CENTAD Working Paper No. 18
May 2015

New Series of National Accounts- Better Estimation or Over Estimation?

M C Singhi
R Gopalan

(R Gopalan is former Secretary, Department of Economic Affairs and MC Singhi is former Senior Adviser in Department of Economic Affairs)

(Abridged version of this paper appeared in Hindu Business Line on May 6, 2015)

New Series of National Accounts- Better Estimation or Over Estimation?

Revision in the estimates of domestic product (GDP) is a continuous process. Availability of more update data and changes in methodology which enlarges the access of data are the two factors which result in revision in the initial estimates of GDP. Base year of GDP is also revised regularly to have it aligned with the structural shifts that the economy witnesses continuously[1]. GDP revisions, both because of improved availability of data or methodological changes with existing or a new base are generally expected to be range bound at both the aggregate and the sectoral level (Table 1).

Table 1: Rate of growth of GDP (factor cost) at 2004-05/2011-12 prices (per cent)

Year	**Advance Estimates (February) Year 0**	**Provisional Estimates (May) Year 1**	**First Revision (January) Year 1**	**Second Revision (January) Year 2**	**Third Revision (January) Year 3**
2010-11	8.6	8.5	8.4	9.3	8.9
2011-12	6.9	6.5	6.2	6.7	
2012-13	5.0	5.0	4.5	4.9$	
2013-14	4.9	4.7	6.6$		
2014-15	7.5$				

$ At constant 2011-12 prices based on New Series of National Accounts (2011-12 Base)
Central Source- Press Releases by the Ministry of Statistics & Programme Implementation- Various Issues

2. A sharp upward revision in GDP growth in 2013-14 in new GDP series released by the Ministry of Statistics and Programme Implementation (MOSPI) on January 30, 2015 has raised questions in some quarters. The higher figure from the new series seems somewhat at odds with other economic indicators such as the growth in bank credit, the Index of Industrial Production and corporate performance[2].

3. Shift to a most recent base, availability of new data sources and better methodology of estimation and ensuring the consistency of the estimates with the System of National Accounts (SNA), 2008 have been the consideration for the revision of NAS data[3]. Most significant change in 2011-12 series is the use of MCA 21 data.

---

[1] The base year of National Accounts was revised in recent years in 1980-81, 1993-94, 1999-2000, 2004-05 and 2011-12.

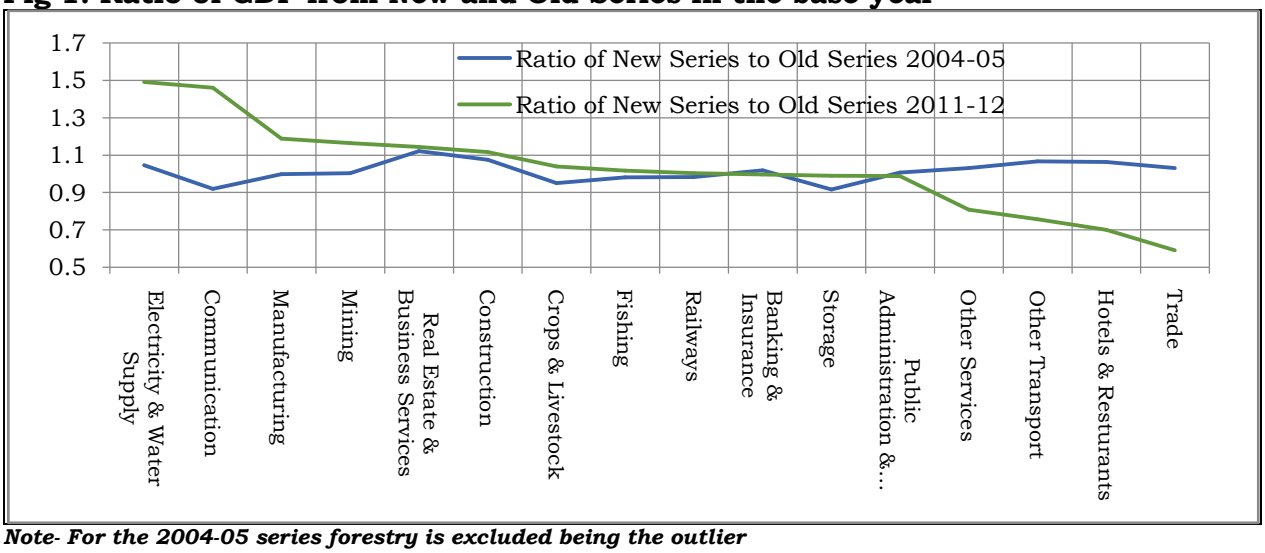
[2] R Nagraj- Seeds of Doubt on New GDP Numbers- Private Corporate Sector Overestimated? EPW- MARCH 28, 2015 vol L No 13

[3] Ministry Of Statistics & Programme Implementation - *Changes in methodology & data sources in new series of National Accounts*

Earlier in the 2004-05 series, Private Corporate Sector (PCS) was being covered using the RBI Study on Company Finances covering around 2500 companies. "In the new series, comprehensive coverage of Corporate Sector has been ensured in mining, manufacturing and services by incorporation of annual accounts of companies as filed with the Ministry of Corporate Affairs (MCA) under their e-governance initiative, MCA21. Accounts of about 5 lakh companies have been analysed and incorporated for the years 2011-12 and 2012-13, while the number of common companies (companies for which accounts are available for the year 2012-13) is around 3 lakh for the year 2013-14[4]". Unincorporated enterprises belonging to households with complete sets of accounts have also been treated as quasi-corporations.

4. Robustness of new series is usually examined from two considerations. First, as the law of large numbers would suggest, in terms of absolute numbers the new series at the base year (in current prices) should be reasonably aligned with the old one and the observed rate of acceleration should be comparable. Second, in case of divergence at either of these two levels, the clarification provided is both credible and transparent. The 2004-05 series which was launched on January 2010 gets nearly aligned with the earlier series with base 1999-2000 with the ratio of the new series with old one in 2004-05 ranging between 0.91 to 1.12 (the sub sector of forestry was the only outlier with a ratio of 2.64). The new series launched in January 2015, however, has been somewhat different from the old one. Though the overall ratio of GDP (at factor cost) in the two series was 0.98, inter sector differences were very large. The ratio of the new series to old one was greater than one for electricity, communication and manufacturing sectors; it was as low as 0.59 for the trade sector (Fig 1)

Fig 1: Ratio of GDP from New and Old Series in the base year



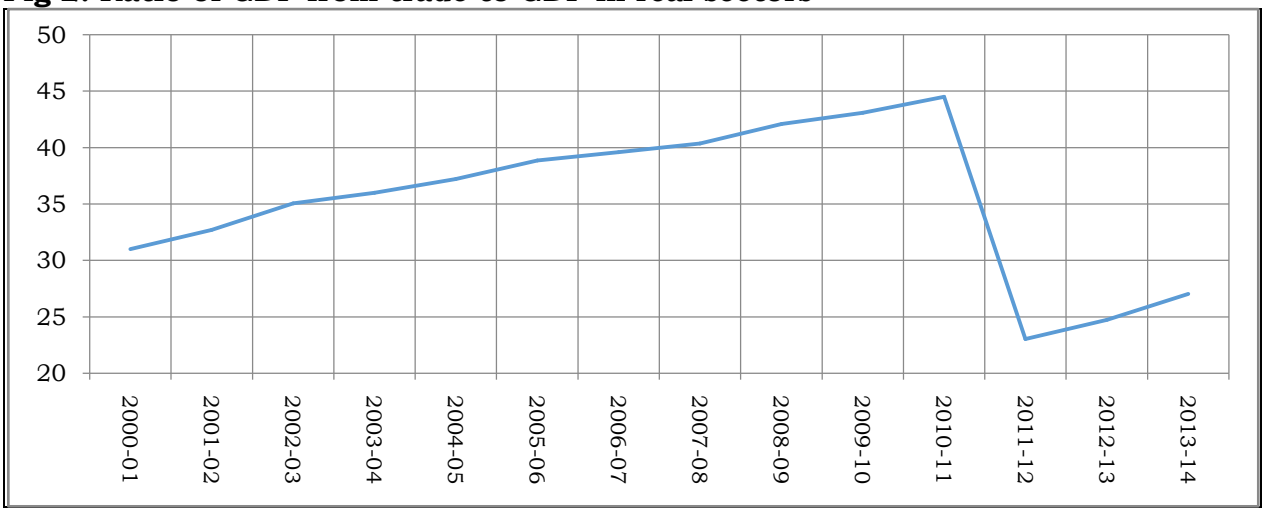
Note- For the 2004-05 series forestry is excluded being the outlier
Source- MOSPI - Changes in methodology & data sources in new series of National Accounts

5. CSO has mentioned that a decrease in gross value added (GVA) from Trade is mainly due to drop in the latest NSSO survey based estimates of trade for the unincorporated enterprises. In the current series, in addition to an updated survey

[4] Ministry Of Statistics & Programme Implementation - *Changes in methodology & data sources in new series of National Accounts*

which covered the levels of intermediation between the producer and consumers, changes in underlying quality of goods, and changes in marketing practices, value based sales tax collections has been used as the underlying indicator as against the index of gross trading income. The benchmark estimates for the private corporate sector in the new series are based on MCA 21 returns[5]. We need to consider the following two issues while looking at the GVA of the trade sector. First, there has been a sharp decline in the ratio of GDP from trade to the GDP originating from real sectors comprising agriculture, mining, manufacturing and electricity (Fig 2). Second, the movement of gross trading index, considered as volume index and the index of sales tax collections do not differ in any significant manner[6]. The decline in GVA from trade in the new series, therefore, can only be attributed to the new CSO Trade survey and the use of MCA 21 data set as against the data from the Reserve Bank of India's study relating to the corporate sector.

Fig 2: Ratio of GDP from trade to GDP in real sectors



Source- MOSPI - Changes in methodology & data sources in new series of National Accounts and Earlier data on National Accounts

6. Apart from the absolute GDP numbers, concerns were raised about the growth of GDP, both at the aggregate level and at the level of sectors (sub sectors). Fig 3 below compares the average quarterly growth of GDP/GVA for 10 quarters (until Q2 of 2014-15). Average of quarterly growth of GDP originating from manufacturing at 5.87 per cent as per the new series is significantly higher than a growth of just 0.53 per cent in the old series. Other sector where the new series shows a relatively higher growth is trade, transport & communication, where the growth has improved from 3.9 per cent in old series to 10.1 per cent in new series. MOSPI has attributed this high growth to the use of MCA 21 data set and the shift to a value based indicator of sales tax. But we have indicated earlier that the movement of gross trading index and sales tax index do not differ in any significant manner. Therefore, while a reduction in the base value of GVA could be explained by new NSSO 67th round Survey of unincorporated sector of

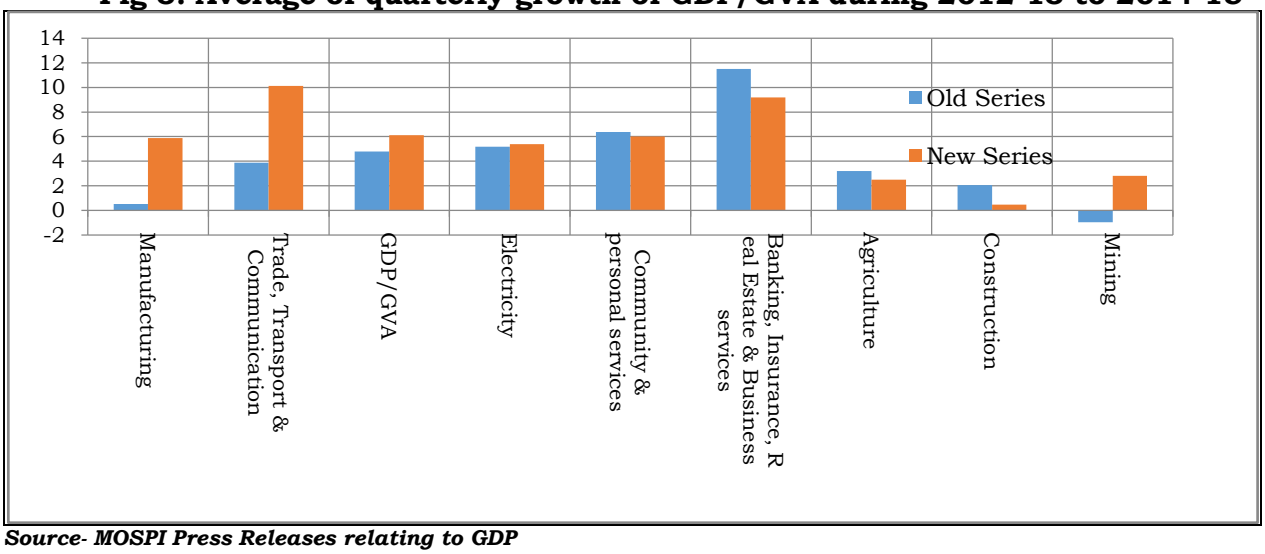
---

[5] Ministry Of Statistics & Programme Implementation - *Changes in methodology & data sources in new series of National Accounts*

[6] Sales Tax Collection Index was estimated at 306.8 in 2011-12 (with 2004-05=100) as against the Gross Trading Income Index which stood at 314.4 as indicated in Ministry Of Statistics & Programme Implementation - *Changes in methodology &data sources in new series of National Accounts*

2010-11 which included trade as a component, still we are not able to explain the higher growth derived from the new value based index. Average of quarterly growth is relatively lower for banking, insurance & business services, agriculture, construction and mining.

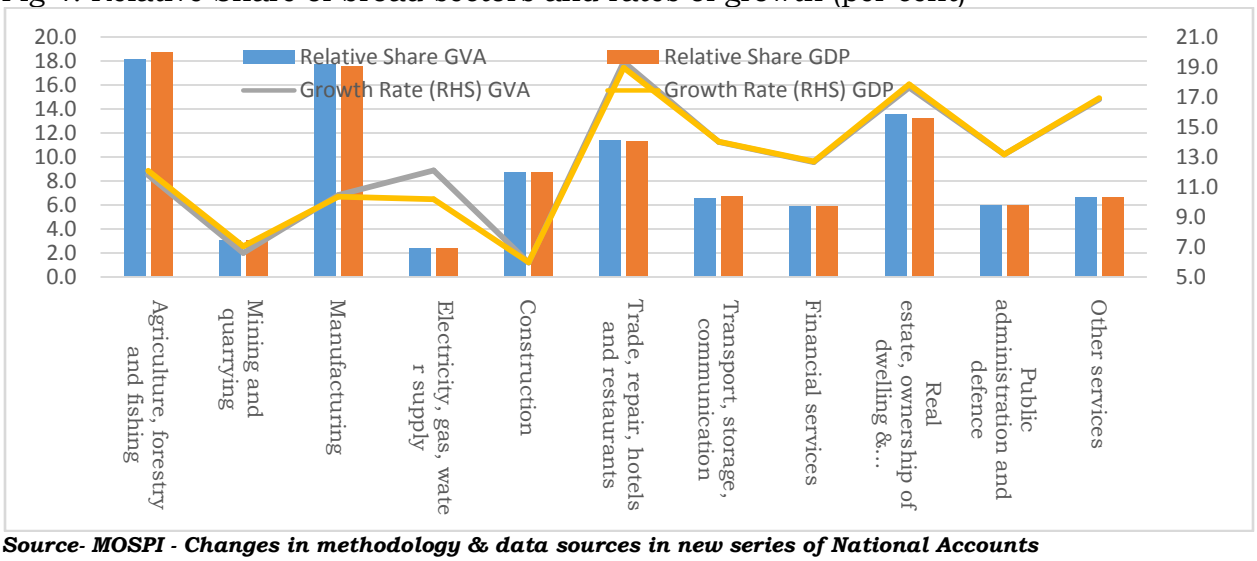
Fig 3: Average of quarterly growth of GDP/GVA during 2012-13 to 2014-15



Source- MOSPI Press Releases relating to GDP

7. We are not able to conclude that the differences in rate of growth of GDP (old series) and GVA (new series) is attributable to production taxes and subsidies (Fig 4). Average share of the broad sectors and rate of growth of these sectors based on GDP and GVA differ only for the broad sector 'electricity, gas, water supply and other utilities'. Further, production taxation and subsidies have been insignificant at an aggregate level accounting for (-) 0.11 per cent of GDP (average of 2011-2014), which do not explain the difference of this magnitude between GDP and GVA.

Fig 4: Relative Share of broad sectors and rates of growth (per cent)



Source- MOSPI - Changes in methodology & data sources in new series of National Accounts

Value Added from Manufacturing is even more tricky

8. Manufacturing sector is somewhat different from other sectors of GDP in terms of data availability. IIP compiled and released by MOSPI, which also covers manufacturing, is a monthly index and with its weights derived from the National Accounts, not only acts as a lead indicators, but tracks the manufacturing growth in the short run. Then we have ASI, the most comprehensive data base for the organized manufacturing, which is compiled by MOSPI by direct visit of its data collectors to all industrial establishments. All manufacturing units employing 10 or more workers are mandatorily required to be registered under the Factories Act forms the data points for MOSPI, theoretically ensuring both a complete and most authentic coverage.

9. This uniqueness of the manufacturing data system makes it amenable for a meaningful comparison of the old and new series and to see whether the changes could be properly explained. We look at three sets of comparison, the ratio of the manufacturing in the base year for organized and total manufacturing sector at disaggregated industry level, comparing the value added per worker in new and old series at disaggregated industry level and finally in terms of growth and deflators for the new series and the IIP manufacturing.

10. In the new series while the value added (GVA) from organized manufacturing increased by 34.7 per cent, GVA from unorganized manufacturing witnessed a sharp decline. The share of UNM accordingly witnessed a decline (Table 2)

Table 2: GVA from Manufacturing in 2011-12 (Old and New Series) Rs in crore

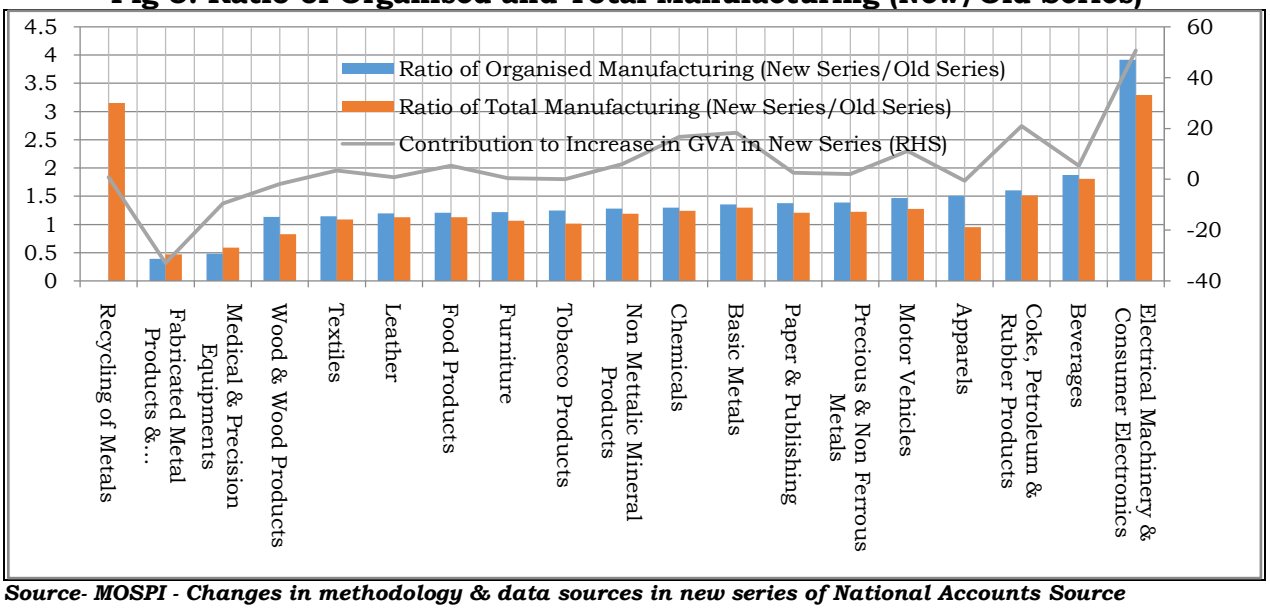
	Old Series	New Series	Per cent change
Organized Manufacturing (OM)	939,827	1,265,798	34.68
Unorganized Manufacturing (UNM)	353,862	283,958	(19.75)
Total Manufacturing (TM)	1,293,689	1,549,756	19.79
Share of UNM in TM (per cent)	27.35	18.32	(33.01)

Source- MOSPI - Changes in methodology & data sources in new series of National Accounts

11. The increase in GVA in new series was unevenly distributed across the manufacturing sub sectors (industries). The ratio of GVA from the new and old series across industries, indicate that only 3 industries were in a way outliers (Fig 5). The ratio was close to 0.5 for fabricated metals and non-electric machinery and medical & precision equipments; it exceeded 3 for electrical machinery and consumer electronics.

12. The electric machinery and consumer electronics is highly organised sector dominated with a share of less than 3 per cent for the unorganised sector in the new series. Further this sector is an oligopolistic sector with existence of not many players. It does not, therefore, stand to logic that the old series and ASI was so out of mark in this sector in terms of its GVA. Further, while in other sectors, the change (increase or decrease) was within a narrow range, why was there such a difference in this sector? Of the total increase in GVA from manufacturing, contribution of this sector to that increase alone exceeded 50 per cent. That such an increase could happen from a shift to MCA 21 data base does not stand to logic. Does it mean that MOSPI has junked ASI, at least for this sector? The Press Note of MOSPI and later clarification do not address this issue at all.

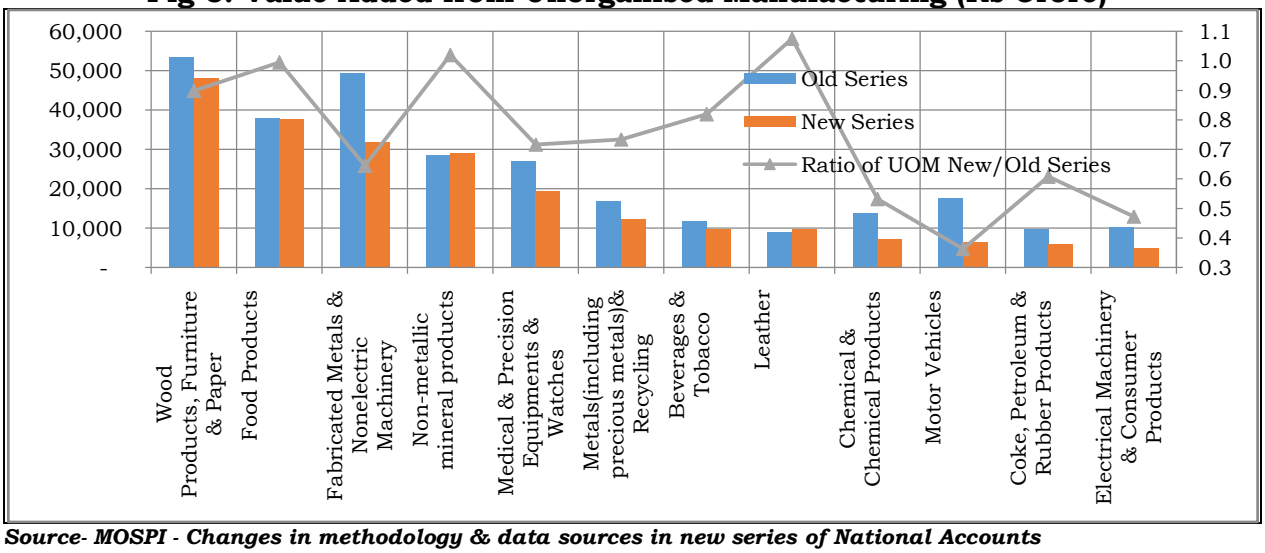
Fig 5: Ratio of Organised and Total Manufacturing (New/Old Series)



Source- MOSPI - Changes in methodology & data sources in new series of National Accounts Source

13. In the new series, unorganised manufacturing has witnessed a sharp squeeze. There has not only been a decline in its share at aggregate level (Table 2 above), but this squeeze virtually extends to most sectors (Fig 6). In the industry segments, such as, beverages; refined petroleum & rubber products; chemicals; basic metals (including precious & non-ferrous metals); electrical machinery & consumer electrical/electronics); and motor vehicles the share of unorganised sector in total manufacturing value added from that segment is less than 10 per cent. The GVA from unorganised manufacturing in total manufacturing GVA from that sector exceeds 40 per cent in textiles; leather; wood products & furniture; fabricated metals & non-electric machinery; and medical & precision equipments (including watches). The decline in the share of unorganised manufacturing and its virtual nonexistence from the modern sectors raises both data and policy issues.

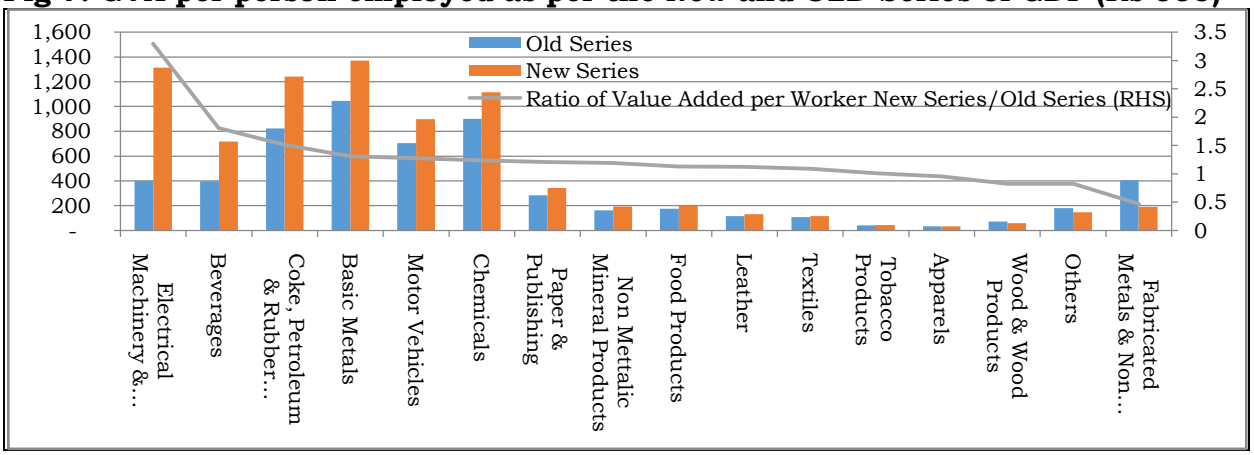
Fig 6: Value Added from Unorganised Manufacturing (Rs Crore)



Source- MOSPI - Changes in methodology & data sources in new series of National Accounts

14. The NSSO survey of employment and unemployment for 2011-12 provide number of persons engaged in manufacturing together with other industries/activities. As per this NSSO survey, manufacturing sector (excluding recycling) employed 58.61 million persons (usual principal and subsidiary basis). The survey also provides employment at disaggregated 2 digit level of manufacturing. While on an average GVA per worker increased from Rs.2.21 lakh as per old series to Rs. 2.64 lakh in the new series, the increase in GVA per person in electrical machinery and consumer electronics increased from Rs 4 lakh to Rs 13 lakh, higher than the GVA per person in coke, petroleum refinery and rubber products, or even chemicals and motor vehicles (Fig 7).

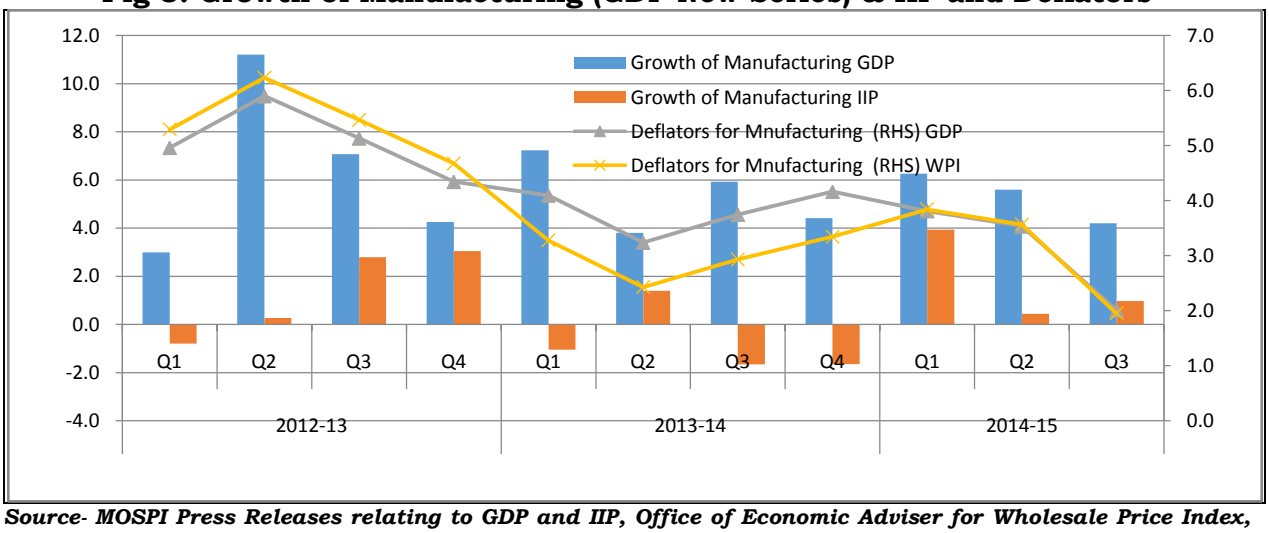
Fig 7: GVA per person employed as per the New and OLD Series of GDP (Rs 000)



Source- MOSPI - Changes in methodology & data sources in new series of National Accounts and NSSO Survey on Employment & Unemployment

15. The rate of growth of manufacturing in new series significantly exceeded the growth of manufacturing based on IIP. Higher growth at constant prices has not been due to deflators because the deflators based on new series and WPI (Manufacturing) were nearly aligned (Fig 8).

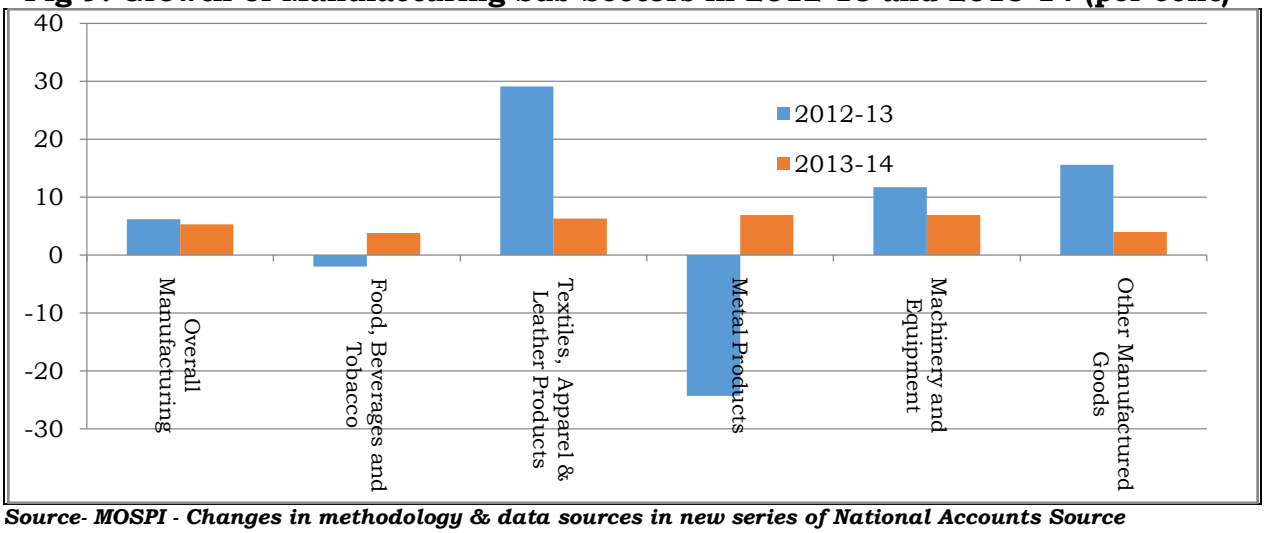
Fig 8: Growth of Manufacturing (GDP New Series) & IIP and Deflators



Source- MOSPI Press Releases relating to GDP and IIP, Office of Economic Adviser for Wholesale Price Index, GDP deflator is our calculation

16. Both the level of GDP originating from manufacturing and the growth rates particularly in 2013-14 and 2014-15 (first 3 Quarters) appears inconsistent with business perception and secondary data. The divergence between the new series and the old series in the pace of growth of the manufacturing sector has turned out to be stark and the robust expansion of manufacturing portrayed in the new series is not validated by subdued corporate sector performance and weak industrial production. Seasonally adjusted capacity utilization has also declined on a secular basis from around 80 per cent in Q4 of 2010-11 to around 70 per cent in Q3 of 2014-15[7]. In the new series, while MOSPI has not separately provided data for organised and unorganised sector, but the acceleration is unlikely to do anything with unorganised sector, given a substantial decline in its share in the new series. New series, however, disaggregates manufacturing in 5 sectors, but the growth of these sectors in 2013-14 while varying significantly from the previous year showed a near convergence, not corroborated by other evidence (Fig 9).

Fig 9: Growth of Manufacturing Sub Sectors in 2012-13 and 2013-14 (per cent)



Source- MOSPI - Changes in methodology & data sources in new series of National Accounts Source

17. While the use of new data sets for GDP is necessary and needs encouragement, it is important that there is appropriate validation and credible explanation for the divergence in new and old series. Such divergence in manufacturing, particularly the organised which has a strong historical data base, compiled by MOSPI directly through investigators needs more transparent clarification. Use of MCA21 data set as a surrogate explanation is both inadequate and also misleading. Since other sectors do not provide us with this opportunity of comparison, it is all the more necessary that such disclosures are in greater detail.

18. Shift to MCA 21 as the new data source is reported to be the cause for observed higher growth of manufacturing. However, a look at the corporate performance as revealed from the data set of Centre for Monitoring Indian Economy suggests that the manufacturing growth has continued to remain sluggish (Table 3).

[7] Reserve Bank of India- Monthly Bulleting- April 2015

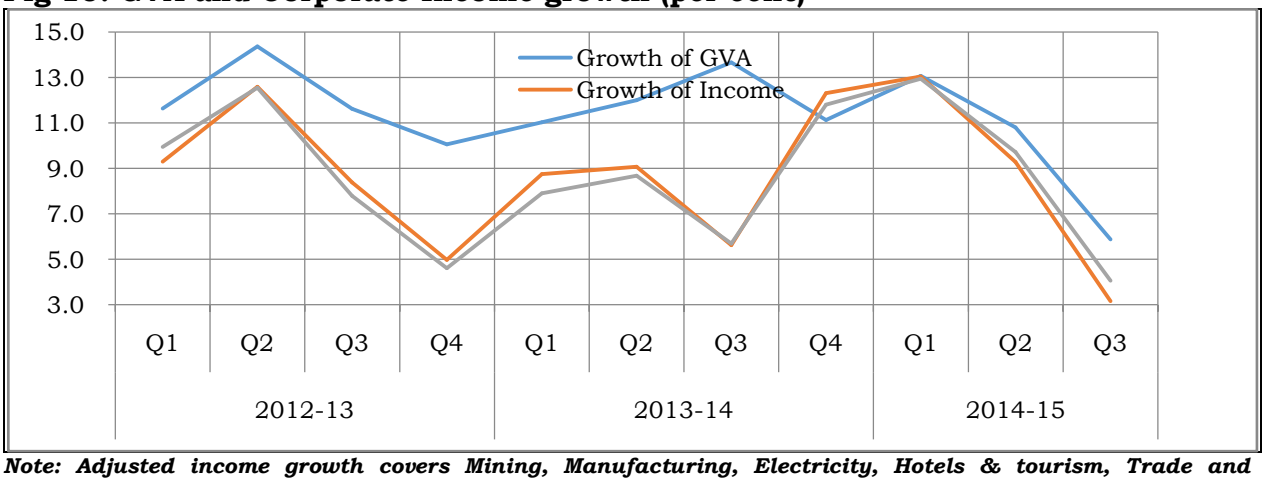
Table 3: Rate of Growth of Income & Value Added of the Corporate Sector (per cent)

	2012-13				2013-14				2014-15		
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**
Rate of Growth of Income (Sales and Other Incomes) in per cent											
Non-financial	10.0	12.5	7.8	4.6	7.9	8.7	5.7	11.8	12.9	9.7	4.1
Manufacturing	11.1	15.6	9.3	4.1	7.3	7.6	6.0	10.1	13.9	9.4	0.3
Mining	14.7	-15.9	34.3	15.6	4.0	73.5	0.2	34.7	42.1	-9.8	-6.7
Electricity	14.9	14.3	9.3	14.2	7.2	2.7	14.3	19.4	21.4	17.7	15.9
Non-financial Services	3.1	5.3	-0.1	7.1	19.2	11.6	8.0	22.3	5.6	14.0	22.1
Selected Sectors$	9.3	12.6	8.4	5.0	8.7	9.1	5.6	12.3	13.0	9.3	3.2

Source- CMIE data set
$ Selected Sectors include Manufacturing, Mining, Electricity, Trade, Hotels & tourism and Transport & Communication services
Note- Growth rates for 2013-14 and 2014-15 has been adjusted for lesser response

19. The MCA 21 data base in the new series has a much wider use in manufacturing and trade, transport, communication, mining and electricity sector also have MCA 21 data embedded into it. It may, therefore, be desirable to compare growth rates of these sectors of GDP/GVA with the corporate growth (Fig 10). At the current prices, the rates of growth GVA (comprising mining, manufacturing, electricity, construction and trade, transport & communication) and corporate sector appears converging in most recent 4 quarters, though GVA growth in earlier period is higher. Though the most recent estimates are advance estimates and may undergo a change, the convergence is nonetheless comforting. But the higher growth rate in the earlier periods needs some clarification. Further, this convergence of growth rates in 2014-15 at aggregate level conceals wide differences across the sectors. Differences in growth rates at sectoral level in earlier two years, 2012-13 and 2013-14 are even sharper. Further, the overall higher growth in GVA originating from manufacturing and trade in the new series cannot be ascribed to a large extent only to unorganised sector. The share of unorganised sector in both manufacturing and trade has considerably declined.

Fig 10: GVA and Corporate Income growth (per cent)



Note: Adjusted income growth covers Mining, Manufacturing, Electricity, Hotels & tourism, Trade and Transport & communication services

20. Dr Nagraj has also raised the issue of inconsistency in the savings and investment data of the private corporate sector in the draft and final report of the Sub Committee of MOSPI on Private Corporate Sector including PPPs. Though in this paper we have not discussed the issues relating to savings and investment, we tend to agree with him that it would be appropriate to have an independent professional review and statistical audit of the entire set of procedures. It would perhaps be also useful to release the MCA-21 database in a suitable form to independent academic bodies for verification and validation[8]. With the use MCA 21 data set, where we have seen a decline in the GDP that is indirectly estimated through periodic surveys and ratios and the GDP that is attributed to unorganized sectors, we feel that there is a possibility of validation of this data set with data set of tax research unit of Department of Revenue. These two together may perhaps remove apprehensions about the new GDP numbers.

21. As has been indicated earlier, the use of a larger data set (MCA 21) and shift to a direct method of estimation for corporate sector is certainly an improvement in estimation procedure and is desirable. Methodologically also there are improvements as now GDP is available at industry level, at the demand level and also in terms of factor shares. New series at aggregate level is nearly aligned, though this association gets weaker at sector level and gives comparable growth numbers in the first year, i.e. 2012-13. In 2013-14 and 2014-15, overall GDP growth and the growth at sector level shows a significance divergence, often at odds with the other indicators and user perceptions. While CSO should be complimented for use of larger data base, increased use of direct estimation and methodological improvement, some data validation and data dissemination would further remove the apprehensions that have persisted.

22. Large divergence in manufacturing, particularly the organised manufacturing which has a strong historical data base and where the data are compiled by MOSPI directly through investigators needs more transparent clarification. Use of MCA21 data set as a surrogate explanation is both inadequate and also misleading. Since other sectors do not provide us with this opportunity of comparison as is the case with manufacturing, it is all the more necessary that such disclosures are in greater detail. Further, the new series raises doubts on the data set of the Ministry of Small and Medium Enterprises (MSME) which has consistently maintained that the share of MSME sector in manufacturing value added is over 40 per cent. A significantly lower share and perhaps a relatively lower growth also have implications for the policy that has been pursued for growth of this sector.

[8] R Nagraj- Seeds of Doubt on New GDP Numbers- Private Corporate Sector Overestimated? EPW- MARCH 28, 2015 vol L No 13