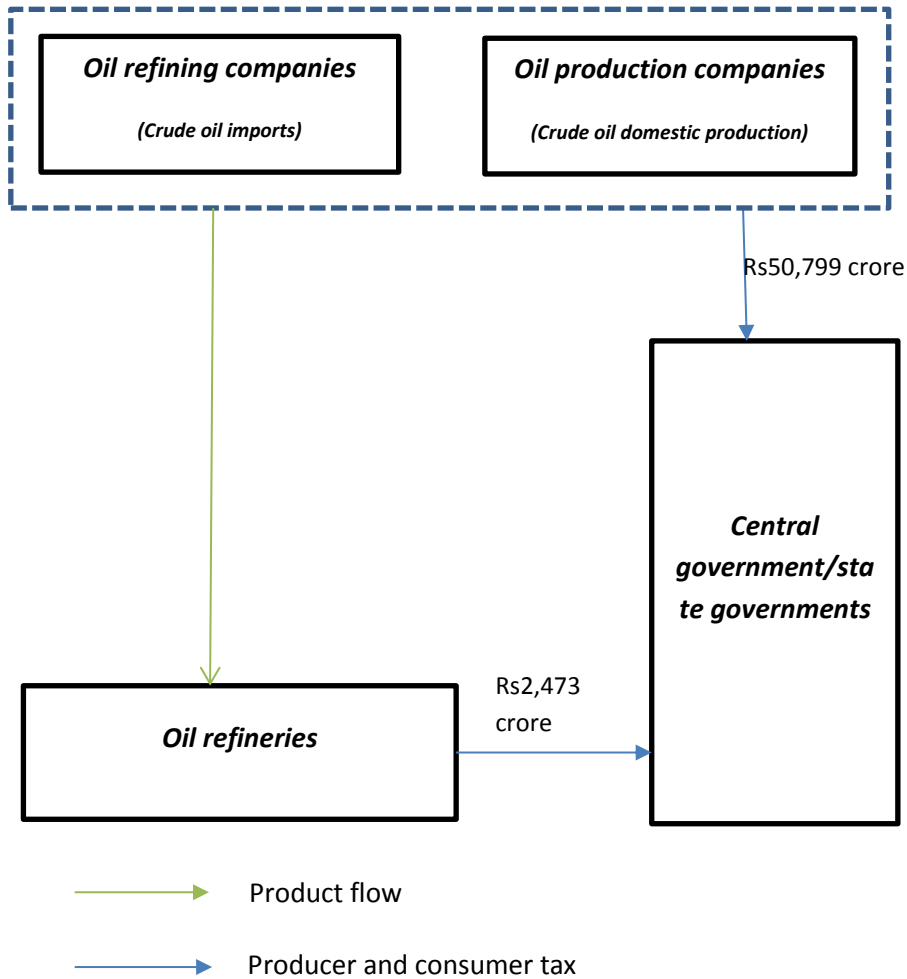
Results:

In case of crude oil, the tax revenues are dependent on domestic production and global crude oil prices. In 2015/16, the Indian basket of crude oil price fell to US\$46/bbl, which impacted the tax inflow to the government. Also, the share of royalty and sales tax in the cost of barrel for onshore crude (4% and 1%, respectively) is higher than offshore crude (Figures 5.11 and 5.12). During this period, owing to the low international crude oil prices and marginally declining domestic production, the collection of royalty decreased by 45% from onshore regions (Figure 5.6), which is levied on an ad valorem basis. Also, customs duty collection was reduced to Rs456 crore, despite the marginal increase in crude oil imports. On the other hand, the oil development cess and national calamity contingent duty collections, which are on specific basis at Rs4,500/MT and Rs50/MT, respectively, remained at the same level (Figure 5.12). In FY 2015/16, the state of Maharashtra collected the highest sales tax at 54% of the total sales tax payment for crude oil, followed by Assam and Gujarat with 22% and 21%, respectively (Figure 5.9).

Value chain diagram for the crude oil segment (Figures in Rs crore)

Figure 5.13 represents the product and tax flows across various entities. In the crude oil segment, the producer taxes contributed by the oil companies to the central exchequer in 2015/16 from royalties, customs duties, national calamity contingent duty and oil development cess amounted to Rs50,799 crore. The sales tax/VAT contributed to the central and state treasuries from the purchase of crude oil by oil companies for refining amounted to Rs2,473 crore.

Figure 5.13. Value Chain Diagram for Crude Oil Segment (Figures in Rs Crore)



Source: Authors' compilation.

2.2. Liquefied petroleum gas (LPG)

In the LPG segment, around 88% of the consumption is for domestic purposes (14.2 kg cylinder), and within that 88% is subsidised. Hence, the domestic LPG subsidised sub-segment was considered for the study. The detailed methodology and assumptions adopted for the study are described below.

Methodology:

To determine the total indirect tax inflow/outflow in this segment for 2015/16 comprising sales tax/VAT and other additional taxes collected from the total sale of subsidised domestic LPG, certain assumptions were made since no segmental data on the revenue collected by the central and state governments are available in the public domain. On the subsidy granted by the central government to corporations, such as IOCL, Hindustan Petroleum Corporation Ltd, Bharat Petroleum Corporation Ltd, and their agencies, several state governments are not levying tax and passing on to the consumers during the sale of domestic LPG. Therefore, the tax levy on subsidy is not required in estimating the total indirect tax collection.

The study team conducted the following steps for the estimation:

- Carried out a bottom-up approach to assess the total indirect tax collection from the domestic LPG (subsidised) segment.
- Studied the price build-up for Delhi and took the reference structure for the subsidised domestic LPG price estimation across the states (see Annex IV).
- Considered the subsidy and taxation components in the price build-up based on the literature review (Table 5.4).
- Captured the state-wise domestic LPG consumption data and the average RSP of domestic un-subsidised LPG for the capital city of every from the public domain, databases, and various stakeholder consultations. The study team took these as reference for the respective state for the year 2015/16.
- The distributor's commission of the respective year which was the same for all the states across the country was considered in the study and the sales tax/VAT rates notified for each state were taken for the estimation (see Annex II).
- The excise and the import duties are exempted for the domestic LPG and are considered zero.
- Based on the aforesaid assumptions, the market price of subsidised domestic LPG was determined and based on the sales tax/VAT rates notified on respective states, the estimation of total indirect tax collection was completed.

Table 5.4. Tax and Subsidy Components Considered for the Subsidised LPG for Domestic Purposes

Tax/Subsidy Components	Considerations of Subsidised LPG for Domestic Purposes
Customs duty	Exempted
Excise duty	Exempted
State specific costs	✓
Entry tax/octroi	✓
VAT	✓
Uncompensated costs	✓
Under-recovery to OMCs	✓
Cash compensation under DBTL	✓

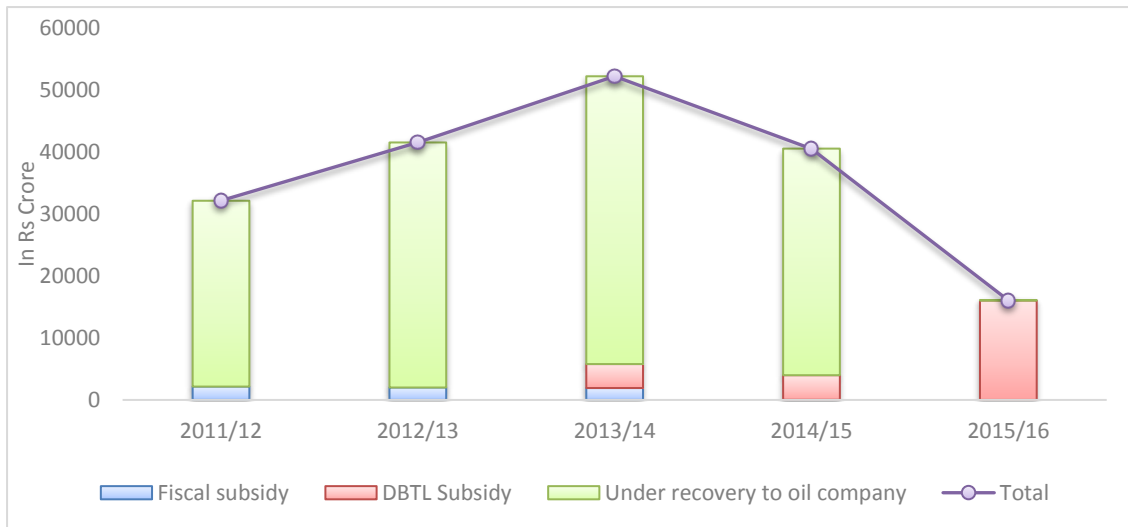
DBTL = direct benefit transfer for LPG, OMC = oil marketing company, VAT = value added tax.

Source: Authors' analysis.

Results:

During 2015/16, the GoI implemented the DBTL across the states and the entire subsidy was provided directly from the government budget by ceiling certain price components such as delivery charges, etc. The total subsidy amounted to Rs16,074 crore, out of which Rs18 crore was absorbed by the OMCs into their balance sheets (Figure 5.14).

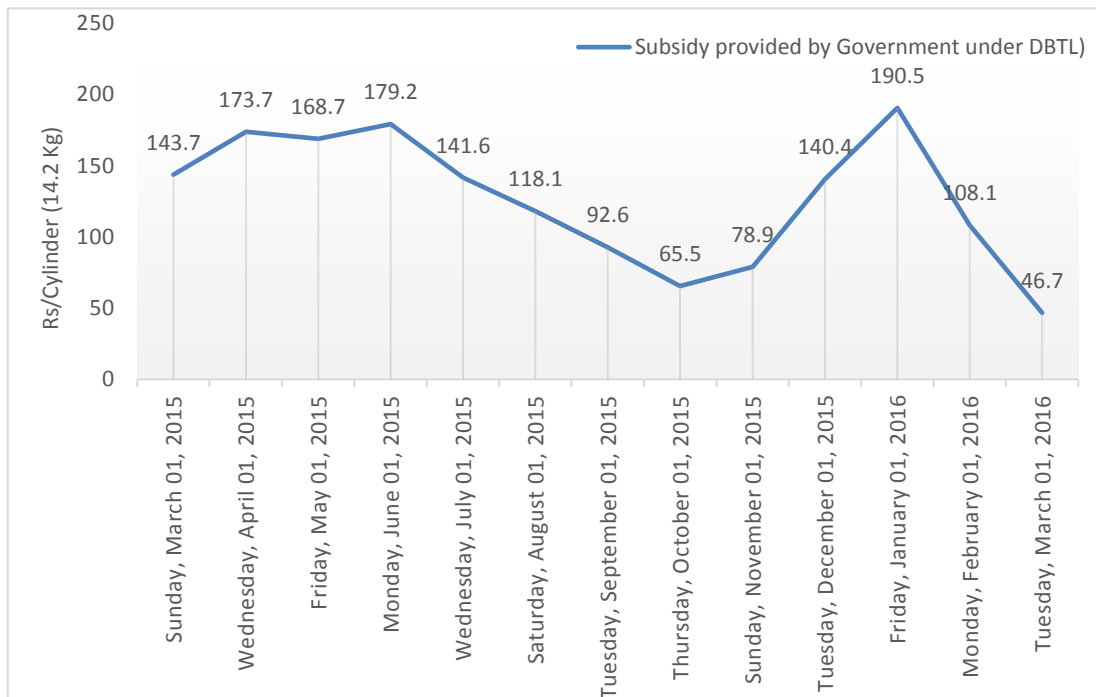
Figure 5.14. Trend in Subsidies in the LPG Segment



Source: PPAC (2016a).

In addition to their share in the total LPG subsidy recorded, the OMCs absorbed around Rs4,913 crore in the form of uncompensated costs, as per the PAHAL (DBTL) scheme in 2015/16 (Annex IV). Even though this estimated amount is not recorded anywhere, it is considered in the value chain diagram (See figure 5.17) to get a real picture of total subsidy in the domestic LPG segment. In year 2015/16, the domestic LPG subsidy per cylinder absorbed by the government was Rs46.7–Rs190.5 when the price of crude oil was hovering between \$40 and \$50 per barrel (Figure 5.15).

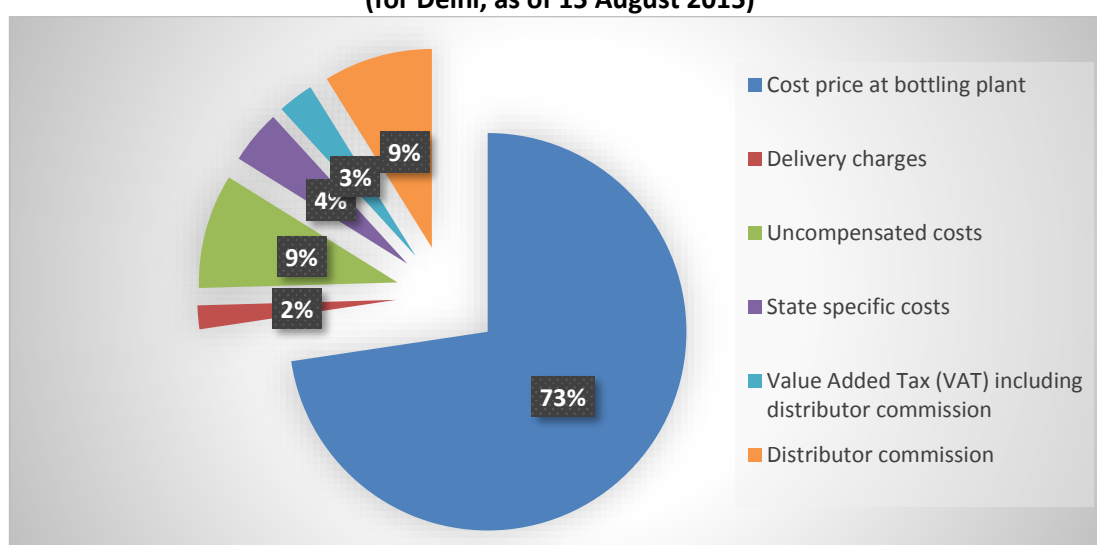
Figure 5.15. Government Subsidy under the DBTL



Source: PPAC (2018).

The cost components in the price build-up of domestic LPG (subsidised) at Delhi, such as the DBTL subsidy, the uncompensated⁷ costs, state specific costs,⁸ and sales tax/VAT account for 11%, 9%, 4%, and 3%, respectively (Figure 5.16). The sales tax/VAT on domestic LPG (Subsidised) varies from 0% to 5% from state to state. This has contributed approximately Rs1,347 crore to the state governments, and accounts for about 0.9% of the total sales tax collection for petroleum products. Moreover, considering the efforts put in place by the government to increase the penetration of LPG in the rural parts of the country with the rising global crude oil price, more subsidies would be required in the domestic LPG segment for meeting the objective.

Figure 5.16. Cost Components in the Price Build-up of LPG (for Delhi, as of 15 August 2015)



Source: Authors' estimation.

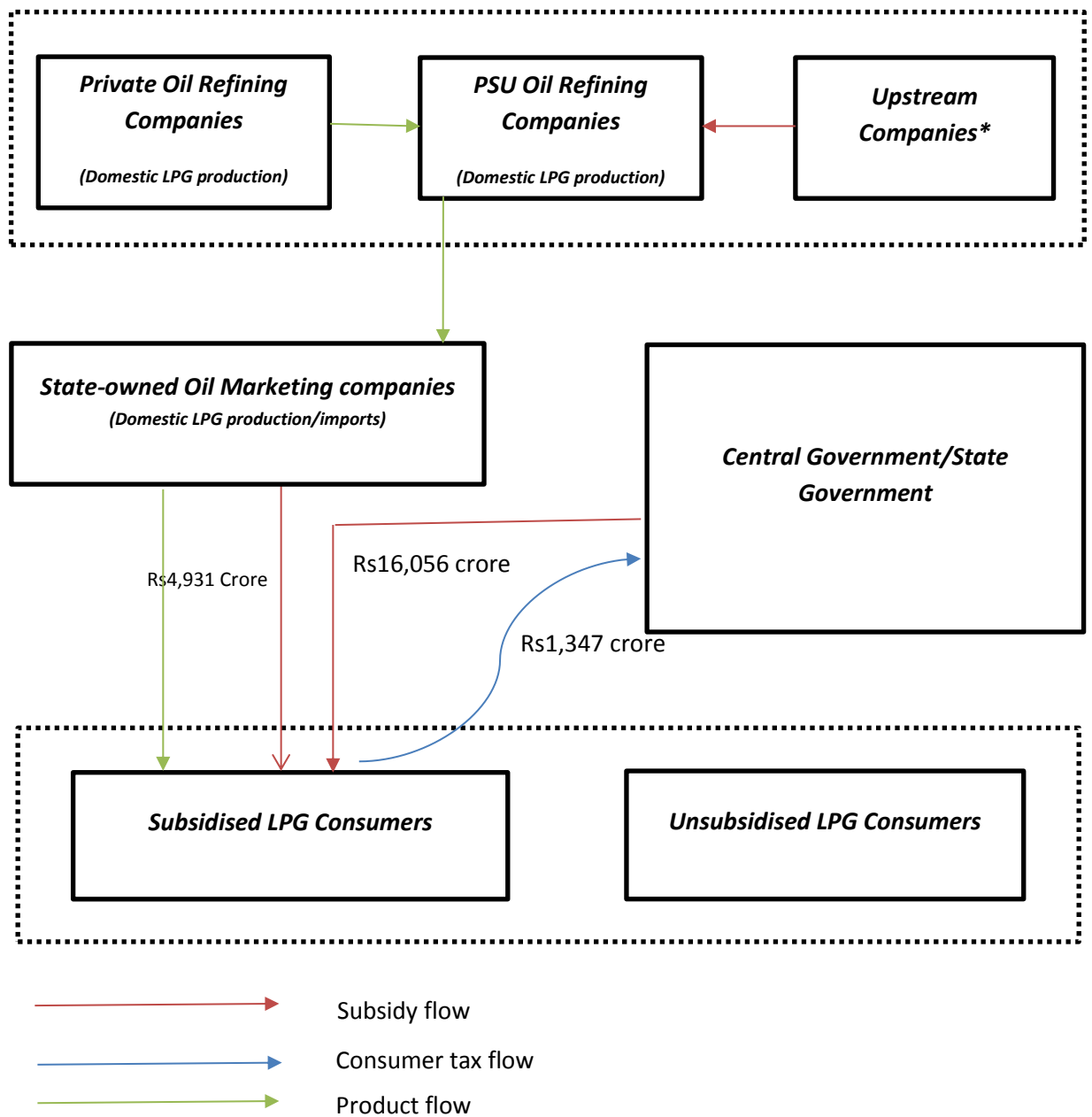
Value chain diagram of the domestic LPG segment (Figures in Rs crore)

The value chain diagram for domestic LPG (subsidised) segment represents the product, subsidy, and tax flows across various entities (Figure 5.17). In the domestic LPG (subsidised) segment, the subsidy amounting Rs16,074 crore that the central government provided under the DBTL scheme reached customers directly. Out of this amount, Rs18 crore was the under-recovery to the OMCs which they absorbed to the balance sheet for 2015/16. The consumer taxes contributed by the domestic LPG (subsidised) segment to the state treasury for sales tax/VAT, additional cess, etc. amounted Rs2,473 crore in 2015/16.

⁷ Uncompensated costs – In the price build-up, oil marketing companies (OMCs) are charging consumers on account of import costs, recovery for non-revision in prices, rounding-off, and differential delivery charges of Rs7.9/cyl. All these costs are not compensated to the OMCs as per the PAHAL (DBTL) scheme.

⁸ State specific costs – To neutralise the under-recoveries to the oil companies caused by various irrecoverable/non-recoverable taxes and levies of state/union territories/municipal corporations, a state-specific surcharge/cost is considered in the selling prices of petroleum products.

Figure 5.17. Value Chain Diagram for Domestic LPG (Subsidised) Segment (Figures in Rs Crore)



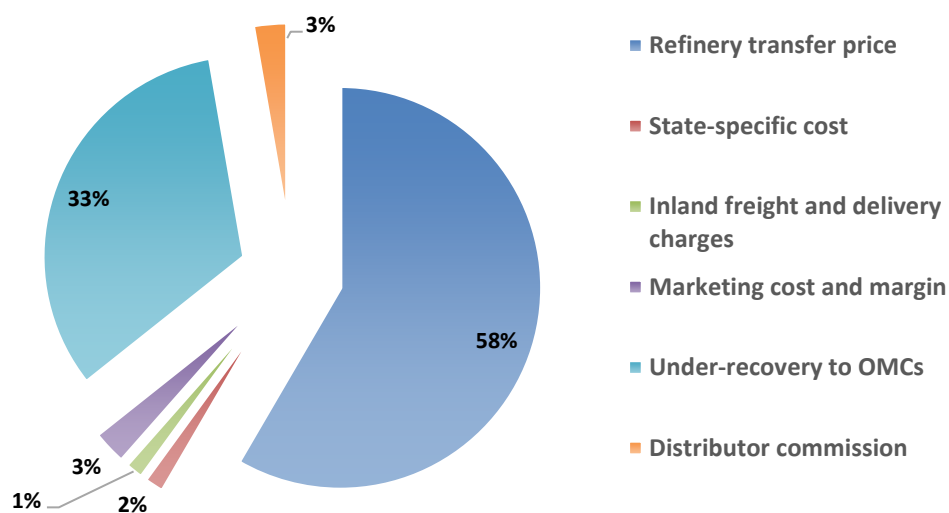
*Upstream crude oil producers provide their share of LPG subsidy through price discounts of crude oil.
Source: Author's compilations

2.3. Kerosene

The price determination of kerosene is complex as the subsidy mechanism is different compared to the DBTL in the domestic LPG segment. During 2015/16, the under-recovery and the burden-sharing mechanism was presented in the kerosene segment which was reduced owing to the low crude oil prices. The under-recovery by the oil companies amounted to Rs11,496 crore, to which the upstream oil companies shared a burden of Rs1,251 crore by giving cash discounts in the crude oil price to PSU oil companies and the rest was provided by the government (Figure 5.19). Also, the government is planning to phase out subsidies and reduce allocation of kerosene through the PDS in a progressive manner. On the other hand, the government is also planning to implement the direct benefit transfer of kerosene throughout the country to reduce the diversion of kerosene for other purposes and to streamline the subsidy transfer. As the data on varying subsidies to oil companies from different depots and states are unavailable in the public domain and with the stakeholders, the study has been limited to subsidy allocation in the kerosene segment. Based on the data availability, the city of Mumbai was considered for representative price build-up of PDS kerosene in 2015/16 (see Annex V).

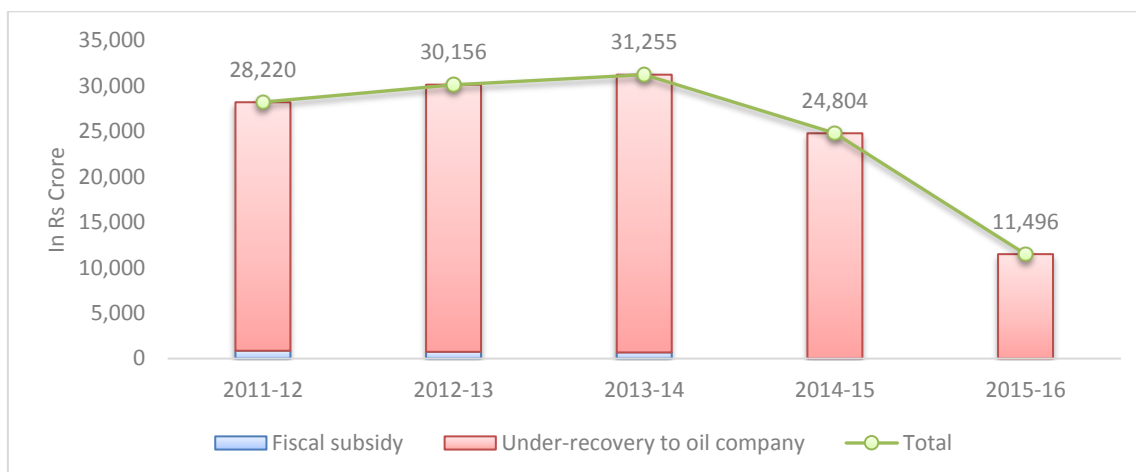
Such price build-up of PDS kerosene in Mumbai shows that the total subsidy (under-recovery to OMCs) accounts for almost 33%, and sales tax/VAT accounts for 1% of per litre of fuel price (Figure 5.18). The sales tax/VAT for PDS kerosene varies from 0% to 5% from state to state.

Figure 5.18. Cost Components in the Price Build-up of PDS Kerosene (for Mumbai, as of 15 August 2015)



Source: PPAC (2016a).

Figure 5.19. Trend of Government Subsidy to the Kerosene Segment

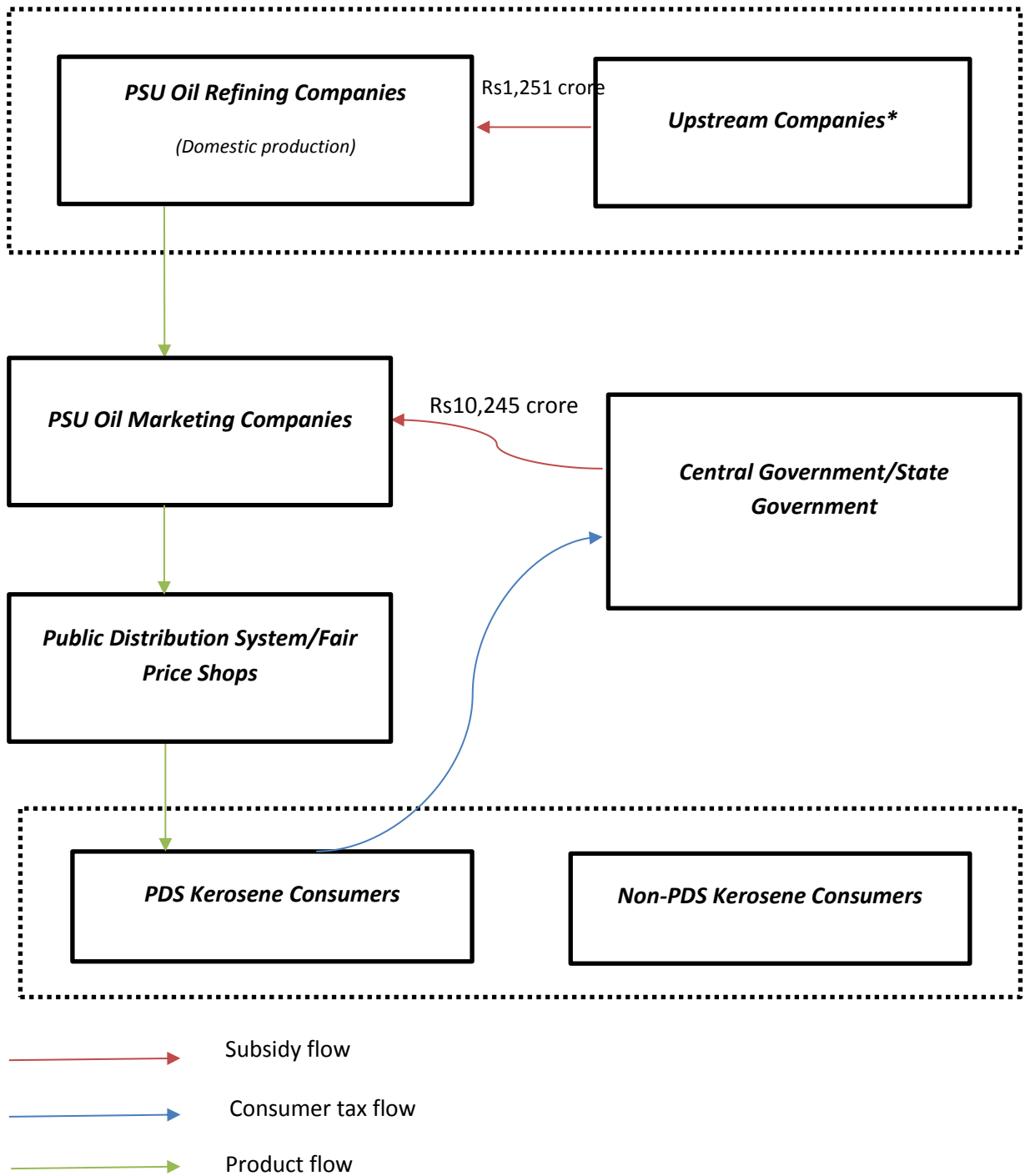


Source: PPAC (2016a).

Value chain diagram of kerosene segment (Figures in Rs crore)

Figure 5.20 represents the product, subsidy, and tax flows across various entities. In the PDS kerosene segment, the subsidy provided by the central government amounted to Rs11,496 crore, out of which Rs1,251 crore was under recovery to oil companies, shared by the upstream oil companies. The consumer taxes are not calculated.

Figure 5.20. Value Chain Diagram for the PDS Kerosene Segment (in Rs Crore)



*Upstream crude oil producers provide their share of LPG subsidy through price discounts to crude oil.
Source: Authors' compilation.

2.4. Natural gas

The following section presents the analysis of the subsidies and taxes in the natural gas segment. The methodology adopted for the study is described below.

Methodology

The data for the study was taken primarily through literature reviews of various government documents and annual reports of oil companies. Table 5.5 shows the components of subsidy and taxation rates for natural gas considered under the study for 2015/16.

Table 5.5. Tax and Subsidy Components Considered for Natural Gas

Tax and Subsidy Components		Considerations of natural gas segment study
Royalty	Onshore production	✓
	Offshore production	✓
Customs duty		✓
Service tax		✓
Sales tax/VAT		✓
Central sales tax		✓
Entry tax/octroi*		✗
Subsidy for natural gas consumption in the northeastern region		✓

*Limited data availability in the public domain.

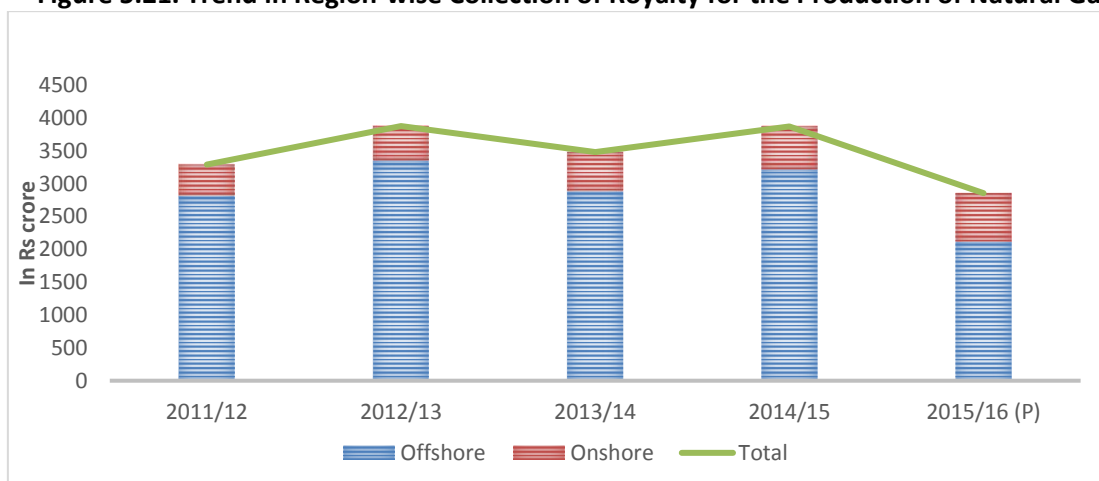
Source: Authors' analysis.

Results

In 2015/16, due to the decline in prices and production of natural gas, the producer taxes, such as royalty collection, dropped by 26% to Rs2,858 crore from Rs3,874 crore in 2014/15 (Figure 5.21). On the other hand, the import of natural gas in the form of LNG ramped up due to the upsurge in demand from the end-use sectors, such as fertilisers, power, and city gas distribution, driven by low spot prices.

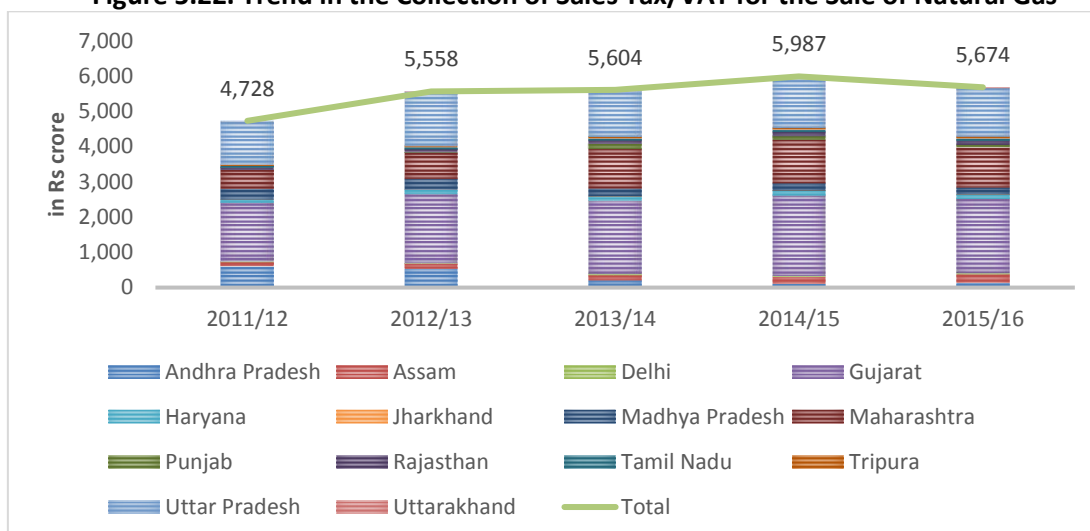
As a result, consumer taxes, such as sales tax/VAT, remained unaffected and were maintained at the 2013/14 level of Rs5,674 crore. The sales tax/VAT rates for the consumption of natural gas varied from 0% to 25% from state to state. Total collection of sales taxes from the natural gas sector increased at a CAGR of 6.7% between 2010/11 and 2015/16. States such as Gujarat, Uttar Pradesh, and Maharashtra account for 70% of the total natural gas sales tax collection during the same period (Figure 5.22). As of 2015/16, natural gas was subsidised for power generation and for consumption in the northeastern region. The total subsidy provided for the consumption of natural gas in the northeastern region amounted to Rs660 crore in 2015/16. The domestic price of natural gas in India ranged from US\$4/MMBTU to US\$4.5 /MMBTU while its import price was in the range of US\$7–US\$10/MMBTU (CIF price) during the same period.

Figure 5.21. Trend in Region-wise Collection of Royalty for the Production of Natural Gas



Source: MoPNG (2016a).

Figure 5.22. Trend in the Collection of Sales Tax/VAT for the Sale of Natural Gas

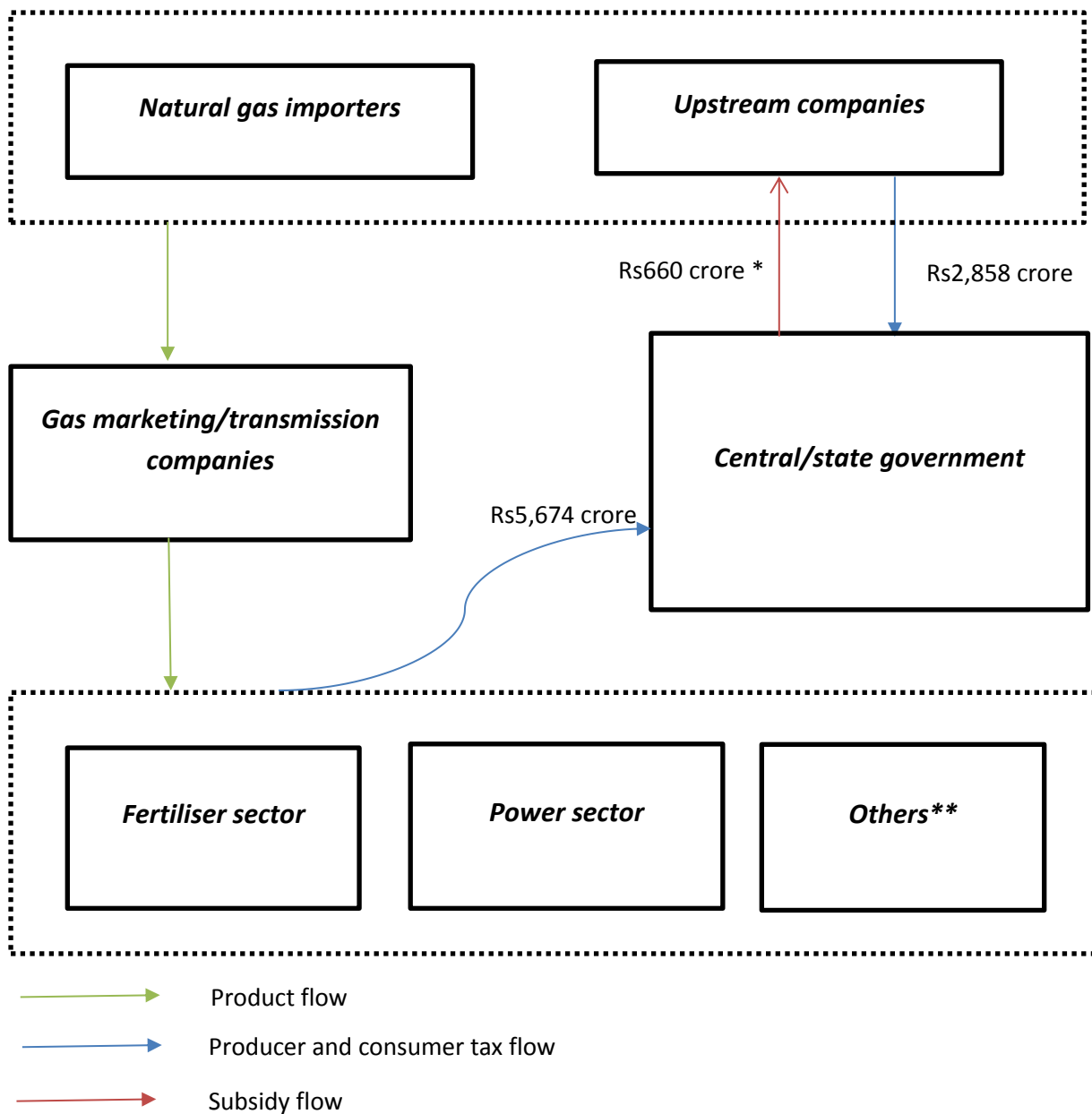


Source: MoPNG (2016a).

Value chain of the natural gas sector in India (Figures in Rs crore)

Figure 5.23 represents the product, tax, and subsidy flows across various entities. In the natural gas segment, the producer taxes contributed by the oil and gas companies to the central exchequer for royalty and customs duties amounted to Rs2,858 crore. The sales tax/VAT contributed to the central and state treasuries on the purchase of natural gas by end consumers for its energy and non-energy purposes amounted Rs5,674 crore in 2015/16. The central government subsidised in 2015/16 the price of APM gas in the north-eastern region in the amount of Rs660 crore.

Figure 5.23. Value Chain Diagram for the Natural Gas Segment (Figures in Rs Crore)



*The value Rs660 crore subsidy is for the sale of APM gas in the north-eastern region.

** Others include the sectors consuming natural gas for energy and non-energy purposes such as refineries/petrochemicals, city gas distribution, industries, tea plantation, sponge iron, etc.

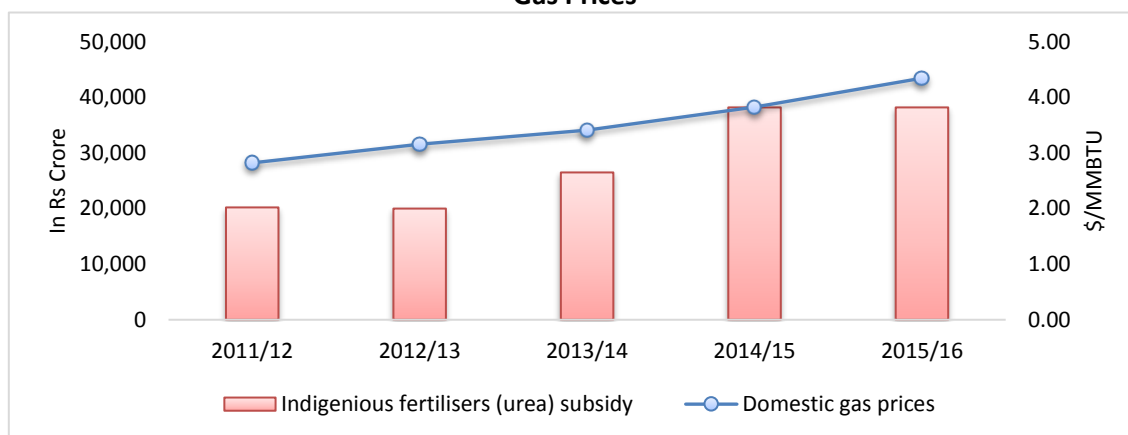
Source: Authors' compilation.

2.5. Fertilisers

Since natural gas is used for the non-energy purpose of producing fertilisers (urea based), it is outside the ambit of this report. However, a huge amount of gas is being consumed in the fertiliser sector (urea based) whose price directly impacts the price of urea which is being subsidised. There is then a need to study the pricing and taxation in the urea fertiliser sector.

In the fertiliser (urea-based) segment in India, the rise in the price of natural gas increases the subsidy burden on the exchequer as the rise in gas price causes fertiliser prices to also rise. For instance, an increase in gas price by Rs1/MMBTU results in the increased production cost of urea by Rs25.99. On average, in India, around 25.99 MMBTU of natural gas is required to produce 1 ton of urea. Hence, the entire impact of increased gas price would be on the subsidy outgo as the market retail price of urea is statutorily controlled. The trend in allocation of indigenous urea subsidy and the domestic natural gas price is shown in Figure 5.24.

Figure 5.24. Trend in the Disbursement of Subsidy in the Fertiliser Sector and in Domestic Gas Prices



Sources: MoPNG (2016a), PPAC (2016c).

Methodology:

The research team, in studying the taxation structure and net tax revenue from the fertiliser sector, chose the state of Gujarat as there is no national aggregate/state-wise data in the public domain on the consumer tax collected from the fertiliser sector for the consumption of natural gas. Also, Gujarat is the second-largest urea-producing state in India and the share of natural gas consumption in the state is at par with the global average of 24%. The team made certain assumptions and adopted a top-down approach to assess the total tax revenue from the fertiliser (urea-based) segment in Gujarat. Table 5.6 shows the components of subsidy and taxation rates for natural gas (in the fertiliser segment) considered under the study for 2015/16.

Table 5.6. Tax and Subsidy Components Considered for Natural Gas Used in Urea-based Fertiliser Plants

Tax and Subsidy Components	Considerations of Natural Gas Used in Urea-based Fertiliser Plants
Customs duty	✓
Service tax	✓
Sales tax/VAT	✓
Central sales tax	✓
Subsidy for the consumption of natural gas in urea-based fertiliser plants	Nil

Source: Authors' analysis.

The study team took the following steps to estimate prices:

- Adopted a top-down approach on price build-up to assess the total tax revenue from the segment.
- Took the location of the urea-based fertiliser units in the state of Gujarat and captured the total quantity of urea sold from each fertiliser unit from the domain of the Department of Fertilisers. Also, the actual energy (Gcal/MT) to produce one MT of urea from each fertiliser unit was captured from government documents of the respective ministry (Table 5.7).

Table 5.7. Urea Production from Fertiliser Plants in Gujarat and Their Actual Energy Consumption

Fertiliser Units	Urea Production (MMT)	Actual Energy, Gcal/MT
KRIBHCO, Hazira	22.68	5.64
IFFCO, Kalol	6.01	5.68
GSFC, Vadodara	3.61	6.35
GNVFC, Bharuch	6.91	6.77

Source: Ministry of Chemicals and Fertilizers (2017).

- Based on the actual energy, the total quantity of natural gas required was assessed and the quantity of natural gas supplied was split between domestic and imported gas based on the national supply ratio of 56:44. Since no data on the ratio between long-term and spot/short-term regasified LNG was available, the study team assumed it to be nearly equal.
- The basic price for the imported long-term and spot LNG was the WAP at Dahej LNG terminal situated in Gujarat for 2015/16; in the case of domestic natural gas, it is the average of the government-notified price for the same year.
- The estimated representative price build-up of natural gas from different sources is shown in Table 5.8. The components, such as regasification charge and marketing margin, were identified through literature review and stakeholder interactions. For transportation tariff, the study team assumed that domestic gas is sourced from the nearest offshore fields in Gujarat and Mumbai as the plant-wise gas linkage data is not available in the public domain and the imported gas from the import terminals in

Gujarat is then transported through GAIL/GSPC pipelines. Based on the transmission distance to the fertiliser units and associated notified zonal pipeline tariff, the pipeline tariff for the transmission of natural gas was determined.

- The purchase tax/sales tax/VAT rates notified by the state governments for 2015/16 were considered (Annex II). These assumptions and data were used to arrive at the price build-up of natural gas until the delivery points. Then the total collection of indirect taxes for the consumption of natural gas in the state of Gujarat was assessed.
- The average exchange rate assumed is around Rs65/US\$ for 2015/16.

Table 4.8. Representative Price Build-up of Natural Gas from Different Sources for Urea-based Fertiliser Units in Gujarat

Components	Domestic Natural Gas (\$/MMBTU)	Long-term RLNG (\$/MMBTU)	Spot RLNG (\$/MMBTU)
Basic price	4.28	9.50	7.50
Customs duty	0.00	0.49	0.39
Re-gasification charges	0.00	0.65	0.65
Marketing margin	0.09	0.18	0.18
Pipeline tariff	0.34	0.34	0.34
Service tax	0.05	0.05	0.05
Purchase tax/sales tax/VAT	0.56	1.39	1.12
Total delivered cost of natural gas	5.32	12.60	10.22

MMBTU = million metric British thermal unit, RLNG = regasified liquid natural gas, VAT = value added tax.

Source: Authors' compilation.

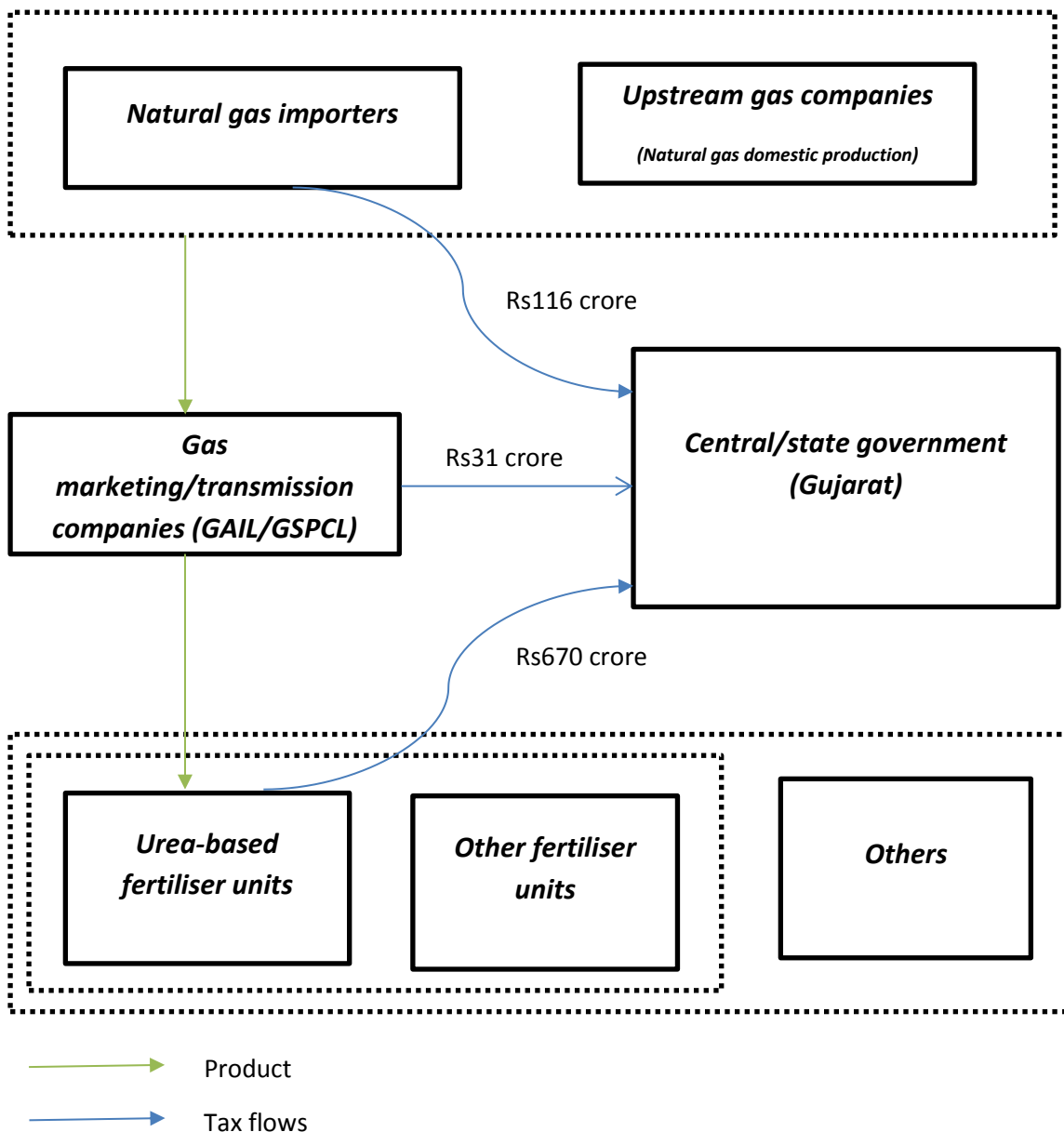
Results:

In 2015/16, the domestic price of natural gas in India ranged from US\$4/MMBTU to US\$4.5/MMBTU and its import price was US\$7/MMBTU to US\$10/MMBTU (CIF price). As the natural gas pooling policy was implemented during the period, the deficit in the supply of domestic natural gas was overcome by LNG imports on spot basis. The landed price of natural gas is the key cost component in the total delivered cost as the transportation tariff and other tax levies – such as customs duty, sales tax/VAT, pipeline tariff, and associated service tax – only account for 21%–25% of the total delivered price of natural gas (Table 5.9). The pooled price of natural gas for fertilisers (inclusive of transportation and taxes) ranged from US\$8/MMBTU to US\$9/MMBTU in 2015/16. Also, in the same year, the total subsidy on indigenous and imported fertilisers (urea based) was about Rs50,500 crore, accounting for almost 19.5% of the total subsidy outgo. Out of this, the subsidy for the indigenous (urea-based) fertilisers was about Rs38,200 crore, which is the second-largest subsidy segment in the country. The study found that approximately 25% of the total VAT collection on the sale of natural gas in the state of Gujarat was for the production of urea in the fertiliser sector.

Value chain diagram for gas consumption in Urea-based fertiliser units in Gujarat (Figures in Rs crore)

Figure 5.25 represents the product and tax flows across various entities. In the fertiliser (urea-based) segment, the producer tax contributed by the natural gas importers and gas transmission companies to the central treasury for customs duties and service tax together amounts to Rs147 crore. The consumer taxes contributed by the gas companies to the state/central treasury for sales tax/VAT, etc. amounted to Rs670 crore in 2015/16.

Figure 5.25. Value Chain Diagram for Urea-based Fertiliser Segment in Gujarat (Figures in Rs Crore)



Source: Authors' compilation.

2.6. Gas-based electricity generation

This section presents the detailed analysis of taxes and subsidies for gas consumption in gas-based power plants in the state of Gujarat and the tax flow to the central government and to the Gujarat government from this segment. In Gujarat, the gas-based power plants with an installed operational capacity of 5.6 GW source gas from the APM; non-APM; KG D6 basin; and imported LNG on spot, long term, and under the e-bid scheme.

Methodology:

The methodology adopted to assess indirect tax collection from the gas-based power plant segment in Gujarat is similar to that of the urea-based fertiliser segment. Gujarat, a representative state, was selected because there is no national aggregate/state-wise data in the public domain on the consumer tax collected by the government for the consumption of natural gas in the power sector. The components of subsidy and taxation rates for natural gas in power plants considered under the study for 2015/16 are shown in Table 5.9.

Table 5.9. Tax and Subsidy Components Considered for the Use of Natural Gas in Power Plants

Tax and Subsidy Components*	Considerations of Natural Gas Used in Power Plants
Customs duty	Exempted
Service tax	✓
Sales tax/value added tax	✓
Central sales tax	✓
Subsidy for the for the consumption of natural gas in power plants	✓

*For the normal procurement for power generation and not under any schemes.

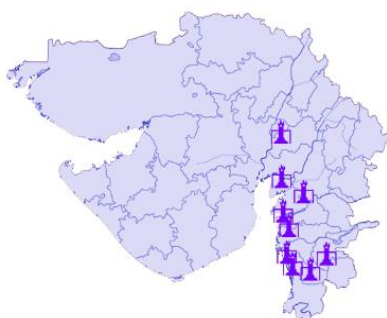
Source: Authors' analysis.

Below are the steps for price estimation:

- A top-down approach on price build-up was used to assess the total tax revenue from the segment.
- The operational gas-based power plants in the state of Gujarat were considered for the study and the quantity of natural gas consumed in each power plant from different sources taken from the CEA fuel consumption division.
- The quantity of natural gas (MMSCM) was converted into energy equivalent (MMBTU) based on the PPAC conversion table. Price build-up for natural gas was made for different energy sources (domestic gas [APM, Krishna-Godavari basin gas, non-APM] and imported gas [spot term, long term, e-bid LNG]) by conducting stakeholder consultations and literature review (Table 6.1).
- WAP at the Dahej LNG terminal situated in Gujarat was taken as the basic price for the imported long-term and spot LNG for 2015/16; in case of domestic natural gas, it is the average of the government-notified price for the same period.

- The components such as regasification charge and marketing margin were captured through literature review and stakeholder interactions. For the transport tariff, domestic gas is assumed to be sourced from the nearest offshore fields in Gujarat and Mumbai as the plant-wise gas linkage data is not available in the public domain and imported gas is sourced from the import terminals in Gujarat and transported through GAIL/GSPC pipelines. Based on the transmission distance to the power plants and associated notified zonal pipeline tariff, the pipeline tariff for the transmission of natural gas was determined.
- The purchase tax/sales tax/VAT rates notified by the state governments for 2015/16 were considered for 2015/16 (Annex II). These assumptions and data were used to arrive at the price build-up until the delivery point and thereby estimate the total indirect tax collection for the consumption of natural gas in Gujarat.
- The average exchange rate assumed was around Rs65/US\$ for 2015/16.

Figure 5.26. Map of Gas based Power Plants in Gujarat



Source: Government of Gujarat (2018).

Table 5.10. Representative Price Build-up of Natural Gas from Different Sources for Gas-based Power Plants in Gujarat

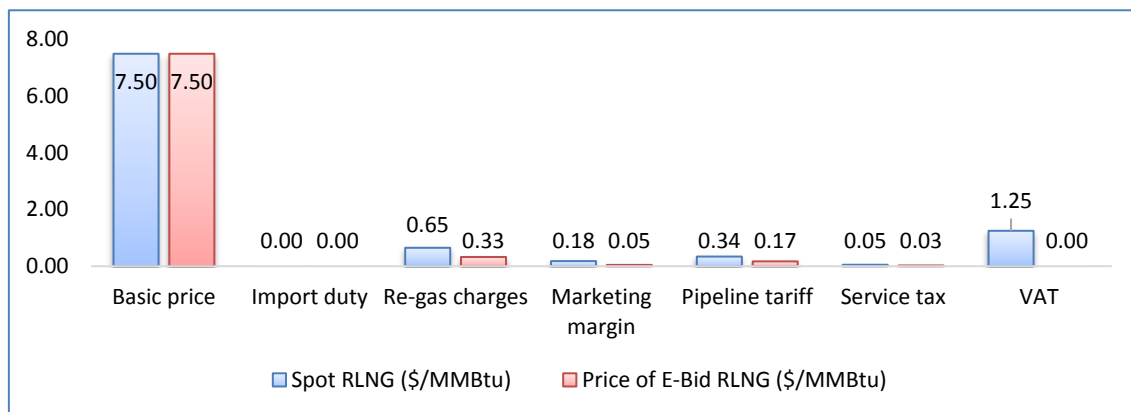
Components	Domestic Natural Gas (\$/MMBTU)	Long-term RLNG (\$/MMBTU)	Spot RLNG (\$/MMBTU)	Price of e-Bid RLNG (\$/MMBTU)
Basic price	4.28	9.50	7.50	7.50
Customs duty	0.00	0.00	0.00	0.00
Regasification charges	0.00	0.65	0.65	0.33
Marketing margin	0.09	0.18	0.18	0.05
Pipeline tariff	0.34	0.34	0.34	0.17
Service tax	0.05	0.05	0.05	0.03
Purchase tax/ Sales tax/value added tax	0.66	1.55	1.25	0.00
Total delivered cost of natural gas	5.42	12.27	9.97	8.07

RLNG = regasified liquefied natural gas.

Source: Authors' compilation.

Figure 5.27 compares the tax elements within the delivered cost of gas from spot and e-bid LNG.

Figure 5.27. Comparison between the Price Elements of Spot LNG and e-Bid LNG under the Scheme



MMBTU = million metric British thermal unit. RLNG = regasified liquefied natural gas, VAT = value added tax.

Source: Authors' compilation.

Results:

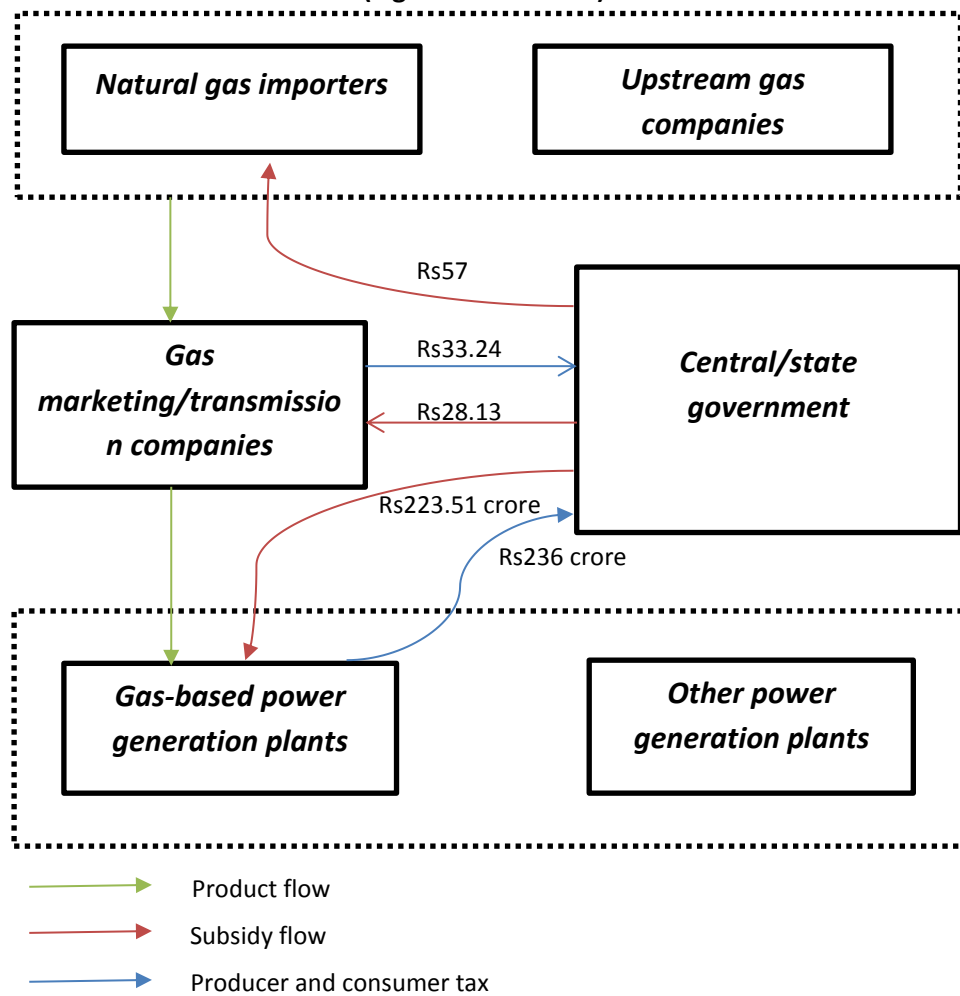
In 2015/16, the domestic price of natural gas in India ranged from US\$4/MMBTU to US\$4.5/MMBTU, and the import prices of natural gas was in the range of US\$7/MMBTU–US\$10 /MMBTU (CIF price). The landed price of gas is the key component of total delivered cost as transport tariff and other tax levies – such as customs duty, sales tax/VAT, pipeline tariff, and associated service tax – only account to about 21%–25% of the total delivered price of natural gas. Under the e-bid subsidy scheme, the share of cost components other than the basic price altogether accounts for only 7.2% of the total delivered cost of e-bid LNG, which effectively reduced the delivered cost by 20% (~2 Rs/MMBTU). The government provided 5.13 MMSCMD of subsidised natural gas through LNG spot imports under the reverse e-bid scheme CEA (2016b).

According to TERI's estimate, the subsidy estimated at Rs300 crore was disbursed for stressed/stranded gas-based power plants in Gujarat. This amount converts to a subsidy of almost Rs1.5 for unit generation from gas-based power plants in Gujarat. The government has foregone about Rs223 crore from its tax revenue for the sale of natural gas. On the other hand, in Gujarat, the consumer tax collected on account of natural gas sales for power generation accounted for Rs270 crore. The contribution of sales tax/VAT collected from the sale of natural gas to power generation plants out of the total sales tax/VAT collected from the sale of natural gas in the state was almost 11%. The value chain diagram for gas-based power generation in Gujarat is shown in the next section.

Value chain diagram for the gas consumption for power generation in Gujarat (Figures in Rs crore)

Figure 5.28 represents product and tax flows across various entities in Gujarat. In the gas-based power segment, the consumer taxes contributed by the gas companies to the state/central exchequer from the sales tax/VAT, etc. amounted to about Rs236 crore in 2015/16. The subsidy from the central government and the Gujarat state government to the power sector for the consumption of natural gas under the scheme amounted to approximately Rs384 crore in 2015/16, out of which the tax foregone amounted to around Rs304 crore.

Figure 5.28. Value Chain Diagram for Gas Consumption for Power Generation in Gujarat (Figures in Rs Crore)



Source: Authors' compilation.