

# ESTIMATION OF QUARTERLY ACCOUNTS IN INDIA

*Ramesh Kolli<sup>1</sup>*

*Additional Director General*

*Ministry of Statistics and Programme Implementation, India*

## **I INTRODUCTION**

1. The Central Statistical Organisation (CSO) of the Ministry of Statistics and Programme Implementation (MoSPI) has the responsibility for releasing the official national accounts statistics. The Indian national accounts are compiled using a mix of *SNA 1968* and *SNA 1993*. The CSO is in the process of moving towards the full implementation of the *SNA 1993*. Presently, the production boundary and the asset boundary of India's national accounts are close to the 1993 SNA recommendations.

2. The CSO compiles estimates of Quarterly Gross Domestic Product (QGDP) with a time-lag of 2 months. The release includes the Quarterly Gross Value Added estimates compiled through production approach (QGVA) and quarterly expenditures of GDP (QGDE) compiled through expenditure approach. The QGVA compiled through production approach is treated as the firmer estimate. The difference between QGVA and QGDE is presented as statistical discrepancy. The industry classification followed is the National Industrial Classification 1998, which corresponds to ISIC Rev.3 of United Nations Statistics Division.

## **II QGVA ESTIMATES BY PRODUCTION APPROACH**

3. The QGVA estimates are compiled for about 110 economic activities, but the estimates released are only for 8 industry groups, (1) agriculture, forestry & fishing, (2) mining & quarrying, (3) manufacturing, (4) electricity, gas & water supply, (5) construction, (6) trade, hotels, transport and communication, (7) financing, insurance, real estate & business services, and (8) community, social & personal services.

4. For each of the above 110 economic activities, quarterly value of output or QGVA is compiled using the benchmark-indicator procedure. In this method, for each activity, a key indicator or a set of key indicators for which data in volume or quantity terms is available on quarterly basis, is used to extrapolate the value of output or value added estimate of the previous year. For example, in the case of agriculture sector, the set of key indicators are the quarterly estimates of agriculture production (at individual crop level) and in the case of manufacturing sector, the key indicators are the index of industrial production (at 2-digit industry group level). In general terms, QGVA are extrapolations of annual series of gross value added (GVA), extrapolated with growth rates in physical/proxy key indicators.

5. Firstly, the QGVA is compiled at constant prices, as quantity or volume indicators are used for each of the 110 economic activities to extrapolate previous year's GVA of the same activity. The QGVA at current prices is then prepared by multiplying the constant price QGVA with quarterly implicit price indexes (IPD). The IPD for the QGVA is prepared using the wholesale and consumer price index, for

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<sup>1</sup> Views expressed in some sections are the personal views of author

each of the broad industry groups. The implicit price index (IPD) is the ratio of current price GVA to constant price GVA.

6. The QGVA estimates of different activities at constant prices are compiled according to two alternative methods, depending upon whether the value added estimates are to be derived as value of output minus value of inputs, or as GVA estimates directly. In the case of activities, agriculture, forestry, fishing and mining, where the former approach is followed, the commodity-level value of output at constant prices of the previous year is extrapolated with the growth in production of the particular commodity during the reference quarter. In these industries, for those commodities for which quarterly production data is not available, their values of output are first estimated for the entire year using the trend available from the past years' data, and the annual estimate is apportioned equally among the four quarters of the year. The quarterly value of output of each of these four industries is the sum of value of output of individual commodities within these four industries. For estimating the quarterly value of inputs in these four industries, the previous year's input-output ratio is applied on the quarterly estimated value of output, separately for each of these four industries.

7. In the case of all other industries, the gross value added estimate for the reference quarter is directly estimated at different disaggregated levels (for example, in the case of manufacturing at 2-digit National Industries Classification (NIC) level) by extrapolating the estimated GDP of the same quarter of the previous year with the growth rate observed in the physical indicator during the reference quarter.

8. The indicators used for QGVA estimates at constant prices are as follows:

- (i) Agriculture: Quarterly agriculture production estimates of forecast crops. [The forecast crops account for about 60 % of value of output of agricultural crops. Agriculture (including livestock) accounts for 16% of total GDP]
- (ii) Livestock: Quarterly production of milk, egg and wool. [These three items account for 70 % of value of output of livestock. Livestock accounts for 30 % of value of output of Agriculture]
- (iii) Forestry: Annual forecast is apportioned equally in all four quarters. [Forestry accounts for 0.7% of total GDP]
- (iv) Fishing: Quarterly production of inland and marine fish
- (v) Mining and quarrying: Monthly production of coal, crude petroleum and Index of Industrial Production (Mining)
- (vi) Manufacturing: Monthly Index of Industrial Production (Manufacturing)
- (vii) Electricity, gas and water supply: Monthly Index of Industrial Production (Electricity), For water supply, the government expenditures
- (viii) Construction: Monthly production of cement, steel and bricks.

- (ix) Trade, hotels and restaurants: Quarterly Gross Trading Index, which is computed using the value of output of commodity producing sectors and imports.
- (x) Railways: Monthly data on Net tonne Kms. and Net passenger Kms.
- (xi) Transport by other means: Production of commercial vehicles for the road transport, cargo handled at major ports for water transport and passenger kilometers flown and freight tonne kilometers flown for the air transport.
- (xii) Communication: total stock of telephone connections
- (xiii) Banking and insurance: The sum of aggregate deposits and bank credits deflated by the wholesale price index (WPI) for banking, life insurance (sum assured) and life fund deflated by WPI for life insurance and non-life fund (gross less claims) deflated by WPI for non-life insurance.
- (xiv) Public administration: Data on revenue expenditure of central government, excluding interest payments deflated by consumer price index for industrial workers.
- (xv) Other services: For the public component, central government revenue expenditure. For private part, apportioning equally the forecast in all the four quarters. The private part of these other services accounts for 30.4 % of the GDP of 'other services', which in turn accounts for 8% of total GDP.

### **III QGDP ESTIMATES BY EXPENDITURE APPROACH (QGDE)**

9. The QGDE estimates are compiled for about 50 expenditure categories. However, estimates are released only for 7 categories, (1) private final consumption expenditure (PFCE), (2) government final consumption expenditure (GFCE), (3) gross fixed capital formation (GFCF), (4) change in stocks (CIS), (5) valuables, (6) exports, and less (7) imports, besides the statistical discrepancy.

10. India does not have quarterly retail trade survey or quarterly enterprise survey. Also, the general government accounts are not available at quarterly periodicity. Only the monthly accounts of central government are available, which too by broad categories, such as revenue expenditure, capital expenditure, etc., which are not sufficient to estimate government final consumption expenditure. In respect of gross fixed capital formation (which comprises construction, machinery and equipment and software), information available on machinery and equipment is only from the Use-based classification of index of industrial production (IIP)<sup>2</sup>. However, requisite data in respect of exports and imports is available. With the available limited information and using the data available on the supply side, consistent estimates of QGDE are compiled.

11. For each of the 50 expenditure categories, QGDE is compiled using the benchmark-indicator procedure. The data on indicators is mainly collected from

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<sup>2</sup> The detailed item-level IIP data is reclassified according to uses, basic goods, intermediate goods, capital goods, durable and non-durable consumer goods

respective administrative ministries/departments of Government of India. The purpose classifications followed for PFCE is the SNA 1968 classification and for GFCE, it is the COFOG recommended in SNA 1993. The indicators used for quarterly GDP expenditures are as follows:

- (i) **Private Final Consumption Expenditure (PFCE):** The PFCE comprises of expenditures of households and non-profit institutions serving households (NPISH). India conducts large scale consumer expenditure surveys of households once in 5 years. This survey is conducted in four sub-rounds from July to June, coinciding with the quarters of the year. From these surveys, expenditures made by households on various commodities is available sub-round-wise. This sub-round-wise data available from the latest 5-yearly survey is adjusted on pro-rata basis with the annual estimates of PFCE (annual estimates are compiled broadly following the commodity-flow method). These quarterised PFCE data in the year in which the consumer expenditure survey was conducted, forms the benchmark estimates. For the commodity-wise quarterly estimates of PFCE in subsequent years, physical indicators are used for each commodity of expenditure. These indicators in respect of agricultural commodities are the net availability for consumption, after accounting for production, imports, exports, stocks and inter-industry consumption. For the manufactured goods the indicators used are the IIP and the tax data. For the services, indicator used is the output of services, as estimated for compiling Gross value added (GVA) of services.
- (ii) **Government Final Consumption Expenditure (GFCE):** The monthly accounts of Central Government forms the basis for estimating the quarterly GFCE.
- (iii) **Gross Fixed Capital Formation (GFCF):** Estimates of GFCF are compiled separately for (a) construction, (b) machinery and equipment, and (c) software. The procedure followed for annual estimates is the commodity flow method, through which the total value of output of the three assets from supply side is estimated. This is taken to be the same as that acquired by institutions. For the quarterly GFCF in respect of construction, the indicator used is the GVA of construction sector. While estimating the GVA of construction sector, the value of output of construction is also estimated. From this value of output, the value of repair and maintenance is subtracted to arrive at GFCF in respect of construction component. The GFCF in respect of machinery and equipment includes the domestic output of machinery and equipment and imports of machinery and equipment, suitably adjusted for other intermediate and final uses. For the quarterly GFCF estimates in respect of machinery and equipment, the two indicators used are (a) production of capital goods available from the use-based classification of Index of Industrial Production (IIP) and (b) the data on imports/exports of machinery and equipment. For estimating the GFCF in respect of software, the total output of software services is used as an indicator.
- (iv) **Change in Stocks:** The indicators used are (a) food stocks with government agencies, (b) estimated stocks with traders using data on bank credits, and (c) estimated output of manufacturing sector.

- (v) Valuables: The GFCF in respect of valuables (mainly covering gold, and gems and jewellery) is broadly from three sources, (a) net imports (b) value addition done in India on the imported valuables, and (c) domestic production. The indicator used for this item is the net imports of valuables.
- (vi) Exports and Imports: Requisite detailed data for exports and imports is available from the quarterly balance of payments statistics. The deflators used to arrive at constant prices are the unit value indices of imports and exports.

#### **IV CONCLUDING REMARKS**

12. India adopts various procedures and alternative compilation methods to produce consistent estimates of quarterly GDP, in the absence of quarterly retail trade survey, quarterly enterprise surveys and quarterly general government accounts. These procedures are the commodity-flow method, benchmark-indicator methods, and using the same data for estimating some of the components of both QGVA and QGDE.

13. The deflators or inflators for QGDP estimates are based on detailed data available from the wholesale price index, consumer price index for industrial workers and unit value indices of imports and exports. However, suitable deflators for expenditure GDP categories and service activities are not available.

14. Notwithstanding the above limitations, the QGDP data are always consistent with annual GDP estimates and are available with little time-lag. They serve as a key short-term economic indicator, provide a reliable measure of economic performance and play an important role in policy making.

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