

CHAPTER VIII

ELECTRICITY, GAS & WATER SUPPLY

Coverage

8.1. The economic activities³⁵ covered in the sector are (i) generation, transmission and distribution of electric energy, (ii) manufacture of gas in gas works and output of liquified petroleum gas (LPG), a by-product of petroleum refineries and distribution through mains to household, industrial and commercial and other users and (iii) collection, purification and distribution of water for domestic and industrial consumers excluding the operation of irrigation system.

Methodology and Source Material

Estimates at current prices

8.2. Income approach is used to estimate nva. This implies the measurement of aggregate factor incomes in the form of compensation of employees and operating surplus (interest, rent, profits and dividends).

Electricity

8.3. The estimates of gross factor incomes are estimated from the economic analysis of published annual accounts of State Electricity Boards, Neyveli Lignite Corporation, Damodar Valley Corporation, Municipal Electricity Undertakings and Private Companies upto 1972-73. From 1973-74 onwards, while the annual accounts of State Electricity Boards etc., are analysed as usual, the estimates in respect of municipal electricity undertakings and private companies are based on the data annually available from the *Public Electricity Supply, All India Statistics General Review* brought out by Central Electricity Authority (CEA), Ministry of Energy.

8.4. To ensure complete coverage, in case of non-availability of accounts, either the relevant figures from the previous years' accounts are repeated or these are estimated using the past trend. The method followed is generally guided by the pattern of business of the undertaking over past years. In cases where the annual reports do not provide the necessary details, relevant factor shares are obtained either from CEA or by correspondence with the undertakings.

8.5. The estimates of value added based on analysis of annual accounts are not netted for such banking service charges paid by these Boards/Undertakings which are not separately indicated and hence are included in the value added of the banking sector. These are inde-

pendently estimated and are deducted from the value added of this sector as imputed charges of banking services.

Gas

8.6. Only two gas companies, viz., the Bombay Gas Company and the Oriental Gas Company produce coal gas in the country. The estimates of gross value added are prepared by analysing the published annual accounts.

8.7. LPG is a minor by-product of petroleum refineries and no published data on the value of output are available. However, data on quantity of output of LPG produced are available from the Ministry of Petroleum. On the basis of the details available in ASI (unpublished) the total value of output of LPG in 1973-74 has been obtained. The value of output in other years has been estimated by moving the corresponding value for 1973 to other years using the quantum of production and the index of wholesale price of kerosene oil and diesel. It is assumed that no cost is incurred in the production of LPG and the entire value of output is treated as profit of petroleum refineries and included in value added from the production of gas.

Water Supply

8.8. The gross domestic product has been arrived at by adopting the income approach. Data on employment, wages and population served are collected every year directly from municipalities and corporations issuing a special questionnaire for the purpose. The ASI provides the required data on operating surplus, rent and consumption of fixed capital.

8.9. Compensation of employees is computed for each state separately for urban (municipalities) and rural areas using wage rates for municipalities in each State (derived from the special returns) and the working force in the respective areas in each State. However, because of the undercoverage of the number of workers (working force) provided by the Population Census³⁶, the number of workers has been derived independently.

8.10. For estimating the number of workers in the base year (1970-71), corporations and municipalities in the urban areas are grouped into five categories³⁷ on the basis of 1971 Popu-

³⁵ The Industry groups covered are 400, 401, 410 and 420 as per National Industrial Classification, 1970.

³⁶ Employment figures for some of the corporations and municipalities are found to be very low.

³⁷ The five categories are, (i) towns with population 5 lakhs and above, (ii) towns with population 1.5 lakhs, (iii) towns with population 75,000 to 1 lakh, (iv) towns with population 50,000 to 75,000, and (v) towns with population less than 50,000.

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lation Census. The average number of people served per employee in each category of corporation/municipality in 1970-71 is determined on the basis of the details in the special returns. Using these average and the total population in each category in 1971 (from Population Census results), the total number of employees has been determined. The ratio of total workers to employees as revealed by the 1971 Census has been applied to the estimated number of employees to obtain the total number of workers.

8.11. For rural areas the working force figures available from 1971 Population Census are adopted as such and the compensation of employees is estimated statewise by using the working force and the lowest average salaries and wages per person in any of the above five urban categories for each state.

Estimates for subsequent years

8.12. The working force for subsequent years in respect of urban areas in each State is worked out with the help of overall growth rate revealed by all municipalities which report during both the years. Compensation of employees is computed on the basis of the overall average salaries and wages per person for all groups together and the total working force determined as above. The rural working force is moved forward with the lowest growth rate observed among the five urban groups in each state. This is multiplied by the minimum per capita earnings in all the five urban groups of the state to estimate the compensation of employees.

Other factor incomes

8.13. The data on operating surplus (i.e. interest, rent and profits) and consumption of fixed capital are taken from ASI.

Estimates at constant prices

Electricity

8.14. The base year (1970-71) estimates of gross value added from Electricity are moved forward to other years with the help of quantum index prepared from the data on quantity of energy sold obtained from the annual publication *Public Electricity Supply—All India Statistics-General Review* (CEA). The estimates of net value added at constant prices are obtained assuming the same ratio of consumption of fixed capital to gross value added as at current prices.

Gas

8.15. The estimates of gross value added at constant prices are prepared by moving the base year estimates by an indicator of changes in the quantity of gas sold and LPG produced relative to the base year. The figures of net value added

are obtained therefrom following the method used for electricity.

Water Supply

8.16. Gross value added at 1970-71 prices is obtained by moving forward the estimates in the base year by the changes in estimated working force. The consumption of fixed capital at constant prices is obtained as in the cases of electricity and gas.

Objectivity, Reliability and Current Status of Data

Electricity

8.17. Though most of the State Electricity Boards/State Governments and privately owned electricity supply undertakings make available the data for compiling the estimates in time, the coverage remains incomplete. Again the accounts suffer from certain limitations of data, e.g., the item 'other expenses' under the head 'general establishment charges' has been found to include rents, provident fund contribution, bad debts written off, etc. Complete (or improved) coverage and adoption of standard pattern for accounts would make the data more useful for analytical purposes.

8.18. In view of the time lag in the annual publication *Public Electricity Supply—All India Statistics-General Review* (CEA), the estimates for public sector are prepared by analysing the accounts of individual undertakings and the budget documents of departmental undertakings. An element of subjectivity is introduced because estimation for non-responding units is carried out using proportions from undertakings for which data are available.

Gas

8.19. The data for preparing the estimates for this sub-sector are rather unsatisfactory because of the time lag and under coverage.

Water Supply

8.20. In this activity, for reliable estimates, satisfactory data on working force are essential. Even for the base year, the estimates thrown up by population censuses cannot stand the test of users acceptability as the employment figures for corporations and municipalities reported therein are very low. Again the rate of growth adopted for estimating working force in urban areas is based only on the data for the responding municipalities and the rate in the case of rural areas is arbitrary in the absence of any data. The information on rent, interest and profits, possibly suffer from partial coverage as the data relating to units registered under Indian Factories Act, 1948 only could be taken into account in preparing these estimates.