

TRANSPORT, STORAGE AND COMMUNICATION

Coverage

- 17.1 The economic activities covered in this sector are (i) transport by railways, (ii) transport by other means, namely, road transport (mechanised and non-mechanised), water transport (coastal, ocean and inland), air transport and services incidental to transport, (iii) storage, and (iv) communication services. The budget documents of the railways and communication services which are integral part of Central Government budget documents include allied activities which according to standard industrial classification should belong to respective sectors. Following this principle, railway workshops and railway manufacturing establishments like Chittaranjan Locomotive Works, Integral Coach Factory, Diesel Locomotive Works and Wheel & Axle Plant are excluded from railway transport and included in the `manufacturing` sector. Construction activity of the railways is also excluded and taken into account in the `construction` sector. Expenditure on education, medical & health services are also excluded here and included in `other services`. Similarly, the activities relating to post office savings bank, postal life insurance and telecommunication workshops are excluded from communication and included in `banking`, `insurance` and `manufacturing` sectors respectively.
- 17.2 Under the NIC 1998, these activities are covered under:
 601: Transport via railways.
 602: Other land transport.
 611: Sea and coastal water transport.
 612: Inland water transport.
 621: Scheduled air transport.
 622: Non-scheduled air transport.
 630: Supporting and auxiliary transport activities; activities of travel agencies, including Storage and warehousing.
 641: Post and courier activities.
 642: Telecommunications.
- Transport by Railways**
Sources of data
- 17.3 The principal sources of data for estimating the GVA of Railway transport services are:
- (i) Annual Report & Accounts and Annual Statistical Statements brought out by the Ministry of Railways (Railway Board); and
 - (ii) Budget Documents of the Central Government on Railways.
- 17.4 The Annual Report & Accounts and Annual Statistical Statements brought out by the
- Ministry of Railways (Railway Board) contain comprehensive statistics on all-important aspects of the working of government railways and also some basic data in respect of non-government railways appropriation accounts. Budget documents of the Central Government on Railways contain budget of the Railways - Revenue and Expenditure of the Central Government, the Demand for Grants for expenditure of the Central Government on railways, Works, Machinery and Rolling Stock Programme of Railways and Explanatory Memorandum on Railway budget.
- Method of GVA Estimation**
- 17.5 Rainlay budget is analyzed and three sets of accounts, namely, the production account, the income and outlay account and the capital finance account are prepared for the complete activity of government railways. The GVA at current prices is obtained from the production account as the sum of compensation to employees and gross operating surplus. The GVA thus obtained relates to the entire activity of the government railways. Since it includes GVA pertaining to the manufacturing, construction and the other services activities also within government railways, these are subtracted from the total GVA to arrive at the current price estimates of GVA for government railways transport services. To this is added the GVA for non-government railways, the share of which is, however, quite small.
- 17.6 Estimates at *constant prices* are prepared by carrying forward the base year estimates with the combined indicator of passenger kilometers and net tonne kilometers. The two physical indicators are combined using passenger earnings and goods earnings for the base year as weights.
- Transport other than Railways**
- 17.7 The economic activities covered in this sector are:
- ✚ Mechanized road transport (NIC-98 codes-6021+60221+60231);
 - ✚ Non-mechanized road transport (NIC- 98 codes-60222+60232);
 - ✚ Air transport (NIC-98 code-62);
 - ✚ Water transport (NIC-98 code-61); and
 - ✚ Supporting & auxiliary transport activities (NIC-98code-63-6302).
- Sources of data**
- 17.8 The major sources of data for preparing estimates for this sector are:
- The budget documents of Central and State

Governments relating to transport activities;

- Annual reports/accounts of Central and State Government enterprises and Private sector registered companies relating to transport activities;
- Labour Input estimates;
- Enterprise surveys results of NSS 57th round (2001-02);
- Data on total number of registered transport vehicles according to NIC codes, from Ministry of Shipping, Road Transport and Highways;
- Consumer price index of Industrial Workers (IW); and
- Index of Cargo handled at major ports from Ministry of Shipping, Road Transport and Highways.

Method of GVA Estimation

- 17.9 The GVA estimate is prepared by multiplying the labour input (duly adjusted for public sector) with estimated value added per worker (VAPW) available from the results of Enterprise Survey, for the respective NIC codes, separately for organized (corporate sector) and unorganized segments. The economic activities of Airport Authority were included under Air transport sub-sector in the 1993-94 series. This has now been shifted to the sub-sector 'supporting and auxiliary transport activities'. Similarly, supporting service to water transport which was part of water transport is now shifted to 'supporting and auxiliary transport activities' in the new series. The details are as follows:
- 17.10 **Mechanized road transport:** The main economic activities covered under the mechanized road transport are:
- Transport by buses;
 - Transport by other vehicles; and
 - Transport by trucks.
- 17.11 The GVA estimates of mechanized road transport are prepared in two parts i.e., organized (public) and unorganized. The current price GVA estimate of *organized* part is prepared by analyzing the annual accounts of State Road Transport Corporations. The *constant price* GVA is estimated by moving the base year GVA with quantum index of passenger kilometers.
- 17.12 The GVA of *unorganized* part for the year 1999-2000 has been prepared as a product of GVAPW of ES 2001-02 and labour input estimates based on Employment-Unemployment Survey, 1999-00 of 55th round & Population Census 2001 of the respective NIC codes (duly adjusted for public sector). The constant price GVA for subsequent years is compiled as a product of
- 17.13 **Non-mechanized road transport:** The entire sub-sector is unorganized. Base year GVA estimate of this part has been prepared as a product of adjusted GVAPW of ES 2001-02 and labour input estimates based on Employment-Unemployment Survey, 1999-2000 of 55th round & Population Census 2001 of the respective NIC codes. The constant price estimates for subsequent years are prepared by moving the base year GVA with inter survey workforce growth rate between 1993-94 and 1999-2000 Employment & Unemployment surveys of NSS. The current price GVA is estimated by inflating the constant price GVA with CPI for Industrial workers.
- 17.14 **Air transport:** The GVA estimates of air transport at current prices are prepared in two parts i.e. organized (public) and organized (private). Current price GVA estimates are prepared by analyzing the Air transport part of budget documents and annual accounts of Airlines (both public and private), flying and gliding clubs. The constant price GVA of public and private parts are estimated by moving the base year GVA with air transport volume index and combined index of Passenger and Cargo traffic handled in the airports respectively.
- 17.15 **Water transport:** The GVA estimates of water transport are prepared separately for organized (public and private) and unorganized segments.
- ✚ **Water transport (Organized Public):** The base year GVA estimate of organized (public) part has been prepared at current prices by analyzing the water transport part of budget documents and annual accounts of Public Shipping Companies and Inland Water Shipping Companies. The constant price GVA is estimated by moving the base year GVA with Index of Cargo handled at major ports.
 - ✚ **Water transport (Organized Private):** Current price GVA estimate of organized (private) part is prepared by analyzing the annual accounts of Private Shipping Companies. The constant price GVA is estimated by moving the base year GVA with Index of Cargo handled at major ports.

✚ *Water transport (Un-organized):* The base year GVA estimate of unorganized part has been prepared as a product of adjusted GVAPW of ES 2001-02 and labour input estimates based on Employment-Unemployment Survey, 1999-00 of 55th round & Population Census 2001 of respective NIC codes (duly adjusted for public and private organized parts). For subsequent years the constant price estimates are prepared by moving the base year GVA with inter survey average compound growth rate observed between 1993-94 and 1999-2000 Employment & Unemployment surveys of NSS. The current price GVA is estimated by inflating the constant price GVA with CPI Industrial worker.

17.16 **Supporting and auxiliary transport activities:** The GVA estimates of 'supporting and auxiliary transport activities' are prepared separately for organized (public) and un-organized parts.

✚ *Supporting and auxiliary transport activities (organized public):* The GVA estimate of organized part is prepared by analyzing the light houses and light ships part of the budget documents and annual accounts of companies engaged in services incidental to water and air transport like Port Trusts, Inland Water Authority, Dredging Corporation and Airport Authority of India. The GVA at constant prices is obtained by deflating the current price GVA with Consumer Price Index (CPI) of Industrial worker.

✚ *Supporting and auxiliary transport activities (un-organized):* The base year GVA estimate of un-organized part has been prepared as a product of adjusted GVAPW of ES 2001-02 and labour input estimates based on Employment-Unemployment Survey, 1999-00 of 55th round & Population Census 2001 of the respective NIC codes. For subsequent years the constant price estimates are prepared by moving the base year GVA with inter survey average compound growth rate observed between 1993-94 and 1999-2000 Employment & Unemployment surveys of NSS. The current price GVA is estimated by inflating the Constant price GVA with CPI Industrial worker.

Storage and Warehousing

17.17 The economic activities covered in this sector are:

- ✚ Warehousing Corporations;
- ✚ Cold Storage; and

✚ Storage not elsewhere classified (n. e. c).

Sources of data

17.18 The major data sources for preparing estimates for storage and warehousing sector are:

- ✚ The budget documents of Central and State Governments relating to storage and warehousing activities;
- ✚ Annual reports of Central and State Government enterprises relating to storage and warehousing corporations;
- ✚ Enterprise surveys results of NSS 57th round (2001-02);
- ✚ Labour Input estimates; and
- ✚ Annual survey of Industries (ASI) results relating to cold storage.

Method of GVA Estimation

17.19 The GVA estimates are prepared separately for warehousing corporations, cold storage and storage n.e.c.:

✚ *Warehousing Corporations:* The GVA estimate of warehousing corporations is based on the analysis of annual accounts of state and central warehousing corporations. The constant price estimates are prepared by deflating the current price estimates with storage index.

✚ *Cold Storage:* The current price GVA estimate for the cold storage is based on the results available from Annual Survey of Industries (ASI). The constant price estimates are prepared by deflating the current price estimates with index of agriculture production.

✚ *Storage (n .e. c):* This is an unorganized part and the base year GVA has been prepared as a product of adjusted GVAPW of ES 2001-02 and labour input estimates based on Employment-Unemployment Survey, 1999-00 of 55th round & Population Census 2001. The GVA per worker of all types of storage has been used. The labour input for this category is obtained by subtracting the number of workers in public sector warehousing and cold storage covered under ASI from the total labour input estimates. For subsequent years the constant price estimates are prepared by moving the base year GVA with inter survey average compound growth rate observed between 1993-94 and 1999-2000 Employment & Unemployment surveys of NSS. The constant price GVA is inflated with CPI Industrial worker to get the current price estimates for the subsequent years.

Communication Services

Sources of data

- 17.20 **Public Sector:** The principal sources of data for Communication are Annual Reports and Accounts of the Indian Posts & Telecommunication Departments. As in the case of government railways, separate economic accounts, namely, the production account, income & outlay account and the capital finance account are presented in NAS.
- 17.21 From 1.4.1986, the activities of the Overseas Communication Service and Delhi & Bombay telephone districts have been taken out of the departmental commercial undertakings and these have been converted into wholly owned companies, namely Videsh Sanchar Nigam Limited (VSNL), and Mahanagar Telephone Nigam Limited (MTNL) respectively. Although, this change has no effect on the domestic product from this sector but from the year 1986-87 onwards, production, income and outlay & capital finance accounts of communication sector covered under departmental enterprises stand reduced by the activities of these two Nigams. On the other hand, the contribution from these activities is accounted in the non-departmental non-financial enterprises. Further, the VSNL has been shifted from NDCU to private communication sector from the year 2002-03. From this year onwards, the estimates of GVA on account of VSNL are covered under private communication.
- 17.22 The Annual Reports and Accounts of the Indian Posts and Telecommunication Departments are analysed and the three sets of accounts namely, the production account, the income and outlay account and the capital finance account are prepared. (Details are available in the Part A of Chapter 27 on 'Public Sector'). The GVA at current prices is obtained from the production account as the sum of compensation of employees and operating surplus which is also equal to gross output less intermediate consumption in the form of purchases of goods and services, CFC and indirect taxes less subsidies. The estimates at constant prices are prepared by carrying forward the base year estimates with the help of combined weighted index of number of money orders, number of telegrams, number of telephones and number of postal articles handled, weights being the corresponding gross earnings in the base year.
- 17.23 **Private Sector:** The participation of the private sector in cellular mobile communication and basic telephony has been increasing significantly since the second half of the last decade.
- 17.24 The economic activities covered under this sector are (i) Courier activities (NIC-98, code-64120); (ii) Activities of the cable operators (NIC-98, code-64204); and (iii) Other communication (NIC-98, code-642-64204).
- 17.25 The data sources are:
- Employment and Unemployment survey data from NSS 55th round and population census, 2001 estimates of work force;
 - Value added per worker from Enterprise Survey;
 - CPI(AL) and CPI(IW); and
 - No. of Cellular subscribers.
- Method of GVA Estimation**
- 17.26 The method followed for estimation of value added from different categories of activities is to use the total number of persons engaged and value added per worker.
- 17.27 **Courier Services:** The estimates of GVA for courier services for the year 1999-2000 have been compiled by using the Gross Value added per worker (GVAPW) of Enterprise Survey(ES) 2001-02 and labour input estimates separately for Rural/ Urban/ organized/ un-organised segments. The organized sector estimates are prepared using DGE&T employment data and the estimated value added per worker in respect of corporate sector units, from the results of NSS 57th round survey.
- 17.28 For subsequent years, the estimates of labour input have been prepared using the inter survey average compound growth rate of quinquennial Employment & Unemployment surveys as observed between 1993-94 and 1999-00 of NSS. The value added per worker of rural and urban sectors is projected to subsequent years with the CPI(AL) and CPI (IW) respectively.
- 17.29 **Activities of Cable Operators (NIC-98 code 64204):** The estimates of GVA for these services for the year 1999-2000 have been compiled by using the adjusted GVAPW of rural/ urban by using VAPW from ES, 2001-02 and labour input estimates. No separate estimate for this category was prepared in 1993-94 series of NAS.
- 17.30 For subsequent years the estimates of labour input have been prepared using the population growth rate. The value added per worker of

rural and urban sectors is projected to subsequent years with the CPI(AL) and CPI (IW) respectively.

17.31 *Communication Services other than those of Couriers and Cable Operators (NIC-98 code 642 (-) 64204)*: All the communication activities in the private sector, other than those of Couriers and Cable operators, are covered in this compilation category. These include the activities of cellular & basic telecom services, and the activities of PCO/ STD/ ISD booths.

17.32 The estimates of GVA for other communication services for the year 1999-2000 have been compiled by using the GVAPW of ES 2001-02 and labour input estimates separately for Rural/Urban and organized/un-organised segments. The organized sector estimates have been prepared using DGE&T data of workers and corporate sector value added per worker from the results of NSS 57th round survey. Similarly, the unorganized segment estimates have been prepared using the estimated workforce in this segment and the VAPW estimate obtained from the results of NSS 57th round survey.

17.33 For subsequent years the estimates of labour input, for both organized and unorganized segments under private sector, are moved using the growth in number of cellular subscribers and landline connections. The value added per worker of rural and urban sectors is projected to subsequent years with the index of CPI(AL) and CPI (IW) respectively.

17.34 The constant price estimates for rural and urban segments are obtained by deflating current price estimates with CPI (AL) and CPI (IW) respectively.

17.35 **Quality and limitations of data base**
The estimates of value added from Railways and Communication in public sector are based on up-to-date and reliable information. For the private sector, the estimates are not that robust as these are compiled mostly through indirect methods using proxy indicators, such as number of telephone connections or extrapolating with inter-survey growth rates in workforce.

Appendix 17.1

Estimates of GDP for Transport by other means and storage, 1999-2000 (Rs. crore)

Items	1999-00
A. Transport by other means	
1. Gross Domestic Product (Unadjusted)	83355
1.1 Road Transport	68138
1.2 water Transport	3728
1.3 Air Transport	3451
1.4 Supporting & Auxiliary transport activities	8039
2. Less FISIM	979
3. Gross Domestic Product	82376
B. Storage	
6. Gross Domestic Product (Unadjusted)	1443
7. Less FISIM	16
8. Gross Domestic Product	1427

Appendix 17.2

Value added from Communication Services

(Rs. crore)

Communication	1999-00
Public	23854
Private	4592
Total	28446