User Manual
Advance Estimate of Gross State Domestic Product
(A Step by Step Process with Illustrations)

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Foreword

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It gives me immense pleasure to say that for the first time the DES took steps to document the sources and methodology used in estimation of Advance Estimate of GSDP. The training-cum-workshop held on 11th and 12th April,2016 at Bhubaneswar under the technical guidance of National Accounts Division (NAD), Central Statistics Office (CSO), Government of India paved the way for its documentation. Ms T. Rajeswari, Deputy Director General, NAD participated in the training programme, and gave a detail sector wise methodology of estimation of Advance Estimate. Thereafter, the State Income Division went ahead with preparation of "User Manual on the Advance Estimate of GSDP" with step-by-step process along with illustrations.

I hope that this user manual will not only help in sharing the methodology for preparation of Advance Estimates of GSDP among the staff of State Income Division, but also wide dissemination among the officers of DES and the users of State Income Statistics. Suggestions are invited for further improvement in the methodology.

I thank the officers and staff of State Income Division for bringing out the booklet for future reference and guidance.

(Dushasan Behera)
Director (I/C)

User Manual on Advance Estimate of GSDP

Contents

Abbreviation

BE   *Budget Estimate*

CCI   *Cost of Construction Index*

CPI   *Consumer Price Index*

CSO   *Central Statistical Office*

DCU   *Department Commercial Undertaking*

GFCF   *Gross Fixed Capital Formation*

GSDP   *Gross State Domestic Product*

GVA   *Gross Value Added*

GVAPW   *Gross Value Added per worker*

GVO   *Gross Value Output*

IIP   *Index of Industrial Production*

IOD   *Index of Dwelling*

IPD   *Implicit Price Deflator*

MCA   *Ministry of Corporate Affairs*

MOSPI   *Ministry of Statistics and Programme Implementation*

NAD   *National Accounts Division*

NDCU   *Non Department Commercial Undertaking*

NSS   *National Sample Survey*

OFDC   *Odisha Forest Development Corporation*

RRB   *Rural Residential Building*

URB   *Urban Residential Building*

WPI   *Wholesale Price Index*

Chapter-I

Gross State Domestic Product (GSDP) - An Overview

1. Introduction

1.1.   Gross State Domestic Product (GSDP) is one of the most widely used measures of output or production in an economy. It is defined as the total value of goods and services produced within a country/state in a specific time period. It presents general picture of an economy. The level of production determines how much a state can afford to consume, and helps to assess and understand the level of employment.

1.2.   There are three equivalent approaches to measure the GSDP, namely the **production, income, and expenditure**. The **production approach GSDP** measures the sum of value added for all economic activities within the state`s territory (sum of output less intermediate consumption) plus taxes on products minus subsidies on products. **GSDP** = Gross Value Added + Taxes − Subsidies.

The **expenditure approach GSDP** depicts the final end use (demand) of the output and comprises

   (i)   Government Final Consumption Expenditure (GFCE)
   (ii)   Private Final Consumption Expenditure (PFCE)
   (iii) Gross Fixed Capital Formation (GFCF),
   (iv)   Change in Stocks (CIS), and
   (v)   Net Export of Goods & Services

GSDP = Final Consumption + Gross Capital Formation + Exports − Imports.

The income (value added) generated through the production activity is distributed between the two factors of production, namely, labour and capital. Salaries and the operating surplus/mixed income of self-employed are the return on labour and capital. Thus, the **income approach** of GSDP is the sum of compensation of employees, gross operating surplus / gross mixed income, plus net taxes on production.

GSDP = Compensation of Employees + Taxes − Subsidies + Gross Operating Surplus / Mixed Income (profit, rent, interest).

1.3.   The GSDP estimates cover the following sectors.
    I.   Agriculture

    II.   Livestock

    III.   Fisheries

    IV.   Forestry

    V.   Mining and Quarrying

    VI.   Manufacturing

    VII.   Electricity, Gas, Water Supply and Remediation & Other utility services

    VIII.   Construction

    IX.   Trade, Hotel and Restaurant

    X.   Transport, Storage and Communication

    XI.   Financial Services

    XII.   Real Estate, Ownership of Dwellings & Business Services.

    XIII.   Public Administration

    XIV.   Other Services

The Gross Value Added (GVA) of each sector is being calculated at current and constant price.

1.4   **Current Price: -** Gross State Domestic Product (GSDP) at Current Prices is GSDP at prices of the current reporting period. It is also known as nominal GSDP. For example current price data shown for 2010 are based on 2010 prices, for 2015 and based on 2015 prices and so on.

1.5   **Constant Prices: -** Gross State Domestic Product (GSDP) at constant prices refers to volume level of GSDP. It is obtained by expressing values in terms of a base period. In theory, the price and quantity components of a value are identified and the price in the base period is substituted for that in the current period. Two main methods are adopted in practice.

The first, referred to as "quantity revaluation", is based on a methodology consistent with the above theory (i.e. by multiplying the current period quantity by the base period price).

The second, commonly referred to as "price deflation", involves dividing price indices into the observed values to obtain the volume estimate. The price indices used are built up from the prices of the major items contributing to each value.

1.6   **Gross Value Added: -** Gross Value Added represents the value of all goods and services which are available for the different uses other than intermediate consumption. Thus:

Gross Value Added = Output – Intermediate Consumption.

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Chapter-2

Advance Estimate of GSDP

2. Advance Estimate

2.1.　The annual estimates of GSDP for a financial year are brought out, first as **advance estimates** in the month of February each year i.e. two months before the end of a financial year, which are later on revised at least three times and termed as **1ˢᵗ Revised estimates, 2ⁿᵈ Revised estimates and 3ʳᵈRevised estimates** with a fixed periodicity with additional information becoming available during the intervening period. Apart from this regular revision, the estimates are also revised in case of revision of base year of any of the indices used in compilation of these estimates. Most important indices used for compilation of GSDP are **Index of Industrial Production (IIP), Wholesale Price Index (WPI) and Consumer Price Indices (CPI).**

2.2.　The advance estimates are based on anticipated level of agricultural production from Directorate of Agriculture, Horticulture, Index of Industrial Production (IIP), Service tax, Sales tax, budget estimates of Union Government Expenditure and State Government, performance of key sectors like transport including railways, road, water and air transport etc, communication and banking and insurance. The advance estimates at current prices are derived by estimating the implicit price deflators (IPDs) at sectoral level using the relevant WPI/CPI. The advance estimates are later revised when additional source data become available.

Box-1: Broad Compilation Method Used

❖　Benchmark-indicator method:
- Previous year's annual First Revised estimates at constant prices is the benchmark estimates
- Extrapolation of output/value added with growth rates observed in physical /proxy key indicators (data in volume or quantity terms)

❖　Data Sources:
- Administrative data for primary and services sectors
- IIP
- WPI, CPI

❖　Where no indicators are available, linear estimation/ forecasting techniques is used

❖　Wherever volume indicators are used, constant price estimates are derived first, then current price estimates are derived using WPI/CPIs of respective industry groups

❖　When current price estimates are worked out initially (government expenditure data, private corporate growth, sales tax etc.) they are deflated by applying appropriate price indices to arrive at constant prices.

❖　Illustration for advance estimate is given for the year 2015-16

2.3. **Value of output:** It is the value of goods and services which are produced by an establishment in the economy. They are valued at market price

2.4. **Intermediate Consumption (Input)**: It is the cost of goods and services used in production to produce output of goods and services during the accounting period. Intermediate consumption excludes labour cost, financial cost, production taxes and interest. The labour, financial cost (interest) and financial cost and production taxes are cost to business firms, but are treated in SNA as income generated for the economy.

Example :

Given Output	=	100
Material cost etc	=	30
So, Intermediate Consumption	=	30 + 10 = 40
Gross Value Added	=	100 − 40 = 60
So, Gross Value Added	=	Output − Intermediate Consumption.

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Chapter-3

Sectors and Methods of Advance Estimate

3.1. Primary Sector

This sector covers Agriculture proper, Lives stock, Fishing, Forestry and Mining & Quarrying.

3.1.1. Agriculture

The economic activities included in agriculture proper are (i) growing of all field crops, fruits, nuts, vegetables, flowers (ii) tea, coffee, rubber plantations, fodder, grass, by-products (iii) GVA from Govt. irrigation system (iv) gur making. The contribution of this sector to the gross state domestic product (GSDP) is estimated in terms of gross value added (GVA) using the production approach.

GVA = Value of outputs - Intermediate Consumption

3.1.1.1 Value of Output

- Generally, advance estimates of production of all crops are obtained from Director, Agriculture & FP, Director, Horticulture and Director, E&S

- Estimated average prices of crops of previous year (agricultural year) are supplied by DE&S and are used after applying WPI

- In case, production data are not available, fit exponential curve of previous data applying logest function or using log linear technique to get projected production data.

The detail illustration is given in Table-1.

Table-1: Projection of Potato Production for 2015-16

Year	Production(MT)
2011-12	101
2012-13	120
2013-14	90
2014-15	105
2015-16	103.21 (projected)

**Growth rate= logest (Production 2011-12 to Production, 2014-15) x 100 -100 = - 1.697
So, 2015-16 (projected) = 105 $\left(1 + \frac{-1.6970}{100}\right)$ = 103.21

3.1.1.2. Value of Input*:* Average ratio of input and output of past years may be applied to projected value of output to get advance estimate of input.

3.1.1.3. GVA from Government Irrigation: Budget Estimate (BE) may be used.

3.1.2 Livestock

Livestock and livestock products include breeding and rearing of animals and poultry besides private veterinary services, production of milk, slaughtering, preparation, and dressing of meat, production of raw hides and skins, eggs, dung, raw wool, honey and silk worm cocoons etc and increment in livestock.

The contribution of this sector to the gross state domestic product (GSDP) is estimated in terms of Gross Value Added (GVA) using the production approach. The estimation of GVA involves valuation of the products and by-products and ancillary activities at the prices received by the producers and deducting there from the value of inputs of raw materials and services consumed in the process of production at purchasers' prices.

GVA = Value of output - Intermediate Consumption

3.1.2.1. Value of Output

 Milk, Egg, and Wool

- Average of ratio of achievement / target for past few years will be used on the target of the current year to arrive at estimated production of milk, egg and wool.

- The estimated production of milk for 2015-16 is worked out in Table-2.

Table-2: Projection of Milk Production for 2015-16 (in MT)

Year	Target	Achievement	Ratio(Ach/Tar)
2011-12	2.00	1.733	0.867
2012-13	2.20	1.785	0.811
2013-14	2.30	1.90	0.826
2014-15	2.50	2.00	0.800
2015-16 (Proj)	2.55	-	-

- Average ratio (2011-12 to 2014-15) = (0.867 + 0.811 + 0.826 + 0.800) /4 = 0 .826

- Achievement for 2015-16 = 0.826 x 2.55 = 2.106

- For prices, WPI may be used to inflate price of previous year as well as to arrive at estimated GVA at current price.

- **WPI**: During advance estimate of 2015-16, generally WPI for 8 months (April-Nov 2015-16 say) are available.

- To calculate WPI for 2015-16 (whole year) for estimation of GVA at current price for 2015-16, the following steps may be followed as in Box-2.

Box-2: Calculation of WPI

Step-1   Average of 8 months WPI of 2015-16 and WPI of 2014-15

Step-2   Ratio of above two averages

Step-3   Apply above ratio over the annual WPI of 2014-15 to get estimated annual WPI of 2015-16

Step-4:   Illustration:

       8 months average WPI for 2014-15 = 118.25 (say)

       8 months average WPI for 2015-16 = 125.6 (say)

       Ratio = 125.6 /118.25 = 1.06

Other livestock items

- Includes dung, silk, honey, meat and meat products, poultry.

- Use loges function (growth) as illustrated in Para 3.1.1.1(Agriculture sector) for growth rate and estimation of value of output (GVO) at constant price of 2015-16

- For GVO at current price, use **Implicit Price Deflator(IPD)** and estimate GVO using WPI

- Implicit Price Deflator (IPD): It is ratio of GVO at current price and GVO at constant price

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Box-3: Calculation of GVO at current price for 2015-16 using IPD

- GVO at current (2014-15) = 452101 (given)
- GVO at constant (2014-15) = 334954 (given)
- GVO at constant (2015-16) = 370851 (estimated)
- IPD (2014-15) = (452101/334954) x 100 = 134.97
- IPD (2015-16) = IPD (2014-15) x WPI growth of 2015-16 = 134.97 x (100.2/100) = 135.24
- GVO at current for 2015-16 = (135.24/100) x 370851 = 501539

3.1.2.2. Value of Input

Average ratio of input and output of past years may be applied to the projected value of output to get advance estimate of input.

3.1.3. Fishing

Activities covered in the fishing sector are (i) commercial fishing in (a) ocean, coastal and offshore waters and (b) inland waters, that include catching, tackling and gathering of fish from rivers, irrigation and other canals, lakes, tanks, fields inundated tracts etc., (ii)subsistence fishing in inland waters and artificial ponds, (iii) gathering of sea weeds, seashells, pearls, sponges and other ocean and coastal water products and (iv) fish curing viz., salting and sun-drying of fish.

The GVA from the fishing sector is estimated by production approach. It involves the estimation of total value of output at factor cost and deducting there from the value of various inputs at purchasers' prices which are used in the process of production.

GVA = Value of Output - Intermediate Consumption

3.1.3.1 Value of Output

The data on quantity produced and price are collected from Directorate of Fisheries.

❖ Value of Output = Quantity x Price

For advance estimate of production of fishing sector,

- Monthly production data may be considered.

- **Or,** ratio of target and achievement of past years may be averaged and applied to current year target to get advance estimate of current year (2015-16), say production (as in para - 3.1.2.1).

- To calculate value of output at constant price for 2015-16(say) = Current year estimated production 2015-16 x base year price

- For GVO at current prices for 2015-16, **Implicit Price Deflator (IPD)** using GVO of previous year at current and constant prices as at Para 3.1.2.1 may be calculated and used.

3.1.3.2. Value of Input:

Fixed ratio as per the norm i.e. 22.5% marine fishing and 10% for Inland fishing may be applied to the value of output.

3.1.4. Forestry

The forest products are classified into two broad groups, viz. (a) major products comprising industrial wood (timber, round wood, match and pulpwood) and fuel wood (firewood and charcoal wood) and (b) Non-Timber Forest Products(NTFP) formerly known as minor products including fodder.

The GSDP from this sector can be estimated using production approach.

GVA = Value of Output - Intermediate Consumption

3.1.4.1. Value of Output

The following method may be used for estimation of value of output of Industrial wood and minor forest products

- Growth rate = Logest (output 2011-12 to output 2014-15) x 100 - 100

- Estimated Industrial Wood 2015-16 = output 2014-15 (1 + growth rate/100) for GVO constant.

- Prepare IPD for estimation of GVO at current price.

- For fire wood, projection of total consumption of fire wood for 2015-16 is worked out based on NSS consumption expenditure data of 2004-05 and 2011-12 (Table-3).

Table-3: Projected consumption of fire wood (in MT) for 2015-16

Year	Per-capita Fire wood consumption(kg)	Annual growth $(P1/P0)^{(1/7)}$ and per capita consumption of firewood	Population and Projected population	Annual firewood consumption in MT
2004-05	26.38 (as per NSSO data)	1.018		
2011-12	29.96 (as per NSSO data)		35135000	*12807175.97
2012-13(Proj)	30.51	29.96*1.018	35420000	13147926.39
2013-14(Proj)	31.07	30.51*1.018	35707000	13497625.02
2014-15(Proj)	31.64	31.07*1.018	35996000	13856499.38
2015-16(Proj)	32.80	31.64*1.018	36286000	14224390.55

Source: SID calculation   **12807175.97 = 35135000 x 29.96/30 x 365/1000*

3.1.4.2. Input: Fixed ratio as per the norm of 16.20% may be applied to the value of output.

3.1.5. Mining and Quarrying

The Economic activities covered in this sector comprise extraction of minerals which occur in nature as solids, liquids or gases which comprises of fuel minerals like coal, crude oil and gas, metallic minerals like bauxite, iron ore, chromites' etc., non-metallic minerals like dolomite, garnet etc. and minor minerals like marble, slate, sand etc. Salt production by solar evaporation of sea water is also included under mining sector.

The estimates of GVA in this sector are prepared following the production approach. The value of output of each mineral, is calculated at state level, and by deducting the value of corresponding inputs, GVA is estimated.

GVA = Value of Output - Intermediate Consumption

3.1.5.1. Value of Output

- **IIP (mining)** may be used for estimation of GVA at constant prices of **metallic and non-metallic minerals and minor minerals** etc **except coal and petroleum.**

- The Illustration for calculation of annual IIP (mining) based on monthly IIP data is as follows.

  o Generally, IIP (Mining) for 8 months data (April-Nov of say 2015-16) are available during advance estimate.

  o So, IIP (Mining) for whole year (say 2015-16) is to be estimated using three years monthly IIP (Mining) figure say-2013-14, 2014-15, and 2015-16 (Table-4).

Table-4: Estimation of IIP for 2015-16

Year	Month	IIP (average of 8 /12 months)	Growth over previous year	Growth for (Dec15-March,16)
2013-14	April-Nov	137.5	--	--
2014-15	April-Nov	147.9	7.6	--
2015-16	April-Nov	139.7	-5.6	-2.67**
2013-14	April-March	167.7	--	--
2014-15	April-March	175.7	4.8	--

Ratio (relative changes) =

- Ratio of IIP(2013-14) = (137.5/167.7 x 100) = 81.97 (2013-14)

- Ratio of IIP(2014-15) = (147.9/175.7 x 100) = 84.19(2014-15)

- Average of 2013-14 & 2014-15 = (81.97 + 84.19) /2 = 83.08

- IIP for 2015-16 (April-March) = 139.7/83.08 x 100 = 168.17

- Growth of IIP in 2015-16 over 2014-15 = (168.17-175.7) /175.7 x 100 = - 4.3

  **- 2.67 = (168.17 x 12-139.7 x 8) / Average IIP from Dec 2014 to March,2015

  o The sources for IIP data (IIP two digit level indices, NIC-2004) may be obtained from www.mospi.gov.in.

- The GVO constant for 2015-16 may be calculated as = GVO constant (2014-15) x estimated IIP (2015-16) / IIP (2014-15).

- The GVO current (2015-16) may be estimated using IPD as at 3.1.2.1 for other livestock items

- The GVO for **coal and petroleum** will be calculated using coal and crude oil index.

  o The coal Index and crude oil index of previous years can be obtained from performance of eight core industries released by the **Economic Advisor, Ministry of Commerce and Industries, Govt. of India**.

  o Data on Coal and Crude Oil Index for, 2014-15 and 2015-16 (up to Sept,2015) is given in Table-5

Table-5: Coal and Crude oil Index for 2014-15 and 2015-16

Item	April,14-Sept,14	April,15-Sept,15	2014-15(Yearly)
Coal Index	157.2	165	162.5
Crude Oil	108.8	109.9	110.2

o Coal index for 2015-16 = 162.5 x (165/157.2 = 1.0496) = 170.6

o GVO constant for 2015-16 = GVO constant for 2014-15 x (170.6/162.5)

o The GVO current for 2015-16 may be calculated using IPD as at para-3.1.2.1 for Other livestock items

o Similarly estimate GVO for Crude Oil (Petroleum)

Box-4: Summary on Advance Estimate: Primary Sector

Crops

- In case, production data are not available, fit exponential curve of previous data applying logest function or using log linear technique to get projected production data.

- For getting current prices of an item, WPI may be applied in previous year value

- Average ratio of input and output of past years may be applied to projected value of output to get advance estimate of input

Livestock

- Average of ratio of achievement / target for past few years be used on the target of the current year to arrive at estimated production for milk, egg and wool

- For other livestock production, use logest function for projected figure and apply WPI to get GVO at constant value

- For getting current prices of an item, WPI may be applied in previous year value

- Estimate WPI for whole year using 8 months data

- For GVO at current price, prepare Implicit Price Deflator (IPD)

- Average ratio of input and output of past years may be applied to projected value of output to get advance estimate of input

Fishing

- Monthly production data may be considered.

- Or, ratio of target and achievement of past years be averaged and applied to current year target to get advance estimate of current year (2015-16, say) production

- For current prices, calculate Implicit Price Deflator (IPD) using GVO of previous year at current and constant prices

- Fixed ratio as per the norm may be applied to the value of output

Forestry

- Use log linear estimation method for projected production of industrial wood and minor forest products

- For fire wood, projection of total consumption of fire wood based on NSS consumption expenditure data and price fixed by OFDC may be used

- Fixed ratio as per the norm may be applied to the value of output

Mining and Quarrying

- Estimate IIP (Mining) from IIP two digit level indices and estimate GVO constant for metallic and non-metallic minerals and minor minerals

- For coal and petroleum, use Coal and Petroleum Index to move GVO constant

- For GVO current, prepare IPD and estimate GVO current.

3.2. Secondary Sector

3.2.1. Manufacturing

The manufacturing sector is classified into two broad sectors, viz., 'organized', and 'unorganized'. The sector covers all manufacturing, processing, and repair & maintenance services units irrespective of their employment size, investment, and location.

The estimates of GVA are prepared using production approach. The data of ASI quasi and Private corporate (received from MCA data base) and data of DCU, NDCU, Railway and un-organized sector based on household survey from NSS are used for compiling GVA for manufacturing sector.

- Public Sector: Budget Analysis

- *Private Corporate, NDCU, DCU and Railway*

o GVA at current prices for private corporate of previous year may be moved with **private corporate growth (based on CSO press release during advance estimate)** at current prices OR, last few years growth in private corporate of ASI can also be used.

o For NDCU, DCU and Railways, the GVO constant prices may be estimated taking last few years average growth in GVO current.

o For GVA constant of private corporate, GVA current may deflated by **WPI (Manufactured Product).**

- *ASI quasi and Un-organized sector*

o GVA at constant prices will be arrived using **IIP(Manufacturing)** growth (Refer illustration at para-3.1.5.1 for estimation of IIP)

o If, estimated growth of IIP manufacturing) is 4.3% for 2015-16 (say).

o GVA constant for 2015-16 = (4.3 /100+1) x GVA constant of 2014-15

o Prepare IPD using WPI and use in GVA constant to get GVA at current prices.

o **OR,** GVA current for 2015-16 = GVA constant 2015-16 x WPI of current year, 2015-16 / 100

3.2.2. Electricity, Gas, Water supply etc.

The economic activities relating to generation, transmission and distribution of electric energy are covered under the electricity sub-sector; the manufacture of gas in gas works including gobar gas and distribution through mains to household, industrial, commercial and

other users are covered under the gas sub-sector and the activities associated with collection, purification and distribution of water excluding the operation of irrigation system are covered under water supply sub-sector, recycling, remediation, sewerage and other waste management services.

The sources of data include:

- o Electricity (NDCU and Private Sector)
- o Gas (Bio-gas)
- o Water supply (Public and Private).
- o Remediation & Other utility services (Public and Private).

GVA is estimated as the sum of gross factor income in the case of electricity and water supply sub-sectors and for bio-gas sub-sector, it is based on value and production.

3.2.2.1 Electricity

Electricity sector covers activities of NDCU agencies of central and state Govt and Private companies.

- o **IIP(Electricity)** may be used for moving GVA constant
- o IPD using WPI may be prepared to estimate GVA at current prices.
- o Data on electricity production at state level may also be used to move GVA constant.

3.2.2.2. Gas (Bio-gas)

- o For GVA constant 2015-16, average growth of past few years on bio-gas data may be used to move GVA constant 2014-15.
- o The dung prices of 2014-15 and 2015-16may be collected and growth in dung prices may be calculated.
- o IPD = growth of dung price for 2015-16 x ratio of GVA current 2014-15   and GVA constant 2014-15.
- o GVA current 2015-16 = GVA constant 2015-16 x IPD

3.2.2.3. Water Supply

- o For public sector, use budget estimate on water supply to estimate GVA at current prices.
- o For GVA constant (public sector) deflate GVA current by CPI
- o For private sector, average growth (exponential growth) in GVA of previous years may be used to move GVA constant.

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    o   IPD using WPI may be prepared to move constant GVA to current GVA in private sector.

3.2.2.4. Remediation (sewerage)

    o   The average growth of past few years GVA may be used to move GVA at constant prices.

    o   IPD may be used in constant GVA to estimate current GVA.

3.2.3. Construction

For the purpose of estimating domestic product, construction industry has been taken to include the whole of construction activity (contractual as well as own account).Construction work covers all activity connected with site preparation, alteration, addition, construction, repair and maintenance of roads, rail-beds, bridges, tunnels, pipelines, rope-ways, ports, harbours runways, construction/ erection and maintenance of power, telecommunication, transmission lines, waterways & water reservoirs, power plants, hydro-electric projects, industrial plants and building installations, planting and cultivating of new forests, plantations and orchards. Due to lack of data, demolition activity has, however, been excluded.

The sources of data includes

- Public Sector construction
- Household Sector construction
  - o Residential building (Rural /Urban)
  - o Non-Residential Building and other construction
  - o Household Plantation
  - o Other Household Construction
- Residual including private corporate sector construction

3.2.3.1. Public Sector construction:

- **Includes State / Central Govt. Administration, Autonomous Bodies(AB) and Local Bodies(LB), Railways**
  - For State Government Administration, AB and LB and DCU, use budget estimate in construction for specific heads (State Govt. expenditure growth) to move GVA current.
  - For GVO constant prices, deflate GVO current by CPI (General).

- For Central Government Administration, Autonomous Bodies and Railways, use budget estimate in construction of State Government as above.

- For GVO constant prices, deflate GVO current by CPI (General)

- **NDCU**:

- Past trends/average of past few years may be used to move GVA constant.

- IPD may be prepared and used in GVO constant to estimate GVO current.

3.2.3.2. Household Sector

- **Rural /Urban Residential Building**
  o Calculate growth in rural and urban dwellings based on census data-2011 and 2001

  o Apply growth to arrive at number of dwellings in the different years

  o Prepare Index of Dwelling (IOD) to move GVO constant, which is illustrated in Table-6.

Table-6: Calculation of Index of Dwelling (IOD)

Year	No of Residential Dwelling		Index of Dwelling	
	Rural	Urban	Rural	Urban
2011-12	8037491	1531250	100.00	100.00
2012-13	8200880	1584499	**102.03	103.48
2013-14	8367591	1639600	104.11	107.08

*** IOD Rural (2012-13) = (100/8037491) X 8200880 = 102.03*

Source: SID calculation

o   GVO constant of 2014-15 = GVO constant 2013-14 x current year IOD (2014-15)/Base year IOD(2011-12)

o   GVO current prices may be estimated using **Index of Pucca Construction** or **Cost of Construction Index** (CCI) for rural residential buildings, which are presented at Table-7.

o   In case prices are not available, use relevant WPI.

Table-7 : Index of Pucca Construction or CCI (RRB) for 2012-13

RRB	Weights (%)based on study	Price-2011-12(p0), per MT	Price-2012-13(p1) Per MT	Price Index (p1/p0* 100)	Index (CCI)-Rural: 2012-13
Cement	9.58	4160	6002	*144.3	**13.8
Iron Steel	37.72	24938	35863	143.8	54.2
Bricks & Tiles	3.44	2525	4153	164.5	5.7
Timber	2.91	9457	18913	200.0	5.8
Rural Construction Worker : CPI (Rural)	46.36	135	195	144.4	67.0
TOTAL	100				146.5

*144.3 = (6002/4160) x 100   **13.8 = 144.3 x (9.58/100)

Source: SID calculation

o GVO current for 2012-13 for RRB = GVO constant of (2011-12) x 146.5/100, where 146.5 is the CCI for 2012-13.

CCI for 2012-13 for urban residential building is given in Table-8 may be used for GVO current for URB for 2012-13 (Ref:- Table-7).

Table-8: CCI (URB) for 2012-13

URB	Weights (%) based on study	Price 2011-12(p0) Per MT	Price 2012-13(p1) Per MT	Price Index (p1/p0*100)	Index (CCI)- Urban: 2012-13
Cement	7.79	4460	6551	146.9	**11.4
Iron Steel	30.68	24938	39863	159.8	49.0
Bricks & Tiles	2.8	2825	5153	182.4	5.1
Timber	2.36	10457	20913	200.0	4.7
Fixture & Fittings	3.18	1250	1741.25	139.3	4.4
Others	15.49	3750	4706.25	125.5	19.4
Urban Construction Worker	37.7	149	227	152.3	57.4
TOTAL	100				151.6

**11.4 = 146.9 x (7.79/100)

Source: SID calculation

3.2.2.4. Non-Residential Building and Other Construction(NRB & OC)

o The GVO constant for NRB & OC may be moved using weighted index of GVO of Agriculture and GVO of Manufacturing (registered) for advance estimate of GVO constant. The weighted index is given in the Box-5.

> ### Box-5: Weighted Index of GVO- Agriculture and Manufacturing
>
> - $WI = (WA \times IA + WM \times IM) / 100$
> - $WA = OA1 / (OA1 + OM1)$ and $WM = OM1 / (OA1 + OM1)$
> - $IA = (OA1 / OA0) \times 100$ and $IM = (OM1 / OM0) \times 100$
> - WA and WM are weights for Agriculture and Registered Manufacturing.
> - OA1 and OM1 are output of Agriculture and Registered Manufacturing at current prices, respectively.
> - OA0 and OM0 are output of Agriculture and Registered Manufacturing at base year (2011-12) prices, respectively

o For GVO current of NRB & OC, combined CCI (Rural+Urban) or Index of General Pucca Construction (IPC) may be used to move GVO constant. The combined CCI for 2012-13 is illustrated in Table-9.

Table-9: Combined CCI (Ru+Ur) or Index of General Pucca Construction (IPC)for 2012-13

Item/ Year	Prices given for 2011-12#	Prices for 2012-13#	Price Index #	Weights (%) (by CSO)	Index of General Pucca Construction, 2012-13
	a	b	c = b/a*100	d	e = c*d/100
Cement	4460	6551	146.9	8.63	12.68
Iron & Steel	24938	39863	159.8	27.64	44.18
Bricks & Tiles	2825	5153	182.4	3.43	6.26
Timber	10457	20913	200	4.78	9.56
Fixture & Fittings			139.3	5.07	7.06
Others			125.5	15.64	19.63
Rural Construction Worker			162.6	9.75	15.85
Urban Construction Worker	149	227	152.3	25.06	38.18
TOTAL				100	153.4

Note: *# For Index, prices may be obtained for 2012-13. If prices are not available, then WPI for relevant items may be used.*

Source: SID calculation

- o GVO current of 2012-13 = GVO constant (2011-12) x 153.4/100, where 153.4 is the Index of General Pucca Construction for 2012-13.

3.2.2.5. *Household Plantation*

- GVO constant may be estimated taking average growth of past years GVO.

- GVO at current prices may be calculated using IPD with estimated GVO constant

3.3.9.4.*Other Household Construction*

- o The GVO constant will be moved using combined growth of cement &steel and weight of cement and steel. The example is given in Box-6.

Box- 6: Combined growth of Cement and Steel

➢ Weights of Cement and Steel are 0.2 and 0.8 (based on type study)

➢ If cement growth is 9%, steel growth is 4% (based on data from eight core industries, Economic Advisor, Ministry of Commerce and Industries) , then

➢ Combined growth = 0.2 x 9 + 0.8 x 4 = 5%

- o GVO constant (2015-16) = GVA constant 2014-15 x 1.05

- o GVO current for 2015-16 may be estimated by multiplying 0.8*WPI growth of steel + 0.2 x WPI growth of cement in GVO constant for 2015-16.

3.2.3.3*. Residual including other Private Corporate sector construction*

- o GVO current and constant for residual including private corporate sector construction may be estimated as per example in **Other Household construction.**

Box-7:- Summery on Advance Estimate: Secondary Sector

Manufacturing

- Public Sector – Budget Analysis

- Private corporate growth (based on CSO press release during advance estimate) may be used for GVA current of **Private corporate sector**

- For NDCU, DCU and Railways, last few years average growth may be taken.

- GVA_ current may deflated by **WPI (manufactured product)** to get GVA constant

- GVA at constant prices for ASI quasi and un-organized sector will be arrived using IIP(manufacturing) growth

- Estimate IIP for the whole year using previous years IIP(monthly IIP and annual IIP) and monthly IIP of current year

Electricity, Gas, Water supply etc

- IIP (Electricity) may be used for moving GVA_ constant of **Electricity** sector

- Prepare IPD using WPI to estimate GVA at current prices.

- For GVA at constant price (advance estimate) of **Gas**, use average growth of past few years data. For GVA current prices, IPD using dung price growth and use in GVA constant for GVA current

- For **Water Supply**, use budget estimate for GVA at current prices. For GVA_ constant, deflate GVA _current by CPI. For private sector, average growth (logest) may be used to move GVA_ constant. Prepare IPD using WPI to move constant GVA to current GVA

- For **Remediation**, use average growth of past few years of GVA for GVA constant. Prepare IPD using WPI to move constant GVA to current GVA.

Construction:

- **Govt Administration, Local Bodies, AI, and Railways:** Use budget estimate growth for GVO current. Apply CPI (General) for GVO constant.

- **NDCU:** Past trends of GVO / growth in GVO for GVA constant. For GVA current, use IPD

- Household Sector: Growth in Rural /Urban dwellings for GVO constant of RRB/URB. For GVA current, cost of construction index (Rural and Urban) may be used. **For NRB & OC,** use **index of crop and manufacturing GVO** for GVO constant and for GVO current, use index of pucca construction.

- For **Household Plantation**, average growth of past few years for GVO constant and use IPD for GVO current

- For **Other HH construction and Residual**, combined growth in cement and steel may be used for GVO constant. For GVO current, WPI growth may be applied.

3.3. Services Sector

3.3.1. Trade, Hotel and Restaurant

3.3.1.1. Trade Sector

The Trade sector includes wholesale and retail trade in all commodities whether produced domestically, imported, or exported. It covers activities of purchase and selling agents, brokers, and auctioneers. Wholesale trade covers those units, which resell without transformation, new and used goods generally to the retailer and industries, commercial establishments, institutional and professional users or to other wholesalers. Retail trade covers those units, which mainly resell without transformation new and used goods for personal or household consumption.

The source of data include: Public Sector (NDCU), Private organized, and Private un-organized. The GVA estimates for public sector are prepared by 21nalysing annual accounts. The base year estimate for private sector is prepared based on analysis of MCA data, while the base year estimate for un-organized sector is worked out as a product of estimates of effective labour inputs and value added per worker, which is based on NSS household survey data.

- *Public (NDCU):*
- GVA constant may be moved using past growth in GVA constant
- GVA current may be estimated using IPD
- **Private organized:**
- **Sales tax** growth may be used to move GVA at current price.
- GVA constant may be arrived at by deflating GVA current with WPI.
- **Private un-organized**:
- Sales tax growth may be used.

3.3.1.2. Hotel and Restaurant

Hotel and restaurant sector covers services rendered by hotels and other lodging places, restaurants, cafes and other eating and drinking places.

The GVA estimates of Hotels and Restaurants are prepared separately for: **Public** sector, **Private Organized** sector and **Private Un-organized** sector of GVA relating to public sector units engaged in hotels and restaurants are based on the analysis of accounts of the public sector enterprises and budget documents. For private sector, GVA is estimated based on analysis of MCA data. The GVA for un-organized sector for the base year is worked out as

a product of estimates of effective labour inputs and value added per worker, which is based on NSS household survey data.

- **Public (NDCU), Private organized and Private un-organized**:
- Public Sector – use past trends / Budget
- Growth in **tourist arrival / service tax/ sales tax growth** may be used to move GVA at constant prices for private corporate and un-organised sector.
- The data on tourist arrivals may be collected from Statistical Bulletin, of Tourism Department. The detail growth rate is illustrated in Table-10.

Table-10: Estimation of growth in tourist arrival

Year	Tourists Arrival (No.)	Growth rate
2012	9117805	
2013	9866810	1.082148
2014	10862048	1.100867
2015	11856006	1.091507

Source: SID calculation

- GVA constant of 2014-15 may be moved with growth rate to get GVA constant for 2015-16.
- GVA at current prices may be estimated using **IPD.**

3.3.2. Transport Sector

The economic activities covered in this sector are road transport, water transport, air transport and services incidental to transport activities.

3.3.2.1. Road transport

The sources of road transport data include public, private corporate and un-incorporated sector. The GVA estimates for public and private sector are based on analysis of accounts. As regards unincorporated sector, base year estimates compiled on the basis of NSS enterprise surveys are moved forward using appropriate indicators.

- **Public, Private corporate and Un-incorporated sector**

- The **number of vehicles on road** may be used to move GVA constant in this sector. The detail method is presented in Table-11.

Table-11: Estimation of GVA constant for 2015-16

Year	No of vehicles on road	Vehicle index	GVA constant
2011-12	188974	100	703351
2012-13	216840	115	791280
2013-14	232214	123	876591
2014-15	249001	132	985940
2015-16(estimated)	**270621	143	***1071546
	**Trend	115 = 100/188974 x 216840	***(985940 x 143/132)

Source: SID calculation

- GVA at current prices may be estimated by inflating GVA constant price with **CPI (Transport and Communication)**.

- In the absence of appropriate CPI, WPI (All commodities) may be used.

3.3.2.2. Water Transport

The sources of road transport data include public, private corporate and un-incorporated. The GVA estimates for public and private sector are based on analysis of accounts. As regards un-incorporated, it is based on household survey.

- **Public, private corporate and un-incorporated**:

- **Growth in cargo handle** may be used for moving GVA at constant prices in the sectors.

- The data on cargo handle for the state may be obtained from Basic Port Statistics of Ministry of Shipping, Statistics of Inland Water transport.

- The Illustration on Cargo Index is given in Table-12.

Table-12: Preparation of Cargo Index

Year	Cargo (000 tonnes)	Cargo Index	Time
2010-11	56023	100	1
2011-12	61987	**110.65	2
2012-13	65232	116.44	3
2013-14	68565	122.39	4
2014-15	71011	126.75	5
2015-16	NA	***134.82	6

**110.65 = (61987/56023) x 100
***134.82 may be obtained using fitting of trend line.
Growth in cargo handled = 134.82/126.75 = 1.064

Source: SID calculation

- GVA at current prices may be estimated by apply CPI (Transport and Communication) with GVA at constant

3.3.2.3. Air Transport

The sources of air transport data include public and private corporate. Current price GVA estimate for the base year are prepared by 24nalysing the Air transport part of budget documents and annual accounts of Airlines (both public and private), flying and gliding clubs.

- **Public and Private corporate**:
  - o GVA at constant prices may be moved with **growth in air passenger traffic**
  - o The data on air passenger traffic may be obtained from **www.aai.aero /traffic_news**.
  - o The GVA at current prices may be estimated using CPI (Transport and Communication).

3.3.2.4. Services Incidental to transport

The supporting transport activities include public (DCU and NDCU), private corporate and household sector.

- **Public (DCU and NDCU), Private corporate and Household sector**.
  - o Advance estimate of GVA for current and constant may be calculated using combined **rate of growth in GVA** of road, water, and air.
  - o The combined rate of growth in GVA for current and constant may be obtained by adding respective GVA of road, water,& air of previous years and taking growth rate.

3.3.3. Storage

The economic activities covered in this sector are: Warehousing Corporations; Cold Storage; and Storage not elsewhere classified. The sources of data include Public sector (NDCU), Private corporate and Un-organized sector.

- **Public sector (NDCU), Private corporate and Un-organized sector.**
  - o GVA at constant prices may be estimated using past years' growth in GVA constant.
  - o GVA at current prices may be estimated using WPI.

3.3.4. Supra Regional Sector

This sector covers following economic activities.
- Railways
- Communication: Public (Central Govt. Administration)
- Courier services: Organized and un-organized

- Telecommunication: Private organized and un-organized
- Cable operators, publishing etc.: Organized and un-organized.
- Financial: Banking and Insurance

The estimation of GVA for railway is based on analysis of production accounts, income and outlay accounts, capital finance account. The principal sources of data for Communication are Annual Reports and Accounts of the Indian Posts & Telecommunication Departments. Telecommunication for private organized is based on analysis of MCA data and for un-organized sector, labour input and value added per worker is used. The activities covered under cable operators etc. are the activities of cable operators in organized and unorganized categories, and the estimates of GVA for these services have been compiled by using the GVAPW of rural/ urban and labour input estimates for the base year. The financial sector covers banking and insurance services. The GVA is estimated based on annual accounts.

Railway:
- GVA at constant prices may be moved with all India growth in this sector as per press release (CSO). OR, Earning from passenger and freight may be used. .
- GVA at current price may be inflated using CPI (Transport and Communication)

Communication

Public
- GVA at current prices may be estimated using budget estimate in this sector
- GVA at constant prices will be arrived by deflating with CPI (Transport and Communication)

Private Corporate

Courier Services

- GVA at current prices may be moved using service tax growth.
- The data on service tax may be obtained from the office of Chief Commissioner, Central Excise, Customs, and Service tax, Odisha.
- GVA constant may be calculated using CPI (Transport and Communication)

Telecommunication

- GVA at constant prices may be moved using growth in number of mobile subscribers
- The data on mobile subscribers may be collected from **www.trai.gov.in**.
- GVA current may be estimated use CPI (Transport and Communication)

Cable operators

- The service tax growth may be used to move GVA current prices in the sector. OR, GVA constant may be moved on the basis of growth in TV viewers.

- The data on service tax may be obtained from office of Chief Commissioner, Central Excise, Customs, and Service tax, Odisha.

- GVA current may be deflated by CPI (Transport and Communication) to get GVA constant.

Banking services

- Aggregate deposit and bank credit growth may be applied to move GVA at current prices.

- The annual data on credit and deposits of the state may be collected from the sources of RBI at **www. Rbi.org.in** or **www.slbcorissa.com.**

- GVA constant prices may be obtained using GVA deflator of non-financial sector.

- The detail illustration on GVA deflator and estimation of GVA current and constant in the sector is given in Table-13 and 14.

Table-13:Estimation GVA current in banking sector

(Rs in lakh)

Year	Total GVA	Financial GVA	Non Financial GVA	Credit	Deposit	Total	Growth
2014-15	30255256	1065147	29190109	205980	660788	866768	
2015-16	31711518	1192545	30518973	220589	698070	918659	
2016-17	34870994	1269519	33601475	321584	712050	1033634	**1.1251
2017-18 (Adv)	NA	***1428208					

**1.1251=1033634/918659, ***1428208 = 1269519 x 1.1251, Non Fin GVA = ToT GVA - Fin GVA

Table-14:   *Estimation GVA constant in banking sector*

(Rs in lakh)

Year	Total GVA	Financial GVA	Non Financial GVA	Non Financial GVA Deflator	Deposit + Credit	Growth
2014-15	25960749	1018384	24942365	**1.1703	740637*	
2015-16	27310665	1111143	26199522	1.1648	788683	
2016-17	29357020	1197880	28159140	1.1932	866270	1.0983
2017-18(Adv)	NA	***1315721	**1.1703 = 29190109/24942365 ***1315721 = 1197880 x 1.0983			

Insurance services

- Use net insurance premium growth on life and non-life policies to calculate current GVA

- The data on insurance may be collected from **www. Irdai.gov.in.**

- GVA constant prices may be estimated using GVA deflator of non-financial sector as explained in banking sector.

3.3.5. Real Estate, Ownership of Dwellings and Other Professional Services

The economic activities covered in this sector are (i) ownership of dwellings (occupied residential houses), (ii) real estate services (activities of all types of dealers such as operators, developers and agents connected with real estate), (iii) renting of machinery and equipment without operator and of personal and household goods, (iv) Computer and Related Activities, (v) Accounting, Book-keeping and Related Activities, (vi) Research and development, market research and public opinion polling, business & management consultancy, architectural, engineering & other technical activities, advertising and business activities not elsewhere classified and (vii) legal services.

Ownership of dwellings also includes the imputed value of owner occupied dwellings. Services rendered by non-residential buildings are considered to be a subsidiary activity of the industries, which occupy the buildings and therefore, are not included in this sector.

The sources of data are Public sector (NDE), Private corporate sector (Real estate + renting, legal & accounting, other professionals), Un-incorporated (Real estate + renting, legal & accounting, other professionals) and for ownership of dwellings, census data on residential building are used.

The estimates of real estate, legal services, and business services (except software development) are prepared using labour input and value added per worker approach. The estimates of software development activities are prepared using NASSCOM data of output from these services and Gross Value Added (GVA) to Gross Value Output (GVO) ratio obtained from the annual reports of various companies engaged in software development activities. For ownership of dwellings, the user cost approach (used internationally where the number of rented dwellings are less than 25%) is used for rural residential houses and for the urban houses, the methodology consists of estimating the gross rental of residential buildings (including owner occupied) and deducting therefrom the cost of repairs and maintenance to obtain the estimates of GVA.

- **Public Sector (NDE):**
  - GVA at constant prices may be moved using past years' growth of GVA.
  - GVA at current prices may be estimated using WPI growth.
- **Private corporate:**
  - **Real Estate, Renting, Legal & Accounting:**
  - GVA at constant prices may be estimated using **deflated corporate growth**.

o The Deflated corporate growth is worked out as –

If growth of corporate sector at current price is 10% and growth in WPI is say 1%, then deflated growth is ((10-1)/(1+1/100)) = 8.9. The data on corporate sector growth is available in the press release of CSO.

- o GVA current in the sector is compiled using WPI growth.
- o **Other professional services (Computer Related)**
- o The **deflated growth** in software exports will be used to move GVA at constant prices
- o The data on software exports will be available in**www.stpi.in**.
- o GVA current is compiled using WPI growth.

- **Ownership of Dwellings (Gross rental, Repair & maintenance)**:
- o Growth in dwellings (as estimated in Rural /Urban residential building of construction sector) be applied for moving of GVA at constant prices OR average of past few years` growth.
- o The data on dwellings are received from Census.
- o GVA current prices may be moved using growth in CPI.

- **Un-incorporated(Real estate and Renting)**
  - o The deflated corporate growth(private corporate) may be used for moving GVA constant prices
  - o GVA current prices may be moved using growth in CPI.

3.3.6. Public Administration

Public administration covers services rendered by the administrative departments of the general government i.e., Central, State and Local Governments, (N.A.Cs, Municipalities, Municipal Corporations, Zilla Parishads, Panchayat Samities and Gram Panchayats).Public Administration services in the autonomous institutions (quasi-government bodies) are also included under these economic activities.

The services of above institutions are all valued by the sum of the costs incurred in their production, namely, as the sum of: Intermediate consumption, Compensation of employees, Consumption of fixed capital; and other taxes, less subsidies, on production.

The sources of data for estimating the value of output and value added in respect of these services are the budget documents of Central Government, State Governments, Union Territories and Local Bodies and Autonomous Bodies.

- **Central Government:**

- Revenue expenditure growth (less interest payments) will be applied to move GVA at current price. **OR** average ratio of BE and actual (AC) for the past few years may be used to BE of current year to get GVA at current prices.

- The data on revenue expenditure will be obtained from **www.cga.nic.in**.

- GVA current will be deflated using CPI (combined)to get GVA at constant prices.

- **State Government, Local Bodies and Autonomous bodies:**

- Revenue expenditure growth(less interest payments) will be applied to move GVA at current price. **OR** average ratio of BE and actual (AC) for the past few years may be used to BE of current year to get GVA at current prices.

- The data on revenue expenditure may be obtained from www.iotms.nic.in.

- GVA at constant prices is compiled using CPI.

3.3.7. Other Services

The economic activities covered under this sector are (i) Coaching and Tuition (ii) Education excluding Coaching and Tuition (iii) Human health activities including veterinary activities (iv)Activities of membership organisations (+) social work (v) Recreational cultural and sporting activities (vi) Washing and cleaning of textiles and fur products (vii) Hair Dressing and other Beauty Treatment (viii) Funeral and related activities (ix) Private households with employed person, (x) Custom Tailoring, and (xii) Extra Territorial organisations and Bodies.

The sources of data include: (i) Employment and Unemployment survey and population census estimates of work force; (ii) Value added per worker from Enterprise Survey (iii) Budget documents for data relating to activities of these services covered under government; (iv) Annual reports/accounts of corporations; and (v) Consumer Price Index. All

the activities are broadly grouped under three segments, namely, public sector, private corporate sector and private unorganized sector.

While the estimates of GVA in respect of activities covered under public sector are compiled by 30nalysing the budget documents and annual reports of the concerned units, those of private organised and private unorganized segments are prepared generally following the effective labour input method and benchmark-indicator procedures.

- **Education**

- **Public sector:**

  - Growth in budget estimate (BE) may be applied to move GVA at current prices.
  - GVA at constant may arrived by deflating GVA current with CPI (Education).

- **Private corporate and un-organized**:

  - Growth in education expenditure may be used to estimate GVA at current prices.

  - The data on education expenditure may be obtained from **Consumer Expenditure Survey of NSS**.

  - GVA at constant may arrived by deflating GVA current with CPI (Education).

- **Medical**

- **Public sector**:

  - Growth in budget estimate (BE) may be applied to move GVA at current prices.
  - GVA at constant may arrived by deflating GVA current with CPI (Medical).

- **Private corporate and un-organized**:

  - Growth in health expenditure may be used to estimate GVA at current prices.

  - The data on health expenditure may be obtained from **Consumer Expenditure Survey of NSS**

  - GVA at constant may arrived by deflating GVA current with CPI (Medical).

- **Private Household Service**

o The growth in non-food expenditure may be calculated and used for estimation of GVA at current prices.

o The data non-food expenditure may be obtained from **Consumer Expenditure Survey of NSS.**

o GVA at constant may arrived by deflating GVA current with CPI (Misc).

- **Remaining Services (Public, Private and Un-incorporate)**

- **Public Sector**

  o Growth in BE may be used to estimate GVA current,
  o GVA at constant may arrived by deflating GVA current with CPI (Misc).

- **Private and Un-incorporate**

  o Growth in service tax may be calculated and used for estimation of GVA at current prices.
  o GVA at constant may arrived by deflating GVA current with CPI (Misc).

3.3.8. Product Taxes:

- For current prices, use state Govt. budget (product tax) growth.

- For constant prices, use GVA deflator [ratio of current and constant GVA of trade (for sales tax), manufacturing (for excise), services sector excluding trade (for service tax) and manufacturing (for custom duties).

3.3.9. Product Subsidies:

- The methods as described in Product taxes may be followed for Product subsidies.

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Summery on Advance Estimate: Services Sector

Trade Sector

- **Public (NDCU):** For constant GVA, use past growth to move for advance estimate. For current GVA, prepare IPD using WPI

- **Private organized:** To move GVA at current price, use **sales tax** growth.

- For constant GVA, deflate by WPI.

- **Private un-organized**: Same as Private organized.

Hotel and Restaurant

- **Public (NDCU), Private organized, and Private un-organized**: For moving of GVA at constant prices, growth in **tourist arrival** may be used.

- For GVA at current prices, prepare **IPD** using WPI and estimate GVA at current prices

Road transport

- **Public, Private corporate and Un-incorporated sector:** The indicator used for compiling **GVA at constant prices** is the **number of vehicles on road.** For GVA at current prices, inflate GVA constant price by **CPI (Transport and Communication)**.

Water Transport

- **Public, private corporate and un-incorporated**: For compiling GVA at constant prices, **growth in cargo handle** may be used. For GVA at current prices, apply CPI (Transport and Communication)

Air Transport

- **Public and Private Corporate**: GVA at constant prices may be moved with **growth in air passenger traffic.** For GVA at current prices, use CPI (Transport and Communication).

Services Incidental to transport

- **Public (DCU and NDCU), Private corporate and household sector:** Use the combined growth of GVA in air, water, and road to move GVA at constant and current prices.

Storage:

- **Public sector (NDCU), Private corporate and Un-organized sector:** For moving GVA at constant prices for above components, calculate and apply past few years' growth in GVA. For GVA at current prices, use WPI

Supra Regional Sector

- **Railway:** GVA at constant prices may be moved with all India growth in this sector as per press release (CSO). For GVA at current price, inflate by CPI (Transport and Communication)

- **Communication (public):** Use budget estimate in this sector to move GVA at current prices. For GVA at constant, deflate by CPI (Transport and Communication)

- **Courier Services:** Use service tax growth for extrapolating GVA at current prices. For GVA constant, use CPI (Transport and Communication)

- **Telecommunication:** Use growth in number of mobile subscribers to move GVA at constant prices (**Source: www.trai.gov.in**). For GVA current, use CPI(transport and communication)

- **Cable operators:** Use service tax growth to move GVA_ current prices (**Source of service tax: Central Excise Commissioner Office, Bhubaneswar, Odisha**).For constant GVA, deflate by CPI (Transport and Communication)

- **Banking services:** Aggregate deposit and bank credit growth (**source: rbi.org.in** or **www.slbcorissa.com**) be applied to move GVA at current prices. For constant prices, deflate by **GVA deflator** of non-financial sector. (GVA deflator = GVA at current prices of non-financial sector/ GVA constant of non-financial sector)

- **Insurance services:** Use net insurance premium growth on life and non-life policies to calculate current GVA (**Source of premium: www.irdai.gov.in**). For GVA constant prices, deflate by GVA deflator of non-financial sector.

Real Estate, Ownership of Dwellings and Other Professional Services

- **Public Sector (NDE):** Use past year growth of GVA at constant prices. For GVA at current prices, use WPI.

- **Private corporate: Real Estate, Renting, Legal & Accounting:** Use **deflated corporate growth** to move GVA at constant prices. Current GVA is compiled using WPI (In absence of appropriate CPI).

- **Other professional services:** Use **deflated growth** in software exports to move GVA at constant prices (**Source for software: www.stpi.in**). For current GVA, use WPI

- **Ownership of Dwellings (Gross rental, Repair & maintenance**): Growth in dwellings (as estimated in residential building of construction sector) be applied for moving of GVA at constant prices OR average of past few years` growth. (**Source for dwellings: Census data).**For GVA current prices, use CPI.

- **Un-incorporated (Real estate and Renting):** For moving GVA constant prices, use same method (deflated growth) as used for private corporate sector.

Public Administration

- **Central Government:** Revenue expenditure growth (less interest payments) (**Source: www.cga.nic.in**) will be applied to move GVA at current price.

  OR, average ratio of BE and actual (AC) for the past few years may be used to BE of current year to get GVA at current prices. For GVA at constant prices, deflate it using CPI (combined).

- **State Government, Local Bodies and Autonomous bodies:** Revenue expenditure growth (less interest payments) (**source: www.iotms.nic.in**) will be applied to move GVA at current price. **OR,** average ratio of BE and actual (AC) for the past few years may be used to BE of current year to get GVA at current prices. For GVA at constant prices, use CPI.

Other Services

- **Education: Public sector:** Growth in budget estimate (BE) may be applied to move GVA at current prices. For GVA at constant, deflate by CPI (Education). **Private corporate and un-organized**: Growth in education expenditure (**source: HH Consumer Expenditure Survey of NSS**) may be used to estimate GVA at current prices. For GVA at constant, deflate by CPI (Education).

- **Medical: Public sector**: Growth in budget estimate (BE) may be applied to move GVA at current prices. For GVA at constant, deflate by CPI (Medical). **Private corporate and un-organized**: Growth in health expenditure (**Source: HH Consumer Expenditure Survey of NSS**) may be used to estimate GVA at current prices. For GVA at constant, deflate by CPI (Medical). **Private Household Service: Calculate** growth in non-food expenditure (**source: HH Consumer Expenditure Survey of NSS)** and use for estimation of GVA at current prices. For GVA at constant, deflate by CPI (Misc.).

- **Remaining Services (Public, Private, and Un-incorporate): Public Sector:** For GVA current, use Growth in BE. For GVA constant, use CPI (Misc). **Private and Un-incorporate**: Calculate growth in service tax (**Source: Central Excise Commissioner, Bhubaneswar, Odisha)** and use for estimation of GVA at current prices. For GVA at constant, deflate by CPI (Misc).

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Data Sources / Indicators

- *Agriculture*
  - Crop production and Area
  - Price

- *Livestock*
  - Target and achievement of milk and egg
  - WPI

- *Fishery*
  - Monthly production data, price data

- *Forest:*
  - *Forecasting Technique*

- *Mining*
  - IIP (Mining)
  - Coal Index and Crude Oil Index (performance of eight core industries: yearly index and growth rate from Economic Advisor, Ministry of Commerce and Industries)
  - IBM data on mining production and sale

- *Manufacturing*
  - Budget
  - Private corporate growth (based on CSO press release during advance estimate)
  - ASI data
  - WPI (Manufactured Product).
  - IIP (Manufacturing)

- *Electricity, Gas, Water supply etc.*
  - IIP (Electricity)
  - For public sector in water, growth in budget estimate

- *Construction*
  - Index of dwelling
  - Cost of construction index (Rural and Urban)
  - Cost of construction index (Combined)
  - Growth in cement and steel (Performance of eight core industries, GOI)

- *Trade, Hotel and Restaurant*
  - Trade; sales tax collected
  - Hotel: Tourist arrivals / Service tax data

- *Transport*
  - o Road: No of vehicles on road
  - o WPI (all commodities)
  - o Water: Cargo handled (Ministry of Shipping, Statistics of Inland Water transport)
  - o Air: Growth in air passenger traffic (Source: www.aai.aero / traffic news).
  - o CPI (transport and communication)
  - o Combined rate of growth in GVA of road, water and air
- *Railway*
  - o All India growth as per press release of CSO / Earnings from Passenger and Freight.
- *Communication*
  - o Public: Growth in budget
- *Private : Courier services*
  - o Service tax growth
- *Private : Telecommunication*
  - o Mobile subscribers
- *Private: Cable operators*
  - o Service tax growth / No. of TV viewers
- *Banking*
  - o Deposit and credit growth
- *Insurance*
  - o Growth in life and non-life policies
- *Real Estate*
  - o Deflated corporate growth
- *Professional services (Computer related)*
  - o Software exports
- *Public Administration*
  - o Revenue expenditure growth
- *Other Services*
  - o Growth in education expenditure (consumer expenditure survey)
  - o Growth in health expenditure(consumer expenditure survey)
  - o Growth in non- food expenditure

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