

A NOTE ON INDEX OF SERVICE PRODUCTION



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SERVICES SECTOR, ITS IMPORTANCE & LIMITATIONS OF DATA

The Services Sector constitutes a large part of the Indian economy both in terms of employment potential and its contribution to national income. The sector covers a wide range of activities from the most sophisticated in the field of Information and Communication Technology to simple services pursued by the unorganized/informal sector workers, such as, vegetable sellers, hawkers, rickshaw pullers, etc. In terms of industrial categories, this sector inter-alia includes sub-sectors like Trade; Hotels and Restaurants; Transport; Storage & warehousing; Communication; Banking and Insurance; Real Estate; Business services; Public administration and defence; Social and personal services; and Other services including Education, Medical and Health, Religious and Other Community Services, Legal Services, Recreation and Entertainment Services.

Although the services sector has a pivotal role in the country's economic development, database in this sector is highly disorganized. A major limitation of the existing statistical system in this respect is the absence of a well organized mechanism for maintaining a regular and proper database for this sector. Unlike the Annual Survey of Industries (ASI) that is devoted to collection of data from manufacturing and few other categories of units included in the lists maintained by the Chief Inspectors of Factories, there is no such scheme in the services sector for annual collection of data from the units either having a large number of workers or those contributing significantly in terms of annual turnover. The main difficulty in this regard is the non-availability of an up-to-date frame of such units and lack of regular mechanism for collection of data. The development of National Business Register being envisaged based on the Sixth Economic Census is likely to address the issue of frame to a large extent.

INDEX OF SERVICE PRODUCTION: ITS USEFULNESS

Given the importance of the sector, its diverse nature and lack of data on an annual basis, the need for compiling the Index of Service Production (ISP) with an appropriate periodicity was felt for a long time. Accordingly, the Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation constituted a Technical Advisory Committee (TAC) under the Chairmanship of Professor C.P. Chandrasekhar to develop methodology for compilation of the ISP and give recommendations in this regard. The TAC advised compilation of the ISP for different sub-sectors of the economy in a phased manner, with priority given to some sub-sectors like railways, air transport, postal services, banking, telecommunication, etc. which are more organized in terms of availability of data. With the approval of the methodology by the TAC, the CSO has finalized experimental monthly/quarterly/annual ISP for the sub-sectors of Railways and Air Transport with base year as 2004-05, covering the period from 2005-06 till 2010-11. The said ISP is a volume index at constant prices. More precisely, it is defined as the ratio of the volume of output produced by the services industries in a given time period to the volume produced by the same industries in the specified base period. In the absence of regular surveys the ISP is likely to serve as a short-term measure of assessing

the growth of services sector. The ‘base value’ of the index (ISP) is fixed at 100 points in order to keep the index comparable with other similar indices. This note highlights in succeeding paragraphs the methodological aspects of compilation of the index.

BASE YEAR

The base year should be a normal year in respect of economic activities like production, trade, etc. and their prices. Further, data must be reasonably available for the selected base year. The base year should be as recent as possible. Keeping all these principles in mind and also the fact that GDP estimates at constant prices are being at present released with 2004-05 as the reference year, it was decided to take 2004-05 as the base year for compilation of the ISP.

VARIABLES CONSIDERED FOR THE INDEX

Railways

Passenger Services: Passenger kilometers travelled under different classes, which are: AC First class, AC two tier sleeper, AC three tier sleeper, AC Chair car, First class (Mail or express), Sleeper class (Mail or express/ordinary), Second class (Mail or express/ordinary).

Freight Services: Tonne kilometers of nine major categories of commodities transported (Coal, Raw Material, Pig-Iron & Finished Steel, Iron Ore, Cement, Food Grains, Fertilizers, Mineral Oils and Other Commodities). These nine categories together accounted for 95% of the total originating tonnes during 2004-05.

Air Transport

Passenger Services: Passenger kilometers travelled by National Carriers (Air India, Air India Express, Alliance, Indian Airlines) and Private Scheduled Domestic Airlines (Jet Airways, Jetlite, Spicejet, Kingfisher, Paramount, Go Air, and Indigo etc).

Freight Services: Tonne kilometers of cargo transported including freight, mail and excess baggage by National Carriers and Private Scheduled Domestic Airlines.

WEIGHTING DIAGRAM

Ideally, the gross value added (GVA), measured as the difference between output and input of the respective industry-groups, should be used not only to put together the weighting diagram for an index number of production but also to measure the period to period change in production in the industry groups. But for compilation of the ISP, due to non-availability of value added figures for various services and also for their sub-classes, the revenue earned data, which are readily available according to different types of services, have been used as weights. The percentage shares in this total revenue of different types of services and their sub-classes constitute the respective weights.

The average of the total revenues earned during three years 2003-04, 2004-05 and 2005-06 has been taken as reference weight for better reflection of the weighting diagram.

In case of air transport, the percentage shares in this revenue of passenger and freight services constitute the respective weights. In the data on tonnes Km performed by Airlines, PAX is added, which is weight of the passengers carried. The internationally accepted value of PAX is 110 kg which includes 75 kg as average weight of passenger, average of 30 kg for accompanied luggage and 5 kg for excess baggage. Out of this only the portion of excess baggage has been included in tones of freight carried as there is separate account of revenue collected on account of excess baggage.

The weighting diagrams for the railways and air transport sectors are given in Tables 1 and 2.

Table 1: Weighting diagram for Passenger and Freight transport services by Rail

Passenger			Freight		
Sl. No.	Class	Weight	Sl. No.	Commodity	Weight
1	A - 1	0.370	1	Co	27.777
2	A - 2	2.289	2	Rm	3.073
3	A - 3	2.242	3	Pf	3.392
4	A - C	0.616	4	Io	3.787
5	1 - M	0.660	5	Ce	5.337
6	S - M	7.880	6	Fg	6.606
7	S - O	0.082	7	Fe	2.842
8	2 - M	8.536	8	Mo	6.090
9	2 - O	8.659	9	Oc	9.762
	All Classes	31.334		All Commodities	68.666

Abbreviations:

A - 1	A.C First Class	Co	Coal
A - 2	A.C Sleeper	Rm	Raw material
A - 3	A.C 3-Tier	Pf	Pig Iron & Finished Steel
A - C	A.C Chair Car	Io	Iron Ore
1 - M	1st Class – Mail or express	Ce	Cement
S - M	Sleeper Class - Mail or express	Fg	Food Grains
S - O	Sleeper Class - Ordinary	Fe	Fertilizers
2 - M	2nd Class - Mail or express	Mo	Mineral Oils
2 - O	2nd Class – Ordinary	Oc	Other Commodities

Table 2: Weighting diagram for Air Transport Services

Type of Service	Base Year weights
National Carriers	61.22
Private Scheduled Domestic Airlines	38.78
All scheduled Airlines	100

FORMULA USED FOR COMPILING THE INDEX

In case of Railways, all the classes of passenger services and the nine major commodity groups for freight services form part of the item basket of ISP. Thereafter, index for time period 't' is compiled using the following formula (Laspeyre's fixed base index):

$$Index = \frac{\sum_i W_{i0} \left(\frac{Q_{it}}{Q_{i0}} \right)}{\sum_i W_{i0}} \times 100$$

where

W_{i0} = weight of item i in the base period

Q_{it} = value of the variable of item i in period t

Q_{i0} = value of the variable of item i in base period

Air transport services are broadly divided into the following two categories:

- (a) Passenger traffic services (Scheduled)
- (b) Freight/cargo traffic services

The average (monthly or quarterly as the case may be) passenger-kilometers and tonne-kilometers transported during the base year period have been computed first. Thereafter indices (using the above formula) for both types of services, namely National Carriers and Private Scheduled Domestic Airlines, are computed based on the passenger-kilometers transported and tonne-kilometers transported with respect to their respective base period average figures. The overall ISP for air transport is then computed as the weighted average of the above indices, the weights being respective gross operating revenues.

PERIODICITY

The periodicity of the index depends on availability of data on selected variables considered for compilation of the index. For different services sectors data is available with different periodicity. In the instant cases of railways and air transport, monthly data is available from the source agencies i.e. respective line ministries and accordingly monthly indices are calculated. In addition, quarterly and annual indices have been compiled to maintain the consistency and availability of the index with all other sub-sectors. It may be mentioned in this context that for the purpose of GDP calculations at constant price quarterly indices are needed.