



सत्यमेव जयते

Ministry of Statistics and Programme Implementation

Proceedings of Awareness Workshop on “Challenges and Issues of Official Statistics” for Senior ISS Officers during 18th - 19th May, 2018 at Bengaluru



NSSTA

National Statistical Systems Training Academy
Greater Noida (U.P.)

TABLE OF CONTENTS

Contents	Page No.
1. Agenda	2
Proceedings: National Accounts (Date: 18.05.2018)	4 - 11
Session I: Methodological changes in compilation of GDP	
Session II: Administrative data: Issues and challenges	
Session III: Other issues related to National Accounts	
Specific points related to data users' concerns, requirements and possible way forward.....	11
2. Proceedings : Employment and Unemployment Data (Date: 19.05.2018).....	14 - 21
Session I: User's Perspective	
Session II: Data Producers' View	
3. Suggestions/Recommendations.....	22
4. Concluding Session.....	22
5. References.....	23
6. Further readings.....	23
7. List of Participants.....	24
8. Presentation by:	
i. Dr. A. C. Kulshreshtha.....	29
ii. Sh. J. Dennis Rajakumar.....	51
iii. Sh. S V Ramana Murthy.....	97
iv. Smt. T. Rajeshwari.....	120
v. Sh. Sanjay Singh.....	170
vi. Sh. Kunal Priyadarshi.....	183
vii. Smt. T. Rajeshwari.....	196
viii. Dr. Amey Sapre.....	200
ix. Dr. G.C. Manna.....	224
x. Prof. Ajit Ghose	242
xi. Prof. Ravi Srivastava	247
xii. Prof. Alakh N. Sharma.....	264
xiii. Sh. D. Mukhopadhyay.....	270
xiv. Sh. Himmat Singh Raghav	310
xv. Dr. Mahesh Vyas	344

Agenda for Awareness workshop on “Challenges and Issues of Official Statistics” for Senior ISS Officers

Date: 18th – 19th May, 2018

Venue:- M/s Davnam Sarovar Portico Suites, Davanam Plaza adjacent to Total Mall, Opposite Madiwala Police Station, Bengaluru-560068

Topic- National Accounts Date 18.05.2018		
Time	Event	Speakers
10:00 a.m.- 10:30 a.m.	Registration	
10:30 a.m.-10:45 a.m.	Welcome & Introductory remark	Shri Rajeev Lochan, DG (SS)
10:45 a.m.-12:00 p.m.	Discussion on methodological changes in compilation of GDP	1. Chairperson: Dr. A.C. Kulshreshtha Ex-ADG, CSO 2. Shri J. Denis Rajakumar, EPW 3. Smt. T. Rajeshwari, DDG, NAD
12:00 p.m. -12:30 p.m	Tea break	
12:30 p.m.-01:45 p.m.	Administrative data (issues and challenges)	1. Chairperson: Dr. G.C. Manna, Ex-DG, CSO 2. Shri Sanjay Singh, RBI 3. Dr. Amey Sapre, Consultant, NIPFP 4. Shri S.V. Ramanamuthy, DDG,NAD
01:45 p.m.-02:30 p.m.	Lunch Break	
02:30 p.m.-04:00p.m.	Other issues related to National Accounts	1. Chairperson: Dr. R.B. Burman, Chairman, NSC 2. Dr. A.C. Kulshreshtha, Ex-ADG, CSO 3. Shri Kunal Priyadarshi 4. Smt. T. Rajeshwari, DDG, NAD
04:00p.m.-04:30 p.m.	Tea Break	
04:30 p.m.-06:00 p.m.	1. Panel Discussion on issues emerged in previous sessions. 2. Open discussion	1. Chairperson: Dr. R.B. Burman, Chairman, NSC Panelinst: 1. Shri J Dennis Rajakumar, EPW 2. Dr. A.C. Kulshreshtha, Ex-ADG, CSO 3. Dr. G.C. Manna, Ex-DG, CSO

Topic- Employment and Unemployment
Date 19.05.2018

Time	Event	Speakers
09:30 a.m.-11:30 a.m.	Users' Perspective	1. Chairperson: Shri D.P. Mondal, DG-NSSO 2. Prof. Ravi Srivastava, JNU 2. Prof. Ajit Ghose, IHD 3. Prof. Alakh N. Sharma, IHD 4. Dr. G.C. Manna, Ex-DG, CSO
11:30 a.m. -12:00 pm	Tea break	
12:00 pm- 1:00 pm	Session-I Continued	
01:00 pm- 02:00 pm	Data Producers' view	1. Chairperson: Shri P.C. Mohanan, Member, NSC 2. Shri D. Mukhopadhyay, DDG, SDRD 3. Shri Himmat Singh Raghav, Director, Labour Bureau 4. Dr. Mahesh Vyas, CMIE
02:00 pm-03:00 pm	Lunch Break	
03:00 pm- 04:30 pm	Session-II Continued	

Awareness Workshop on Challenges and Issues of Official Statistics

Background:

0.0 Everyday there are numerous innovations shaking and affecting the statistical world and they are pouring in from different parts of the world. There are new data sources that are being identified even for traditional statistical products. Changes in society are demanding new statistics to be generated. A need has arisen to bridge the gap between the users and the producers of the data and a platform to be created where nuances of official statistics and the requirements of users in the present perspective can be discussed in a most transparent manner. Thus, it was felt that exposure and extensive discussions between users, producers and academicians on key indicators i. e. National Accounts, Various NSS Surveys, Agriculture Statistics, Labour Statistics, Prices & ICP, Demography, Health Surveys etc.; in the field of official statistics as well as recent developments like Big Data Analytics, Data Mining, Statistical Disclosure Control is the need of the day. Keeping this in view, TPAC recommended that a series of exposure programmes / workshops may be conducted on various areas of official statistics. The first attempt at such awareness workshop was made during 18th – 19th May, 2018 at Bengaluru to discuss about challenges and issues of Official Statistics particularly in the field of National Accounts and Labour Statistics. This document presents the proceedings of the sessions.

Proceedings:

1.0 The discussions in the first three sessions dealt with (i) methodological changes in the compilation of GDP and (ii) some of the challenges that have

emerged particularly in the 2011-12 base year series of the National Accounts Statistics (NAS). The discussions broadly revolved around data users' concerns and clarifications about GDP compilation which were addressed by CSO officials from time to time. In the opening address and also from the remarks of the Chairman of various sessions, the efforts of the CSO in bringing out the new base year revision was appreciated and the focus towards continuous improvements in the NAS was reiterated. Issues related to employment statistics were discussed on the second day. A summary of issues raised and observations from various participants have been summarized towards the end of the proceedings.

Session I: Methodological changes in compilation of GDP

1.1 Dr. Dennis Raja Kumar, from Economic & Political Weekly, presented a broad overview of the methodological changes in the 2011-12 series with a focus on estimates of the manufacturing sector, savings and capital formation and classificatory changes in a few sub-sectors.

1.2 While undertaking the rebasing exercise, the CSO had considered several recommendations provided by the United Nation's System of National Accounts 2008 (SNA 2008). The latest rebasing of NAS had witnessed downward or upward revision of absolute size of NAS aggregates, and the differences in the growth of NAS aggregates and sectoral shares in 2004-05 series and 2011-12 series were of the magnitude non-comparable to the previous exercise. While several changes were welcome, analysts/users were puzzled by the contrast of the accelerating growth and the falling rate of investment and savings in the latest NAS series

1.3 In case of the corporate sector, some specific points from a data users' perspective were mentioned.

1.3.1 In line with the recommendations of SNA 2008, an important methodological change was the adoption of enterprise approach in the place of erstwhile establishment approach for defining an economic unit. Technically, enterprise approach is a broad canvass compared to establishment approach. An enterprise may be a single establishment or a collection of establishments. For instance, each factory of Tata Motors is individually reckoned as an establishment, but collectively they are represented by the company as an enterprise. If a company has only a factory that also houses several departments rendering auxiliary services, that company is then an enterprise and at the same time is also an establishment.

1.3.2 An important database for registered manufacturing sector in the previous NAS series was *Annual Survey of Industries (ASI)*, which surveyed factories as a standalone administrative unit. Thus, the ASI had necessarily followed establishment approach. It was felt desirable to take recourse to data source that would be in sync with enterprise approach. Essentially, this implies that CSO has to rely on database comprising companies' final accounts.

1.3.3 Way back in 2006, Ministry of Corporate Affairs (MCA) aimed to achieve filing of returns by all corporate entities by 2021, through implementation of a novel e-initiative popularly known as MCA21. With effect from 2010-11, MCA21 has been made mandatory. Corporates are now required to file returns in a web platform known as XBRL (Extensible Business Reporting Language) or Forms 23 CA/ACA. The XBRL

covered four classes of companies, namely companies listed in any stock exchange in India and their Indian subsidiaries, companies having paid up capital of over Rs 5 crore & companies with a turnover of over Rs 100 crore, Other companies must complete filing of returns through Forms 23 CA/ACA; while Form 23ACA collects information related to profit and loss account, the Form 23CA related to balance sheets. As such, MCA21 is the repository of final accounts of active companies and thus, the CSO's decision to use the data culled from MCA 21 dataset is a welcome step.

1.3.4 However, problems arise while taking into account the companies that may not have completed filing by the cut-off date or when CSO procures data from MCA. In the earlier NAS series, Reserve Bank of India (RBI) undertook the task of building up population estimates of corporate investment (capital formation) and savings based on a thin sample of companies that it studied and by using blow-up method i.e scaling-up data of the sample companies by a factor of the population paid up capital (PUC) to the sample companies' PUC. PUC was obtained from Ministry of Corporate Affairs.

1.3.5 However, there are two problems here. In situations where a company has gone out of business or has become inactive, inclusion of its PUC in the numerator leads to overestimation. Nevertheless, in the absence of any other reliable population parameter, the CSO continues to follow blow up procedure, but it considers PUC of only active companies, which are defined as those who filed returns at least once in the preceding three years. Secondly, it is assumed that companies' final accounts represent true and fair view of business and any misrepresentation of facts, sans any window dressing/fudging of accounts by companies, which, if adopted, would get incorporated into NAS. Albeit,

it was recognized that this aspect may be present even now but accounting for the same is beyond the arena of official Statistical agencies.

1.3.6 CSO Response: *The company accounts are audited and checking the veracity/misrepresentation of facts by the company is beyond the scope of CSO*

1.3.7 In the absence of availability of timely exhaustive data, use of the available companies' data and adoption of the blow-up method is unavoidable and is the standard statistical technique. However, the issue of keeping only the active units in the frame is sine qua non and must be administratively addressed by the MCA or Ministry of Finance.



1.4 Two other issues relating to double deflation and re-basing of NAS series were also discussed. Issues raised :

1.4.1 Desirability of Double Deflation: One important suggestion by the users of economic statistics is that the CSO should use double deflation method at various compilation levels. Value added is arrived at by subtracting input from output. Since prices of input and output behave differently, it is widely accepted that both should be separately

deflated by suitable price indices. This requires construction of input price index as well as output price index. It was pointed out that if data on input prices are not adequate, adoption of double deflation may distort the results. It was suggested that if the methodology of double deflation has merit, the same should be adopted irrespective of outcomes.

1.4.2 Response of CSO officials: It was pointed out that double deflation procedure was adopted for the primary sectors, and CSO largely adopts single indicator methods for industry and services sectors, to estimate GDP at constant prices. The use of single indicator methods has been on account of inadequacy of price data on item-wise inputs. In the case of manufacturing sector as inputs account for a high proportion of output and due to limitations in the availability of price data on inputs, keeping in view the caution sounded in the SNA on the unilateral usage of double deflation method, single indicator method has been used.. It was also pointed out that methodology of deflation and basic source of data had not substantially changed in the new series.

1.4.3 Release of Rebased Lead Indicators along with NAS: When NAS new series was released, analysts/users observed that the growth rate of manufacturing sector as per NAS data had diverged from that of Index of Industrial Production (IIP). Analysts/users knew IIP was an output measure, whereas NAS provided the value added. The IIP used by analysts/users belonged to the previous base year of 2004-05. When the new IIP was released with base year 2011-12, the divergence did not appear so much compared to the previous series. It was pointed out that IIP with base year 2004-05 was the only available lead indicator for manufacturing sector at the time when NAS new series was released.

1.4.4 Response of CSO: In the 2004-05 series ASI results were used for estimating value added from manufacturing sector, and when ASI results were not available (*ASI results are available with a lag*), IIP was used. Hence for a particular year when ASI results are not available entire GVA of manufacturing sector was based on IIP. This led to a significant revision in GVA of manufacturing sector. In the 2011-12 series, on account of use of MCA data base for the private corporate sector (which is around 70% of the total GVA manufacturing), use of IIP is now reduced to just 21% of total GVA manufacturing. This has reduced the magnitude of revisions.

1.4.5 An important recommendation here is that CSO must rebase indices such as IIP, Consumer Price Index (CPI), Wholesale Price Index (WPI) and so on to the base year of NAS and release them simultaneously with new base year series.

Session II: Administrative data: Issues and challenges

1.5 In a presentation made by Shri Amey Sapre, NIPFP, some conceptual issues and data users' concerns were highlighted under three broad areas;

- Issues with MCA21 data in the context of the new Enterprise approach.
- Issues with the growing divergence between the consumption as per NSS estimates of the Household Consumption Expenditure and the NAS Private Final Consumption Expenditure (PFCE).
- Issues with revisions in GDP data

1.6 Though it was appreciated the 2011-12 base year series has greatly improved the coverage and quality of the macroeconomic aggregates, however,

as data users' in general concentrate and use a limited set of macro aggregates and thus the concerns raised broadly related to sectoral estimates, such as manufacturing, or services sector, the expenditure side of GDP, Gross Capital Formation and revisions in GDP data.

1.7 The use of MCA21 dataset for the (organized) manufacturing sector has certainly improved coverage of firms, but has led to some complications in computation and estimates.

1.7.1 On the conceptual front in the manufacturing sector, the move from the Establishment to Enterprise has led to a lot of debate. The traditional source of manufacturing sector output has been the ASI, which provided a volume based measure of economic output. However, under the enterprise approach, financial data available from the MCA is used to infer value addition at the overall 'enterprise' level, instead of a factory unit. This shift has also led to capture of services related output of the company (especially trading or financial services) which may have inflated the total output of the company. While this is not a problem per-se under the enterprise approach, the issue is whether such inclusion of services related output distorts the manufacturing sector's output in comparison to the output presented by ASI. Issues with deflator (WPI) which is being used to deflate nominal values of the manufacturing sector was also highlighted. Similar issues were also raised by Sh. Dennis Rajakumar and elsewhere in regard to the MCA21 dataset. When the PPI would be made available for use in National accounts, this would improve the quality of deflators used.

1.7.2 MCA21 dataset is also being used for preparing estimates of the organized services sector. However, the issue of coverage of companies in

each service sector compilation category has not been adequately flagged.

1.7.3 The issues with the PUC based blow-up factor were also highlighted. Since a small percentage of large (top 4000 or so) companies contribute substantially (i.e. more than 85%) to GVA in the manufacturing sector, the concern that the blow-up may lead to a possible overestimation remains to be examined. The blow-up procedure has also been discussed in detail separately and on the basis of simulation exercise (owing to non-availability of MCA data in public domain) based on random samples of PUC coverage, it was shown that PUC based blow-up may lead to overestimation.

1.7.4 The issue of identification of production costs under the enterprise approach was also raised. Under the ASI, costs associated with production can be directly identified, whereas such identification from Profit/Loss statements of companies is less precise and cumbersome.

1.7.5 One of the major challenges in using the MCA21 data is to produce state level estimates of the manufacturing sector. Since state level identifiers (i.e. statewise operations of companies) are not directly available in the MCA21, allocation of statewise GSDP of manufacturing sector has become complicated. The present method of using statewise proportions of value addition from the ASI is the only available recourse, but it may not provide representative estimates at the State level.

1.7.6 Another last issue related to MCA21 data was the identification of manufacturing firms in the dataset. Since using CIN is the only recourse available, it may lead to a possible misclassification of manufacturing firms. These concerns have been

highlighted in academic papers, but are yet to be resolved in the official data.



1.8 Some other issues, as narrated below, were also flagged;

- The growing divergence between NSS estimates of HCE and the NAS estimates of PFCE is a matter of grave concern. During discussion, the issue was also supplemented by former CSO officials that the discrepancy between NSS and NAS consumption estimates needs to be resolved. This discrepancy may be on account of several factors like understated expenditure from the NSS Consumption Expenditure Surveys owing to recall issues or social consideration, inadequate capture of higher income households etc. Also, since the NAS estimates also include the contribution of NPISH, there has been limited assessment of their contribution in explaining the divergence between component wise consumption expenditure of NAS and NSS.
- On the issue of use of double deflator, officials reiterated that in absence of a complete price vector on inputs and outputs, it might be difficult to implement the double deflation method. Also conceptually, it has been shown that double deflation may distort the results in the absence of

appropriate input price indices. Technically, it has also been shown that double deflation is more suited to sectors (or economic activities) where value addition is a substantial part of value of output, i.e. GVA is a large component of GVO. Also, theoretically, several other problems related to the requirement of a stable input-output relation have also been discussed. See Dholakia (2015) for a detailed discussion and treatment of the problem at hand.

- In the context of re-basing and the release of the NAS, it was reiterated that as per recommendations of the NSC, all related macro series ought to release simultaneously on a common base year. Such a practice will hopefully avoid confusion and data related problems for all stakeholders.
- To analyse the recall issues, it was pointed out that changes had been incorporated in the survey design to understand the impact of different recall periods on consumption expenditure. For instance, whether a 7 day recall period (particularly for food items) provides a much reliable estimate as compared to a 30 day recall period?
- Most important issue, it was pointed out, in this regard was the limited discussion on non-sampling errors that may have affected the overall quality of consumption related estimates.
- Presently, state level estimates of household consumption expenditure are not available as part of the NAS. Since preparing all components of the expenditure side may not be possible at the state level. Users' were of the view that availability of these aggregates at State level would facilitate deeper analysis.

- On revisions in GDP data, it was highlighted that while revisions at the aggregate GDP level were not large in magnitude, the successive revisions (from 1st Advance estimate to 3rd Revised Estimate) at the sectoral level are large and unpredictable. Given such revisions, it is difficult to rely on the gain predictions on the magnitude (or even the direction) of growth rates of sectors. While revisions are inherent and part of the process of compiling national accounts, the effort has been to improve precision despite severe data limitations. However, in this context, there is a need for having detailed explanatory notes for revisions. Lastly, some possible initiatives were mentioned in the course of the discussion: (i) preserving vintage data on revisions for a detailed analysis and building of revisions metrics as followed in other countries, (ii) presenting a calendar of release for state level estimates and (iii) examining the choice of physical indicators used for compiling Advance Estimates and also for subsequent estimates (physical indicators are used for extrapolation in the Revised estimates), especially after the changes in tax structure.

Session III: Other issues related to National Accounts

1.9 Participants from the RBI also presented a paper on revisions in GDP data to highlight the extent and magnitude of revisions in aggregate and sectorwise GDP. The issue was discussed in the context that Advance Estimates provide an early and preliminary assessment of the economy and thus are widely used for policy purposes (eg: setting interest rates). Thus, there are issues of subsequent large revisions in growth rates make it difficult for policy makers to make an assessment of the growth performance of the economy. There are similar issues at the state level as such series are used for

calculation of basic macro aggregates such as fiscal and revenue deficit as a percentage of GSDP.

1.10 Senior CSO officials also made two presentations to explain methodological changes incorporated in the 2011-12 series. Ms. T. Rajeswari, DDG, NAD updated users and other officers about the basic guiding principles of base year changes, changes made with respect to sectoral classification and introduction of new methods like the Effective Labor Input Method (ELI). The presentation also touched upon issues that were frequently raised in media about the problems relating to GDP estimates.

1.11 CSO response: Regarding the RBI paper on revisions it was pointed out that revisions in national accounts were as per the revision policy of national accounts depending on the availability of data sources. Any change in source data also gets reflected in the GDP estimates. Further, it was pointed out that the revision analysis done in paper was between estimates of a particular year pertaining to two different base years and as such these estimates are not comparable.

1.12 It was also highlighted that CSO prepares Advance Estimates based on several high frequency indicators and benchmarking procedures that were settled principles in the National Accounts. The Advance Estimates provide an estimate and direction of the growth of the economy two months before the end of the financial year. The estimates are compiled based on data and indicators that are available and not based on, anecdotal evidence.

1.13 Shri SVR Murthy, DDG, NAD made a detailed presentation about the methods and data sources used in the new series. He also highlighted some concerns about data limitations in the

corporate sector and emphasized that although the current practice had been in place for a long time, alternatives to the PUC based blow-up factor and identification of companies in the MCA21 dataset needs more investigation and analysis. Some of the essential points covered were;

1.14 There are considerable challenges in producing estimate for the public sector, Departmental Enterprises and autonomous enterprises. Data from such entities and budget documents is available only in a PDF format and it requires manual transcription to convert them into a usable data format. This is time consuming and cumbersome process for the CSO. Moreover, it has also been observed that, in several cases, estimates do not tally with respect to Annual Financial Statements. New processes need to be explored to facilitate use of data and compile estimates of such entities.

1.15 Progress has been made in respect to identification of companies in the MCA21 dataset. The use of MGT7/9 form has few details of products and the nature of business activities which may be useful in classification of companies. The resolution will require linking of financial statements with MGT7 form to arrive at a better classification of companies. This linking will also help in allocation of GVA to entities in case of mixed/multiple business activities.

1.16 For statewise allocation of GVA, alternative data from GSTIN, EPFO etc. can be explored to arrive at some characteristics that can be used as a measure of size. Also, survey based information of large sized companies needs to be explored for purposes of statewise allocation.

1.17 In case of the unincorporated sector, it was felt that the sample size (73rd round) was inadequate for

a state level representation and also at the compilation category level. There is lack of indicators such as IIP, ASI (HUF) which constrains the estimation and allocation issues.

1.18 Similarly senior officials also emphasized the new challenges faced by the statistical system in terms of a growing digitized economy. For instance, on E-commerce activities, information on digital transactions is available with the National Payments Corporation of India. Data availability in respect of specific e-commerce transactions need to be explored. Peer-to-Peer (consumer to consumer) transactions facilitated by web-based intermediaries like Uber, AirBnB etc. also need to be explored. On prices, quality-adjusted deflators for digital goods and services are required. In the Financial sector, transactions in emerging areas like Payments bank, credit card operations etc. also need to be captured.

1.19 Conceptually, as more consumers tend to act as producers, there is a blurring of the concept of the production boundary. In this context, internet access by households has led to blurring between household production for market purposes, own account production, consumption like self-booking of tickets for travels (air/rail/road/water), booking of hotel accommodation or movies. This needs to be appropriately incorporated in the National Accounts.



Summary of issues:

1.20 Dr. A C Kulshreshtha, Ex-ADG, NAD chairing one of the sessions, welcomed the presentations and the concerns raised by various stakeholders. Dr. G C Manna supplemented and shared several concerns on conceptual and data related issues, particularly in areas of (i) growing divergence between NSS and NAS estimates of consumption expenditure and (ii) the use of ASI based estimates and other indicators and aggregates for allocating all-India GVA to derive state wise estimates of GVA for manufacturing and other sectors of the economy.

1.21 The chair also recognized that:

- There have been growing demands on the official statistical system in terms of data requirements. However, there has also been a sense of inertia within the system to keep pace with changing requirements and adaptability to such demands. Lack of resources, staff strength and coordination with states has led to constrains on periodic surveys and overall compilation of GDP estimates. In response, it was reiterated that the CSO has been working with the states on several initiatives to meet with the requirements, especially in finalizing state level estimates.
- Other areas of national accounts statistics such as; Supply Use Tables (SUT), Flow of Funds, Sequence of Accounts, Regional Accounts, District Domestic Product, were also highlighted by the chair.
- NSS surveys have played a pivotal role in presenting the most detailed and comprehensive assessment of various Socio-economic Indicators. However, it has been reiterated that limited frequency of many surveys has been a cause of concern for various stakeholders and these issues need to be taken on priority.

Specific points related to data users' concerns, requirements and possible way forward

1.22 As an outcome of the deliberations on National Accounts, the issues and concerns which need resolving are summarized herein below:

- i. The new series of National Accounts with base year 2011-12 does not provide estimates of National Income at factor cost and which has always been considered by economists as real measure of income. It was however clarified in this regard that as per 2008 SNA, the Net National Income at market prices is considered as measure of National Income and it includes taxes less subsidies on products. Users requiring measure without tax component may make use of GVA at basic prices.
- ii. The publication 'National Accounts Statistics- Sources and Methods for the revised series' is still not available to the user to understand what exactly are the changes in the methodology and the data sources. It was pointed out that CSO had released a Brochure entitled "Changes in the Methodology and Data Sources in the new series of National Accounts" in June 2015 giving the Sources and methods used in detail.
- iii. To analyse a Revision Matrix, users can not readily find numbers of various revisions as these are not properly documented on website and there is no data bank.
- iv. A major change in the new series on data source is MCA dataset in place of the earlier ASI data. However, MCA data raises several questions, like blow-up factor, fact that a large number (more than 30%) of companies were not found available on ground, details of inputs, employment or products (or even location) are not fully available.
- v. Use of MCA data has created problems as such data for the earlier years/previous series is not available. It may be one of the reasons that back series is still not available.
- vi. Also, with this change, States are not able to prepare their GSDP estimates independently as MCA data is not available at State level.
- vii. Ways to improve the MCA data for its use in national and regional level need to be given utmost priority.
- viii. It was mentioned that quasi-corporate segment was also treated as the corporate sector as the quasi-corporate (which includes cooperatives and directory establishments) covered in the Enterprise surveys have the complete set of accounts in accordance with SNA 2008.
- ix. Estimates of Un-organized segments in manufacturing and services sectors in the new series show a significant change (even downward for certain products?). Though use of Effective Labor Input Method, to improve the quality of the GDP was appreciated, it was also pointed out that the method was not very clear to users.
- x. The difference in the estimates of NAS's PFCE and NSS's HFCE has become quite large over time. It used to be something like 20-30% in 1980's but now it is of the order of 45 per cent.
- xi. Data on trade margins is scanty, though the requirement is in respect of all products as estimates of supply are at basic prices and all uses are at purchaser's prices (market prices) and these are to be brought at same price level for the computation of PFCE, which is obtained by commodity flow approach.

- xii. Enterprise Surveys do not provide reliable estimates^{xvi}. of certain compilation categories and at State level, which is a serious problem. In such scenario preparing District level estimates is quite problematic.
- xiii. Requirement of relevant physical indicators for moving the estimates of services sector was highlighted.
- xiv. Issues of use of appropriate deflators were raised. In some cases, the constant price estimates were found to be even higher than the current price estimate^{xvii}. This normally happens when constant price estimates are estimated by volume extrapolation and volumes are growing at a higher pace and growth rate of prices of these commodities are falling in the negative zone.
- xv. IIP based advance estimates/First revised estimates of GVA and the later ASI based quick/revised estimates show a wide range of difference (even in terms of direction). Though the IIP is a measure of change in output but is used to obtain GVA in the National Accounts. It used to give rise to substantive difference in the revisions of the estimates. CSO Response: In the 2004-05 series ASI results were used for estimating value added from manufacturing sector, and when ASI results were not available (*ASI results are available with a lag*), IIP was used. Hence for a particular year when ASI results are not available entire GVA of manufacturing sector was based on IIP. This lead to a significant revisions in GVA of manufacturing sector. In the 2011-12 series, on account of use of MCA data base for the private corporate sector (which is around 70% of the total GVA manufacturing) , use of IIP is now reduced to just 21% of total GVA manufacturing. This has reduced the magnitude of revisions.
- For constant price estimates double deflation method is used for agriculture. Question as to why it is not used for manufacturing was raised. An Expert gave a presentation on the estimates of manufacturing in the ASI segment by double deflation through an exercise and showed the significant difference in the two approaches. Feasibility studies need to be undertaken in respect of the manufacturing as was the consensus. With the availability of PPI from OEA, DIPP, the procedure of double deflation could be adopted.
- Services sector Price index is still not available. The feasibility of obtaining experimental Service Price Index for certain services from DIPP, Ministry of Commerce needs to be explored.
- xviii. Sales tax data has been used to move the estimates of unorganized trade sector in past. With the introduction of the Goods and services tax(GST) GST data (trading volumes to be estimated) would be used for compiling GVA trade.
- xix. Estimates of certain services sector such as entertainment service have been based on information of the service tax. Now with the establishment of GST at present corporate growth rates are being used
- xx. Non-Profit Institutions (NPI) serving Government are accounted for with the General Government. Whereas NPI serving central government coverage is satisfactory, the coverage of NPI serving State government is not up to mark. The State governments have been requested to prepare a frame of NPIs so that estimates could be compiled for inclusion in National accounts aggregates.
- xxi. The Rangarajan Committee recommendations and other committee's recommendations on Agriculture have still not been implemented in full. Agriculture

- has substantive contribution and needs attention. Estimation process of agriculture GVA requires a lot of improvement.
- xxii. To implement SNA - 2008, recommendations the most important recommendation about the reconciliation of supply and use of all products in the Supply and Use Table (SUT) framework have not been implemented. SUT has to be taken as an integral part of compilation of GDP and sequence of accounts. CSO has prepared SUT for 2011-12 and 2012-13 but the balanced GDP derived from SUT has not been adopted for sequence of accounts. This task needs to be given priority.
- xxiii. All the changes made in the methodology and data base in the new series were explained by the producers (the CSO officers). Though the document pertaining to changes in the new methodology is available in public domain; but detail methodology i.e. “Sources and Methods” and “Back Series” are still not available.
- xxiv. Steps being taken up for improvement of estimates of GDP for the sectors of financial services and business services by finding new web based data sources were mentioned.
- xxv. More frequent information on labor force data from the ongoing Periodic Labor Force surveys (PLFS) was expected. It would, likely, help in improving services sector estimates for the unorganized segments making use of LF as the physical indicator.
- xxvi. Mention was also made of conducting annual surveys on Services sector in future based on success of 74th Round results. These surveys will however cover only organized segment of the services sector. But the problem remains for un-organized segments of services sectors where there are serious lacunae.
- xxvii. There is need to conduct surveys on NPI serving Households (NPISH) so that we have HFCE and NPISH FCE final demand categories in position and the estimates of supply and use of various products reconciled in the SUT framework. It will hopefully reduce the wide existing difference between HFCE and PFCE.

1.23 The entire proceedings were also summarized by Shri RB Barman, Chairman NSC in the concluding session who highlighted the need to revamp the statistical system in the light of changing nature of the economy and data requirements. The use of Big-Data and exploring linkages of various micro level data need to be considered so as to keep pace with the changing nature of data production and usage.



EMPLOYMENT AND UNEMPLOYMENT DATA

Session 1

2.1 In the first session there were four speakers namely Dr G.C. Manna, Ex DG, CSO; Prof. Ajit K. Ghose; Dr Alakh N. Sharma, Director, Institute for Human Development and Prof. Ravi Srivastava, JNU. The session was chaired by Shri D.P. Mondal, Director General, NSSO.

2.2 Dr G. C. Manna (Ex DG, CSO), presented his findings and conclusions based on a preliminary analysis about the level of precision in respect of Labour Force Participation Rate (15+) and Unemployment Rate (All Age-groups) that is likely to be achieved in the ongoing PLFS where it is proposed to estimate the current levels by treating the sample as the independent one even in case of urban areas where there is a 75% overlap in the sample between any two consecutive quarters.

2.3 In his study, Dr. Manna used state-wise estimates as per NSS 68th round (2011-12) as the benchmark estimates of current level parameters (p). From the allocated number of sample primary sampling units (PSUs) and number of sample households per PSU in the PLFS, likely sample number of persons (n) for the respective denominators of LFPR and UR to be netted in the PLFS has been worked out at state level. By using state-wise respective values of p and n and assuming a design effect of 2, likely level of RSE (Relative Standard Error) to be achieved in the PLFS is derived. Further, state-wise upper and lower confidence limits of estimated levels as per PLFS associated with 95% confidence level have been worked out. The adequacy of the PLFS survey design to detect specified change in the levels were also commented upon.

2.4 Broad findings are as under:

- PLFS sample size appears to be adequate for estimating state-wise LFPRs within acceptable margin of error.
- Sample size seems to be inadequate for reliable estimates of URs for most of the states.
- For a large number of states, confidence limits associated with the level parameter are likely to deviate from mean value by more than 2 percentage

point in case of LFPR and by more than 1 percentage point in case of UR.

- Survey design including the adopted sample size seems to be not capable to detect change of even 2 to 3 percentage point in case of LFPR and change of 1 percentage point in case of UR – leave apart the change of smaller dimensions which would require much larger sample sizes – for majority of the states.
- For all-India, survey design is quite robust to estimate level parameters within acceptable margin of error and also to detect even small change in the respective level parameters.

2.5 At the outset, Prof. Ajit Ghose, opined that he had been an admirer of the NSS surveys on employment and unemployment and had made extensive use of these surveys. He also stated that he had recently worked on a report (India Employment Report 2016), in which he provided detailed analysis of the current state and past evolution of employment conditions in India based on data from the NSS surveys and found the surveys to be very good, much better than the usual labour force surveys carried out in most countries of the world.



2.6 Some of the important issues emerging from his presentations are as follows:

- The standard Labour Force Surveys have been designed considering employment and labour market conditions prevailing in developed countries where employment basically means regular salaried employment (albeit there usually is a small amount of self-employment) and unemployment is excess supply of labour in relation to demand. The existence of a variety of social assistance programmes including unemployment benefit systems ensures that unemployment is affordable and that there is a minimum supply price of labour.
- Conditions are fundamentally different in developing economies such as India. Here regular salaried jobs account for a very small proportion of total employment. Much of the employment is either self-employment or casual wage employment.
- In these types of employment, there is underemployment and work-sharing. In fact, underemployment arises from work-sharing.
- Surplus labour shows up in underemployment, not in unemployment.
- In the absence of social assistance programmes, most people cannot afford to be unemployed. They must work even if the work they can find is irregular, part-time, low-productivity and low-income-yielding. That's why work-sharing exists and that's why many of the employed are poor.
- But we do have some unemployment. How does this arise? Unemployment in India represents queuing by the "young and educated" for jobs in the formal sector of the economy. Queuing involves waiting. So, the "young and educated" must be supported through the waiting period. In the absence of social

assistance programmes, the "young and educated" have to be supported by their families through the waiting period which means they come from relatively well-off families. There is no surprise here. In India, very few of the educated come from poor families.

- This is the "complex reality in a big country" that the NSS surveys had been designed to capture. That's why sophisticated sampling methods and multiple reference periods had to be used and multiple concepts of employment and unemployment had to be devised.
- NSS employment and unemployment surveys have done a remarkable job of capturing "the complex reality in a big country" that has been talked about, thereby enabling the users, to develop a good understanding of how the employment conditions in India's dualistic economy has been evolving.

2.7 Why, then, do we hear so many complaints about the inadequacies of the NSS surveys? There are three main reasons viz. frequency of surveys, presentation of results and conceptual confusion.

- Firstly, Undoubtedly, the NSS surveys, being elaborate and costly operations, have been infrequent. With occasional exceptions, surveys have been conducted every five years since the early seventies. This naturally posed problems for users;
- Secondly, it is also true that survey results were presented in forms that were not readily usable. Users looking for an overall participation rate would have to estimate it, which required quite a bit of effort. And if one wanted to know the size of the labour force, one would have to derive population figures from censuses and use these together with the detailed participation rates. Again, an additional

publication giving the estimates (already using census population) would have been helpful.

- Thirdly, there is a serious lack of understanding of the employment and labour market conditions in India among researchers in India. Many assume these are the same as those in developed countries. Since the early 1980s, the growth of labour force has been decelerating basically because of declining female participation rate, leading to decelerating growth of employment. This has been sometimes called jobless growth since the GDP growth has been accelerating during this period. Thus, there appears to be an inverse relation between GDP growth and employment growth. This has been interpreted to mean a rapidly declining employment intensity of growth while in truth, this only shows decelerating labour force growth. This shows a lack of understanding of employment and labour market conditions in India.

2.8 Even though the third kind of criticism can be ignored at official level (being beyond their control), but the first two kinds of criticisms can and should be responded to. In addition to the detailed reports, NSS should bring out publications giving estimates of certain variables in absolute numbers using census population.

2.9 Finally, the absence of high-frequency data has now led to a desperate search for such data. One result is the recent release of monthly estimates of payroll data derived from certain databases such as EFPO, ESIC and NPS. In a way, this exploratory exercise should be welcomed but the disquieting fact is that some analysts/users have shown a serious lack of understanding of what these estimates can tell us in the best of circumstances. Some such researchers even view these data as substitutes for data generated by the NSS surveys.

2.10 In the best of circumstances, these administrative sources can give us partial estimates of formal employment defined as regular employment with entitlement to some kind of social security. It was reiterated that it would only be partial estimates definitionally because enrolment is not obligatory for workers who earn an above-threshold salary. In the case of EPFO, for example, the salary threshold is Rs. 15,000 per month.

2.11 On the other hand, NSS surveys, since 1999/00, have generated data from which estimates of formal employment can be obtained with greater clarity. In addition, the PLFS should now provide the annual estimates. Payroll estimates will make comparative analysis possible, just like the estimates from the ASI. These databases, however, should be cleaned up and properly processed to produce estimates that can complement other available employment data.

2.12 Prof Alakh N. Sharma, pointed out that given the complexities of the Indian labour market, it is difficult to come out with robust indicators of employment and labour market performance like developed countries. Therefore, unemployment is not a valid indicator here and India has developed its own system of estimation of employment/unemployment based on Usual Principal Status (UPS); Usual Principal and Subsidiary Status (UPSS); Current Weekly Status (CWS) and Current Daily Status (CDS). These concepts are unique for any developing country and have more or less served well.

2.13 However, there are certain problems and limitations related to NSS Survey on Employment and Unemployment as given below:

- Issue of reliability of estimates below state level i.e. region/district level. There are even precision issues for smaller States/UTs;
- Methodological interventions through increase of sample size or otherwise including pooling of central & state sample data;
- High margin of errors associated with unemployment rates by gender even at the state level for a number of states;
- Refinements through stratification /sampling techniques;
- Tackling the issue of underestimation of population for urban areas (e.g. improving UFS frame, modifying stratification and sampling techniques etc.);
- Underestimation of workforce, particularly women workers in the informal sector (e.g. huge difference between estimates of 1999-00 and Time Use Survey of 1998-99 conducted by CSO);
- Also significant divergence between estimates of unemployment rates between different surveys (eg Unemployment estimates of NSS quinquennial round 2011-12 and Labour Bureau survey of 2011-12; and
- Some crucial indicators, pointed below, are not directly available from these surveys:
 - Out-migration
 - Activity pattern of those outside labour force
 - Quality of employment
 - Spell of unemployment
 - Earnings of Self-Employed
 - Contract Labour

2.14 Prof Ravi Srivastava, in his presentation emphasized the need for providing data as per the recommendations of 19th International Conference of Labour Statisticians (ICLS) and given the overview of the practice followed on the Labour Force Surveys (LFS) in some of the neighboring countries (Nepal, Bangladesh and Sri Lanka) in the Region. The general observation was that most countries have moved to quarterly surveys, all surveys now use Current Weekly Status (CWS); all surveys, except India, collect hours of work, at least for principal and secondary activity “for pay or profit”. Major issues with the NSS Quinquennial Rounds, apart from no survey after 2011-12, and limitations of PLFS are as follows:

NSS Quinquennial Rounds:

- Periodicity of the data (several countries, even in the region moved towards QLFS)
- Coverage of issues smaller than most countries in the region (LFS in many countries much more exhaustive in coverage of issues).
- Since 2013 and the 19th ICLS, there has been an issue of moving towards new standards in measurement which can provide deeper understanding of labour market dynamics (unaddressed in the PLFS also).

Limitations of the PLFS 2017-18:

- With the PLFS, focus has shifted to employment for pay or for profit.
- Only the first visit will provide estimates of employment across rural and urban areas (will ignore rural-urban labour flows, seasonality issues more germane to rural areas).
- Coverage of issues more restricted than the quinquennial rounds.

- Conceptual framework not consistent with 19 ICLS – even in the PLFS, hence revision in the focus and conceptual framework ignored.
- Voluntary paid and unpaid work, trainee work, work in co-operatives excluded.
- Subsidiary work on household production of goods for own use captured as non-work
- Care work (work on household production of services for own use) not captured

Session II

2.15 Shri D. Mukherjee, DDG (SDRD), NSSO after giving a brief of employment and unemployment surveys conducted so far by NSSO, apprised the status of implementation of recommendations of 19th ICLS. It was observed that the feasibility of implementation of the recommendations of 19th ICLS to the extent possible in the Labour Force surveys of NSSO is being examined and on the recommendations of Standing Committee on Labour Force Statistics (SCLFS), a Sub-Committee has been formed to identify the specific recommendations of the 19th ICLS which will be considered for inclusion in the Pilot Survey.



2.16 Position of NSSO, on the issues raised by the data users, is summarised below:

- (i) District level estimates: NSSO sample size does not permit presentation of reliable estimates at the district level. The sample sizes so designed for the surveys of the NSSO are the modest in nature and are fixed in such a way that it is possible to get some usable estimates at the national and State level.
- (ii) Underestimation of Population: Differences could perhaps be partly due to the difference in geographical coverage and coverage of segments of population. Census generally covers the entire geographical area of the country. However, in NSS some areas are usually not covered because of the operational difficulties. NSS also excludes the certain categories of persons from its coverage e.g., persons residing in barracks of military and paramilitary forces, Orphanages, rescue homes, ashrams, vagrant houses, floating population having no normal residences, convicted prisoners undergoing sentence etc. Difference could also be due to non-sampling errors. Certain measures have been taken in 76th round to tackle these issues.
- (iii) Difference with Time Use Survey: Users mentioned that there is difference in labour force statistics available from the Employment & Unemployment survey of NSS with that of obtained from the Time Use Survey conducted during 1998-1999. It was also observed that CSO conducted a pilot survey on time disposition, popularly known as Time Use Survey during the year 1998-99 through the State Directorate of Economics & Statistics in 6 selected states namely Haryana, Madhya Pradesh, Gujarat, Orissa, Tamil Nadu and Meghalaya. Since the scope and coverage of the survey was limited in nature, it may not be appropriate to compare the findings of TUS with those of EUS which is known to provide robust estimate at all India level.

- (iv) Difference with Labour Bureau Survey: Labour Bureau has been conducting annual Employment-Unemployment survey since 2010. The concepts and definitions used in this survey for measurements of the labour force are similar to those used by the NSS. However, information on various aspects of the labour force is collected from persons of age 15 years and above in these surveys by Labour Bureau whereas NSSO in its employment-unemployment surveys collect information for all the household members.
- (v) Data on contract labour, earnings from self-employed and migration: Users pointed out that data on contract labour, earnings from self-employment and migration are not available from EUS of NSSO. It was therefore clarified that:
- a) Contract labour: The National Statistical Commission (NSC), considered the proposal of the Ministry of Labour & Employment to conduct the survey on contract labour and decided to constitute a Working Group to suggest the methodology for the survey. The Report of the Committee was considered by the NSC. It was felt that definitional clarity on contract labour is much needed to measure it and recognized that there could be alternative approaches. While it may be true that none of the approaches would be complete for the purpose in view, it would be necessary to identify the most appropriate one or a combination thereof to address the issue. The NSC desired that the NSSO may experiment different approaches in the field and come out with the findings.
- b) Earnings from self-employed: Traditionally earning from wage and salaries are collected in EUS. However in PLFS, earnings from self-employment are also collected.
- c) Migration: Data on internal migration has been collected by the National Sample Survey as part of its enquiries on employment and unemployment in its 38th round, 43rd round, 49th round, 55th Round and 64th Round.
- vi. Limitation of PLFS: Users stated that recently launched PLFS is limited in coverage of issues. Information on disability, occupational health, main job etc., are not available from PLFS. Further PLFS does not implement ILO's recommendation of 19th ICLS. The objective of PLFS is to measure the dynamics in labour force participation and employment status in the short time interval of three months for the urban areas only in the Current Weekly Status (CWS). Thus, in every quarter, PLFS will bring out the level and change estimates of the key labour force indicators in CWS viz. Worker Population Ratio (WPR), Labour Force Participation Rate (LFPR), Unemployment Rate (UR). The SCLFS committee took a conscious decision to keep the schedule of enquiry of PLFS small in the initial years. Provisions have been made in the schedule to integrate various topics as separate module in future. Further, SCLFS is already examining issues related to the ILO's recommendation of 19th ICLS. Conducting a pilot survey to take care of various recommendations of the 19th ICLS is also under consideration.
- vii. Data on child labour: Demand for data on child labour has been discussed on different occasions. It is generally acknowledged that the format of the employment and unemployment surveys of NSSO (including PLFS) may not be suitable to collect data on child labour and it requires a specialised focused survey to collect data on child labour.

2.17 Shri Himmat Singh Raghav, Director, Labour Bureau in his presentation apprised of the details of the three main surveys conducted by Labour Bureau

related to Employment and Labour Force indicators. Keys features in respect of these surveys are:

(i). Annual Employment-Unemployment Survey (Periodicity: Annual, Type: Household survey): In order to fill the data gap for ascertaining the Employment-Unemployment Scenario in the country, Labour Bureau has been entrusted by the Ministry the task of conducting Employment-Unemployment (EUS) surveys on annual basis. So far, five annual employment-unemployment surveys have been conducted by Labour Bureau for the years 2010-11, 2011-12, 2012-13, 2013-14 & 2014-15 and reports of all five surveys have been released. The field work of Sixth Annual Employment Unemployment Survey has been completed and data processing is in progress.

(ii) Quarterly Employment Survey (Periodicity: Quarterly, Type: Establishment survey): The main objective of new series of Quarterly Employment Survey (QES) is to measure relative change in employment situation over successive quarters in sizeable segment of Non-Farm Industrial economy. QES collects information on the employment as on 1st day of respective quarter in which the survey is conducted (i.e. data is collected as on 01st April 2016 for the field survey period 01 April to 30 June), in respect of number of males/females, full-time & part-time, regular, contract and casual employment by economic activity. The sample size, at the beginning of the survey was around 10,600 units which has been further increased to around 11,000.

However, to get a more realistic picture of Employment scenario in the country, the expert Group on QES felt a strong need to extend coverage of QES (which covers approximately 1.4% of establishment as per 6th EC) to the Establishments with less than 10 employments (remaining 98.6 % of establishments). Since there is no readily

available sampling frame for Establishments with less than 10 employments, The Expert Group has recommended Area Frame Survey for estimation of employment in establishment with less than 10 workers in 7000 First Stage Units (3500 Villages & 3500 Urban Blocks). The total sample size of proposed survey would be around 126000-140000 establishment (7000 FSU X 18 to 20 Establishment per FSU).

(iii) Estimation of Employment Generation under PMMY: The main objective of the Survey is the Estimation of Employment generation under Pradhan Mantri MUDRA Yojna (PMMY). PMMY survey is an establishment survey to collect the information on generation of employment in different sectors broadly categorized as Manufacturing, Services, Allied agriculture, Trading and any other sectors which have been assisted under the PMMY. Under PMMY, at all India level, nearly 5000 branches of Public/Private Sector Banks and MFIs, as First Stage Units (FSU), have been selected and about 1.25 Lakh beneficiaries, as Ultimate Stage Units (USU) would be covered (out of about 10 crore beneficiary accounts under MUDRA). Under PMMY survey, Statewise estimates will be generated for only 25 States, which combined were covering nearly 99% of accounts as well as 99% of Loan amount sanctioned under PMMY.

2.18 Shri Mahesh Vyas, from CMIE, presented the unemployment statistics based on the CMIE panel survey. The high frequency data provides estimates on a weekly, monthly and annual basis. The survey is similar to the NSS's EUS but has only a single question on the status of employment. The results on LFPR and unemployment rates were similar to the NSS's latest available survey. This being a novel experiment by a business concern, several questions

were raised on the methodology and execution of the survey. Questions related to recall period, selection of households, data validation, scaling up of estimates, reliability and error margins and retention of respondents were also raised. However, most of the questions could not be addressed and answered in detail owing to paucity of time. However, emphasis on the execution of the survey, data validation and retention of respondents was reiterated and required more discussion.

Suggestions/Recommendations:

2.19 The multifaceted deliberations on the Employment-Unemployment data led to the following suggestions:

- (i) Underestimation of population: There is an urgent need to look into this issue because in absence of any empirical evidence that ratios are more reliable (than aggregates), users may not be very confident about the aggregates derived from ratios;
- (ii) Methodology for deriving aggregates: Whether the population figures at aggregate level of Population Census (i.e. Rural/Urban; Male/Female) should be used for deriving aggregate estimates or age-specific population should be used;
- (iii) Utility of usual status approach: In view of the definition followed, there is a very strong relationship between labour force and work force estimates. Therefore, the question is whether really any fruitful conclusion can be drawn from UPS estimates;
- (iv) Precision of Estimates: It was suggested that statistical precision of estimates was only necessary and may not be sufficient in dealing with the overall quality of the estimates. Since statistical precision is only limited to numerical estimates that may guide policy, the overall quality of survey must be equally emphasized with regard to non-sampling errors,

coverage, inclusion of questions in the schedule and frequency;

- (v) Presentation of Results: Users suggestion that detailed tables at times complicates matters for users and simple descriptive statistics of important indicators can be put in a smaller supplementary publication may be considered by NSSO;
- (vi) Visible and Invisible Underemployment: The problem is measurement of visible and invisible underemployment and not of open unemployment; but the present definitions followed in NSS can not adequately capture visible and invisible underemployment, which is one of the main causes of poverty/working poor. Therefore, there is a need to re-look into the definitions followed.

3.0 Concluding Session: Users as well as producers highly appreciated the efforts made by the NSSTA, MoSPI for organizing this workshop which has given an opportunity to all stakeholders to express their views which is certainly not only be helpful for improving the data quality; but also in understanding the nuances of official statistics to users. All participants emphasized the need of holding such works at very frequent intervals covering the various topics related to entire official statistics.



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List of Participants

S.No	Name	Designation	Address	Contact	Email
1	Dr.R.B Barman Chairman	Chairman (NSC)	A1/1006,Riddhi Malad(E) Garden,Film City Road Mumbai- 400097 ®	Tel(O):29967938M ob:9820059122	barmanrb@gmail.com
2	Shri P. C. Mohanan	Member(NSC)	NSC Secretariat, 308, 3rd Floor, C Wing, Pushpa Bhawan, New Delhi-110062 (O)	Mob:9818203488	pc.mohanan@nic.in
3	Sh. Rajiv Lochan	Director General (SS)	MoSPI, New Delhi	Tel(O):26172836	r.lochan@nic.in
4	Sh. D.P. Mondal	Director General (NSSO)	D-Block,1st Floor, Sankhiyiki Bhawan, GPOA Building at CBD Shahdara, Near Karkardooma Court, Delhi-110032	Tel(O):22388152	dp.mondal@gov.in
5	Dr. G.C.Manna	Ex-DG,	MoS&PI, CSO, New Delhi	9560647111	gc.manna1@gmail.com
6	Dr. A. C. Kulshreshtha	Ex-ADG,	NAD	9560155946	ackulshreshtha@yahoo.com
7	Shri J Dennis Raja Kumar	Economic Analyst	EPW		
8	Dr. Ajit Ghose	Visiting Professor	Institute for Human Development NIDM Building, IIPA Campus Indraprastha Estate, New Delhi -110002	011-23358166, 011-23321610	ghose.ajit@gmail.com , ghosh.ajit@gmail.com
9	Dr. Amey Sapre	Consultant	National Institute of Public Finance and Policy 18/2, Satsang Vihar Marg, Special Institutional Area, New Delhi, Delhi 110067	011-26563688, 011-26569780	amey07@gmail.com

10	Dr. Alakh N. Sharma	Ex- Professor and Director	Institute for Human Development NIDM Building, IIPA Campus Indraprastha Estate, New Delhi -110002		alakh.sharma@ihindia.org
11	Prof. Ravi Srivastava	Professor	Jawaharlal Nehru University Centre for the Study of Regional Development, School of Social Sciences.	011-26704103	ravi@jnu.ac.in
12	Sh. Mahesh Vyas	Managing Director & CEO	Centre for Monitoring Indian Economy Pvt Ltd., 26, KG Marg, Atul Grove Rd, Janpath, Barakhamba, New Delhi, Delhi 110001	011-65003972, 65003973, 74/75	lkotak@cmie.com , mahesh@cmie.org
13	Sh. Debabrata Mukhopadhyay	Deputy Director General	MoSPI, NSSO, SDRD, Kolkata	9432310077	dmkjee@yahoo.com
14	Sh. Himmat Singh Raghav	Director	Labour Buruau, Chandigarh		
15	Ms. Urmila Chatterjee	Economist	Poverty and Equity Global Practice The World Bank 70, Lodi Estate, New Delhi	011-41479296	uchatterjee@worldbank.org
16	Ms. Barbo E. Hexeberg	Lead Economist	World Bank		
17	Ms. Rinku Murgai	Lead Economist	World Bank		rmurgai@worldbank.org
18	Mr. Jose Pablo Valdez Martinez	Senior Economist	World Bank		
19	Sh. Sanjib Bordoloi	Director	Dept. of Statistics & Information Management RBI, Mumbai		
20	Sh. Sanjay Singh	Assistant Adviser	Dept. of Statistics & Information Management RBI, Mumbai		
21	Ms. Purnima Shaw	Research Officer	Dept. of Statistics & Information Management RBI, Mumbai		
22	Sh. Avdesh Kumar Shukla	Assistant Adviser	Dept. of Statistics & Information Management RBI, Mumbai		
23	Sh. Kunal Priyadarshi	Manager	RBI, Mumbai		

24	Shri Amitabha Panda	Additional Director General	MoSPI	Tel(O):22388158Mob:9433503962	a.panda@gov.in
25	Sh. Vijay Kumar	Additional Director General	M/o Finance., D/o Economic Affairs , New Delhi	9968307356	kumar.vijay9@gov.in
26	Sh. Tapas Kumar Saha	Additional Director General	Mahalanobish Bhavan, 164 G.L.T. Road, Kolkata 700108	Tel(O):033-25771265(Fax):033-25771025	tk.saha59@gov.in
27	Shri Pravin Srivastava	Additional Director General	MoSPI, CSO, New Delhi	Tel(O):23341867	pravin.srivastava@nic.in
28	Shri Rakesh Kumar	Additional Director General	MoSPI, NSSO, FOD, New Delhi	Tel(O):22388155	hq.del-fod@gov.in
29	Sh. Tarun Kanti Basu	Additional Director General	Coordination Division, CSO, Sardar Patel Bhawan. 4th Floor, Sansad Marg, New Delhi-110001	9422083506 Tel(O):23361080	tk.basu94@gov.in
30	Sh. Tapas Kumar Sanyal	Additional Director General	SDRD, NSSO, Kolkata	9051320222	tk_sanyal@yahoo.co.in
31	Sh. Harbinder Singh	Additional Director General	MoSPI, NSSO, FOD, ZO, Kolkata	9815539525	hs1958lb@gmail.com
32	Dr. Vidya Dhar	Additional Director General	MoSPI, NSC	9968280449	vidyadhar@nic.in
33	Sh.S.M. Mahajan	Additional Director General	M/o WR, RD & GR, New Delhi	011-24691080	adg-mowr@nic.in
34	Sh. Asit Kumar Sadhu	Chief General Managaer	National Highway Authority of India, New Delhi	9968306528	asitsadhu@yahoo.co.in , ak.sadhu.ak@gmail.com
35	Sh. Sunil Jain	Deputy Director General	MoSPI, CSO, PSD, New Delhi	9868868640	suniljain@nic.in
36	Sh. P.K. Mukhopadhyay	Deputy Director General	M/o MSME, O/o DC, MSME, Nirman Bhawan, New Delhi	9818234379, 011-23061277	pranav60@yahoo.com , pranab.mukhopadhyay@gov.in , snd.dcmsme@gov.in
37	Sh. Vidya Prakash	Deputy Director General	MoSPI, NSSO, FOD, HQ, New Delhi	011-23386908	vp_58@yahoo.com
38	Smt. G.S. Lakshmi	Deputy Director General	MoSPI, CSO, ESD, New Delhi	9899536611, 26188462	lakshmi.g@nic.in
39	Sh. E.V. Gangadhar Rao	Deputy Director General	MoSPI, NSSO, FOD, RO, Vijaywada	949003025	vinkatag.rao@gov.in , ro.rpr-fod@nic.in
40	Smt. S. Krishnamurthy	Deputy Director General	MoSPI, NSSO, FOD, ZO, Bengaluru	9868502665	sanhya_k123@yahoo.co.in
41	Sh. Ashok Kumar Toprani	Deputy Director General	MoSPI, NSSO, FOD, RO, Mumbai	022-27669232	ashok_toprani@rediffmail.com
42	Sh. Naresh Kumar Sharma	Deputy Director General	MoSPI, NSSO, DPC, Ahmedabad	070-29700660	nareshkr.sharma@nic.in
43	Sh. Madan Mohan	Deputy Director General	D/o Higher Education, M/o Human Resource Development, New Delhi	9971035557	mmohan.edu@nic.in

44	Sh. Rakesh Kumar Kamra	Deputy Director General	D/o Chemicals and Petrochemicals, M/o Chemical & Fertilizer, New Delhi	9868271662, 011-23386752	rk.kamra.ddg@gov.in
45	Sh. Ahamed Ayub B	Deputy Director General	MoSPI, NSSO, FOD, RO, Bengaluru	9449853173, 08025630646	aayub@nic.in
46	Sh. Awadesh Kumar Mishra	Deputy Director General	MoSPI, NSSO, FOD, ZO, Lucknow	9818861162	ak.mishra@nic.in
47	Smt. Gopa Chattopadhyay	Deputy Director General	MoSPI, NSSO, SDRD, Kolkata	9433443403	gopa_chattopadhyay@gov.in
48	Sh. Sanjay Kumar	Deputy Director General	MoSPI, NSSTA, Greater Noida	9818295620	sanjay.kumar61@nic.in
49	Sh. Shanker Lal Menaria	Deputy Director General	MoSPI, NSSO, FOD, ZO, Jaipur	9414500016, 0141-2223985	slmenaria@yahoo.com , ZO.NZ-FOD@nic.in , fodnz2000@yahoo.com
50	Dr. S Durai Raju	Deputy Director General	MoSPI, NSSO, FOD, RO, Chennai	044-28270072, 26870656	sdurai@nic.in , ro.chn.fod@nic.in
51	Shri Soumendra Chattopadhyay	Deputy Director General	MoSPI, DPD, Kolkata		soumendra.chattopadhyay@gov.in
52	Shri Sudip Ray	Deputy Director General	MoSPI, NSSO, SDRD, Kolkata		
53	Smt. T. Rajeshwari	Deputy Director General	MoSPI, NAD, CSO, New Delhi	Tel(O):23744211	traji1962@yahoo.com
54	Shri S.V.R. Murthy	Deputy Director General	MoSPI, NAD, CSO, New Delhi		
55	Sh. T.R. Sreenivas	Deputy Director General	NTI, Bengaluru		
56	Sh. Krishnamurthy Maiya	Deputy Director General	NSSO, DPC, Bengaluru		
57	Sh. Dilip Kumar Sinha	Director	MoSPI, CSO, PSD, New Delhi		
58	Sh. Nagesh Kumar Singh	Director	MoSPI, NAD, CSO, New Delhi		
59	Sh. Brijendra Singh	Director	MoSPI, NAD, CSO, New Delhi		
60	Dr. Rajeswari Kasturi	Joint Director	NSSO, DPC, Bengaluru		
61	Ms. Ankita Singh	Joint Director	MoSPI, NAD, CSO, New Delhi		
62	Sh. Raushan Kumar Chaudhary	Joint Director	MoSPI, NSSTA, Greater Noida	8902293811	raushanbhu64@yahoo.in
63	Sh. S.O. Narayanappa	Joint Director	Directorate of Economics & Statistics, Bengaluru		
64	Sh. Arvind Kumar	Deputy Director	MoSPI, NSSTA, Greater Noida	9910443672	arvind.kumar84@nic.in
65	Sh. Pavan Kumar	Deputy Director	MoSPI, NSSTA, Greater Noida	9871243181	pavan.kr@nic.in
66	Sh. Gajendra Soni	Deputy Director	MoSPI, NSSTA, Greater Noida	9993090125	gajendrasoni@live.com
67	Sh. P.K. Santhosh	Deputy Director	NSSO, FOD, Bengaluru		

68	Sh. Ranga Srinivasalu	Deputy Director	NSSO, DPC, Bengaluru		
69	Sh. Rony Jose Kokkad	Assistant Director	NSSO, FOD, Bengaluru		
70	Sh. Gunji Prasanna Kumar	Assistant Director	NSSO, FOD, Bengaluru		
71	Sh. B.Karibasappa	Assistant Director	NSSO, FOD, Bengaluru		
72	Sh. Ajay Kumar Yadav	Junior Statistical Officer	MoSPI, NSSTA, Greater Noida	9236040908	mr.ajaykumaryadav@live.com

Awareness Workshop on Challenges and Issues with Data in Official Statistics

Day 1: Session 3

On Issues Related to National Accounts

Dr. A.C. Kulshreshtha

Former ADG, CSO and Faculty UN SIAP

ackulshreshtha@yahoo.com

**Workshop conducted by
National Statistical Systems Training Academy (NSSTA)**

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Outline: **Issues related to National Accounts - Challenges**

- Reconciliation of Supply and Use at national level
- Balanced GDP at national level through SUT
- Supply and Use Table (SUT) Framework
- Data Issues
- Limitations of Regional SUT
- Regional SUT- Issues
 - Interpretation of Exports, Imports,
 - Data availability on HFCE, NPISH FCE, GFCE, GFCF, CIS,
 - GSDP at factor cost and market prices
 - TTM, Taxes/ subsidies on products matrices
- Concluding Remarks

Reconciliation of Supply and Use at national level

- GDP can be estimated through **Production Approach** as
$$\text{GDP}_{\text{mp}} \equiv \text{GVO}_{\text{bp}} - \text{IC} + \text{product (t-s)} + (\text{t-s}) \text{ on imports}$$
- GDP can be estimated through **Expenditure Approach** as
$$\text{GDP}_{\text{mp}} \equiv \text{PFCE} + \text{GFCE} + \text{GCF} + \text{X} - \text{M}$$
$$\text{GCF} = \text{GFCF} + \text{CII} + \text{Acquisition less disposal of valuables}$$
- GDP obtained through the two approaches do not tally, have discrepancies
- Reconciled GDP in Supply Use Table is **Balanced GDP** required for compiling sequence of income accounts

Account 1: Gross Domestic Product and Expenditure

1.1	Net domestic product at factor cost (3.6)	1.6	Government Final Consumption Expenditure (3.1)
1.2	Consumption of fixed capital (5.6)	1.7	Private Final Consumption Expenditure (3.2)
1.3	Indirect taxes (3.9)	1.8	Gross Fixed Capital Formation (5.1.1)
1.4	Less Subsidies (3.10)	1.9	Change in Stocks (5.1.2)
		1.10	Exports of goods and services (6.1)
		1.11	Less Imports of goods and services (6.7)
		1.12	<i>Discrepancies</i>
1.5	Gross domestic product (1.13)	1.13	Expenditure on GDP (1.5)

Account 3: National Disposable Income and its Appropriation

3.1	Govt. Final Consumption Expenditure (1.6)	3.6	Net domestic product at factor cost (1.1)
3.2	Private Final Consumption Expenditure (1.7)	3.7	Compensation of employees from ROW, net (6.2-6.8)
3.3	Saving (5.5)	3.8	Property and entrepreneurial income from ROW, net (6.3-6.9)
3.4	<i>Statistical discrepancies</i>	3.9	Indirect taxes (1.3)
		3.10	Less Subsidies(1.4)
		3.11	Other current transfers from ROW, net (6.4-6.10)
3.5	Appropriation of National Disposable Income (3.12)	3.12	National Disposable Income (3.5)

Account 5: Capital Finance

5.1	Gross Capital Formation	5.5	Domestic saving (3.3)
5.1.1	Gross Fixed Capital Formation (1.8)	5.6	Consumption of fixed capital (1.2)
5.1.2	Change in Stocks (1.9)	5.7	Capital transfers from the ROW, net (6.15)
5.1.4	<i>Errors and Omissions</i>		
5.2	Purchase of intangible assets from ROW, net (6.18)		
5.3	Net lending from the ROW, net (6.20-6.16)		
5.4	Gross accumulation (5.8)	5.8	Finance of Gross accumulation (5.4)

Account 6: External Transactions

	Current transactions		
6.1	Exports of goods and services (1.10)	6.7	Imports of goods and services (1.11)
6.2	Compensation of employees from ROW (3.7)	6.8	Compensation of employees to ROW (3.7)
6.3	Property and entrepreneurial income from ROW (3.8)	6.9	Property and entrepreneurial income to ROW (3.8)
6.4	Other current transfers from ROW (3.11)	6.10	Other current transfers to ROW(3.11)
6.5	<i>Adjustment of merchandise exports to the change of ownership basis</i>	6.11	<i>Adjustment of merchandise imports to the change of ownership basis</i>
		6.12	Surplus of the nation on current accounts
6.6	Current receipts (6.1-6.5)	6.13	Disposal of current receipts
	Capital transactions		
6.14	Surplus of the nation on current accounts	6.18	Purchase of intangible assets from ROW, net (5.2)
6.15	Capital transfers from the ROW (5.7)	6.19	Capital transfers to the ROW (5.7)
6.16	Net incurrence of foreign liabilities (5.3)	6.20	Net acquisition of foreign financial assets (5.3)
6.17	Receipts	6.21	Disbursements

Sequence of Accounts

	Uses	Resources
Production Account	Intermediate Consumption	Output, of which: Market output; Output for own final use and Non-market output
		(Taxes-subsidies) on products and imports
	GVA / GDP (B1)	

	Uses	Resources
Generation of income Account		GVA / GDP (B1)
	Compensation of employees	
	(Taxes – subsidies) on production and imports	
	Mixed income(B3) +Operating surplus (B2)	

	Uses	Resources
Primary Distribution of Income		Mixed income (B3) +Operating surplus (B2)
		Compensation of employees
		(Taxes – subsidies) on production & imports
	Property Income payable	Property Income receivable
	Gross National Income (B5)	

	Uses	Resources
Secondary Distribution of Income		Gross National Income (B5)
	Taxes on income and wealth payable	Taxes on income and wealth receivable
	Social contributions and other social benefits payable	Social contributions & other social benefits receivable
	Other current transfers payable	Other current transfers receivable
	Gross National Disposable Income (B6)	

Sequence of Accounts (Contd.)

	Uses	Resources
Use of disposable Income Account		Gross National Disposable Income (B6)
	Final Consumption Expenditure, of which: Household FCE; NPISHs and Government FCE	
	Adjustments for households pension funds payable	Adjustments for households pension funds receivable
	Gross Saving (B8)	

	Changes in Assets	Changes in Liability and Net Worth
Capital Account		Gross Saving (B8)
	Gross Fixed Capital Formation	Capital transfers receivable minus capital transfers payable
	Change in Inventories	
	Acquisition less disposal of valuables	
	Acquisition less disposal of non-produced non-financial assets	
	<u>Minus</u> CFC	
	Net Lending /Borrowing (B9)	
Financial Account		Net Lending /Borrowing (B9)
	Net acquisition of financial assets	Net incurrence of liabilities
	Net Lending /Borrowing (B9)	

Supply and Use Tables (SUT)

- An integrated part of SNA
- Interrelationship of industries in an economy with respect to the production and uses of their products as well as imports and exports
- Each industry listed across the top in Two tables
 - depicting outputs produced in the **Supply table**
 - depicting inputs that are consumed in the **Use table**
- SUT is compilation tool for data checking and reconciliation, data gaps filling, and to get balanced GDP

Structure of supply table in SUT

A Simplified Supply Table							
Supplies	Industries					ROW	Total
	1	2	3	...	n	(2)	(3)
Product 1	Output by product and industry					Imports by products	Total supply by product at basic prices
Product 2							
Product 3							
Product 4							
·							
·							
·							
·							
Product m							
Total	g_1	g_2	g_3	...	g_n	Total imports	Total supply
	Total output by industry at basic price						

Structure of use table in SUT

A Simplified Use Table					
Uses	Industries	ROW	Final Consumption	Gross Capital Formation	Total
	1 2 3 n				
Product 1 Product 2 Product 3 . . .	Intermediate consumption by product and by industry	Exports by product	Final consumption expenditure by product	Gross capital formation by product	Total use by product at purchaser's prices
Product m					
Primary inputs GVA	$V_1 V_2 V_3 \dots V_n$				
Total	$g_1 g_2 g_3 \dots g_n$ Total inputs by industry				

Reconciliation of Supply and Use at national level

Supply of products at basic prices from Supply Table is converted to purchaser's price by adding trade transport margins and (t-s) on products, *net* of subsidies and is used as a check to reconcile the total uses (row total) in the Use Table

Use Table

To	Inter Industry Use						Final Use					Product Supply
	1	2	. . j	. . n	PFCE	GFCE	GFCF	CIS	Export			
Industry Products												
Product 1	X_{11}	X_{12}	. . X_{1j}	. . X_{1n}	C_1	G_1	F_1	S_1	E_1	q_1		
Product 2	X_{21}	X_{22}	. . X_{2j}	. . X_{2n}	C_2	G_2	F_2	S_2	E_2	q_2		
. Product i	X_{i1}	X_{i2}	. . X_{ij}	. . X_{in}	C_i	G_i	F_i	S_i	E_i	q_i		
. Product n	X_{n1}	X_{n2}	. . X_{nj}	. . X_{nn}	C_n	G_n	F_n	S_n	E_n	q_n		
Primary Inputs	V_1	V_2	. . V_j	. . V_n								
Industry Output	g_1	g_2	g_j	g_n	C	G	F	S	E	X		

Reconciliation of Supply and Use at national level

- Since PFCE is compiled following **commodity flow method**, for all household consumable products, reconciliation is cool
- Since GFCF by assets is compiled following **commodity flow method**, for all capital asset products, reconciliation is cool
- Since basic materials used in construction are compiled following **commodity flow method**, for those basic material products, reconciliation is cool
- Products like crude, mineral ores that are used totally in the concerned industry and thus reconciliation is cool
- CSO has since prepared SUT for 2011-12 and 2012-13 successfully. Balanced GDP obtained for sequence of accounts

Data Issues

- Final Use:
 - HFCE, NPISH FCE,
 - GFCE,
 - GFCF and CIS

- Intermediate Use:
 - ASI / MCA data for Manufacturing
 - Enterprise Survey data
 - IIP and Services Index
 - TTM

Regional SUT Issues:

Interpretation of Exports, Imports

- In Regional SUT
 - Exports could be to other regions within the country or to other countries
 - Imports could be from other regions within the country or from other countries
- In open economy for a region exports/ imports information is not readily available with the official statistical system
- Special surveys needed to obtain such information of export/ import for a region
- One possible way out to deal with could be to treat net export as a residual category of final use assuming domestic output of goods alone as firm. For services which are not traded, reconcile supply and use of the product.

SUT for a Region

To Industry Products	Inter Industry Use						Final Use					Product Output
	1	2	...	j	...	n	PFCE	GFCE	GFCF	CIS	Net Export	
1	X_{11}	X_{12}	...	X_{1j}	...	X_{1n}	C_1	G_1	F_1	S_1	NE_1	q_1
2	X_{21}	X_{22}	...	X_{2j}	...	X_{2n}	C_2	G_2	F_2	S_2	NE_2	q_2
...
i	X_{i1}	X_{i2}	...	X_{ij}	...	X_{in}	C_i	G_i	F_i	S_i	NE_i	q_i
...
n	X_{n1}	X_{n2}	...	X_{nj}	...	X_{nn}	C_n	G_n	F_n	S_n	NE_n	q_n
Primary Inputs	V_1	V_2	...	V_j	...	V_n						
Industry Output	g_1	g_2	...	g_j	...	g_n	C	G	F	S	NE	X

Regional SUT Issues (Contd.):

Data availability on Final Consumption Expenditures

- HFCE of a region could be obtained making use of Household Consumption Expenditure Survey by NSSO
- FCE of NPISH is not available in the present official statistics
- PFCE (HFCE and NPISHFCE together) by commodity flow method, followed at national level, is not possible at regional level since information on net export is also not available
- NPISHFCE need to be estimated using Economic Census and Enterprise survey data
- GFCE doable through budget analysis, taking central government expenditure allocation for the State
- Care need to be taken for local bodies consumption as also the NPISH serving Government

Regional SUT Issues (Contd.):

Data availability on Gross Capital Formation(GCF)

- GCF comprises GFCF, CIS and Valuables
- Most States compile estimates of GFCF, but only for public sector
- Private/ corporate sector data at State level, still a challenge
- Greater effort needed to compile GFCF by type of assets
- CIS estimate is not readily available for regions. One possible way out could be to also include CIS in the residual category of final uses
- Information on net acquisition of valuables is scanty

Regional SUT Issues (Contd.):

TTM, Taxes/ subsidies on products matrices

- Taxes on products, and Subsidies on products are required for converting supply of products which are at basic prices to producer's prices
- Trade matrix and Transport margins are required for converting the above supply of products at producer's prices to purchaser's prices
- Supply of products from Supply Table converted to purchaser's prices is used to reconcile with the total uses (row totals) in Use Table
- Use Table is at purchaser's prices. For obtaining Use Table at basic prices we would need the taxes/ subsidies on product matrices, and trade-transport margin matrices

Feasibility for estimating Balanced GDP at regional level

- Reconciliation of Supply of products obtained from *Supply Table* and total Use generated in *Use Table*, is feasible for all service sectors as they are neither traded nor have CIS.
- Importantly services sectors account for major share (about 69% in terms of GDP) of output
- For goods producing sectors reconciliation is possible for certain sectors like crude, mineral ores, etc.,
- For remaining the supply may be treated as firm. Validity checks may be done using auxiliary information from national SUT
- The proposed methodology for construction of Regional SUT is feasible and thus the feasibility of estimating Balanced GDP at regional level

Concluding Remarks

- Reconciliation of supply and use of various products at Regional (State) level is necessary for implementing 2008 SNA recommendations on GDP,a challenge!
- Once SUT exercises at regional level are undertaken, Balanced GDP at regional level will follow
- Priority need to attached for compilation of GFCF at regional level. To start with public sector part as firm and the rest even by allocation would help the system
- NPISHFCE compilation work needs attention of both researchers and official statisticians
- Regional SUT will help regional balanced GDP and thus possibility of income accounts at regional level

New National Accounts Series:

An Exploratory Exposition

by

J Dennis Rajakumar

(EPWRF Research Foundation,
Mumbai)

Introduction

- India's National Accounts Statistics (NAS) is one of the most massive statistical exercises undertaken in the world.
- A rough back calculation shows that it has more 3,000 data sources: administrative statistical reporting and periodical survey data; again more than 300 such surveys.
- New Series of NAS with 2011-12 as base year, announced on 30th January, 2015.
- The year 2011-12 is not only most recent but also coincide with the Employment and Unemployment Survey (NSSO 68th round)

Introduction

- Guidelines of SNA 2008 mostly followed resulting in far changes
- Some methodological corrections done in January 2016 revision
- Size of savings and investment gone up in the new series (though declining as % of income).
- National income has gone up and its growth rate show a pick up

Introduction

In analyzing these data, the national economy is divided into eight sectors for regular reporting of data:

1. Agriculture (including livestock), forestry & fishing;
2. Mining & quarrying;
3. Manufacturing;
4. Electricity, gas, water supply & other utility services;
5. Construction;
6. Trade, hotels, transport, communication and services relating to broadcasting; (now trade and hotels separated)
7. Financial, insurance, real estate & professional services; (now financial services separated)
8. Public administration, defense and other services (now other services separated).

Total GVA

Under each of them, there are many sub-sectors for gathering data and GVA compilation; data are also reported for 13 sub-sectors which are further sub-divided for compilation purposes.

Features of Base Year Revision

Fundamentally the shift in the **base period implies measuring output at base level prices.**

Opportunities are taken to expand the data base; to introduce new products into the data coverage: agriculture, industrial products, IT items, etc.

Introduction

There are five macro segments of NAS for which regular data are published:

1. GVA,GDP, NDP, NNP & national income concepts;
2. Domestic Savings;
3. Domestic Capital Formation (or investment);
4. Domestic Consumption
5. Capital Stock

There are also data compiled for (i) input-output tables; & (ii) Flow-of-Funds of the Indian Economy.

Method used for estimation:

1. Production method
2. Income method
3. Expenditure method

Features of Latest Revision

Shift in the base, from 2004-05 to 2011-12

The revision has taken place

- Methodology followed for data compilation
- Data presentation
- Data sources

A close look suggests they are mostly pertaining to

- Corporate Sector data;
- Data for the Government sector;
- Changes in the factor income method for the informal Sector

Radical changes introduced in NAS latest revision

- a) Conceptual changes*
- b) Classificatory changes at sectoral level*
- c) Improvements in coverage of sectors*
- d) Methodological changes in compilation*

Conceptual changes

“GDP as a statistical indicator has a limited purpose, which is to describe and quantify the process of value addition in the economy”(CSO)

GDP at factor cost has been discontinued

income based and *not based on output with observable vector of prices*

Introduction of Gross Value Added (GVA) at basic prices

Gross Domestic Product (GDP) at market prices as GDP

Savings rate to be worked as GS as percentage of Gross Disposable National Income

Conceptual change: Reporting of Income under SNA 2008

1. GVA at Factor Cost (earlier GDP at fc)

2. Add: Production Taxes

(Land revenue, stamps and regn fees, professional taxes)

3. Less: Production subsidies

(to railways, input subsidies to farmers, to village and cottage industries, etc)

4. GVA at Basic Price (1+2-3)

5. Add: Product Taxes

(Excise duties, sales taxes, customs duties , service taxes)

6. Less: Product subsidies

(Food, petroleum and fertilizer; interest subsidies to farmers and HHs , etc)

7. GDP at market price (4+5-6)

Conceptual change: GVA at Basic Price

GVA at Basic Price =

Compensation of Employees

+ Operating Surplus/Mixed Income

+ Consumption of Fixed Capital

+ Production Taxes *less* Production Subsidies

GVA at Factor Cost=

GVA at Basic price

– Production Taxes *less* Production Subsidies

Classificatory changes at sectoral level

Separate estimates of various aggregates for institutional sectors for the first time in the Indian NAS because
“intrinsic difference in their economic objectives, functions and behaviour”

non-financial

financial corporations

general government

Refinement in the coverage of institutional categories

Classificatory changes

Institutional categories

Public sector

Public Financial Corporations (Dept and Non-dept)

Public Non-financial Corporations (Dept and Non-dept)

General Government

Private corporate sector

Private Financial Corporations

Private Non-financial Corporations

Household

GVA at basic price by institutional categories: Earlier no such reporting (SNA 1993 and 2008 recommended)

Savings and capital formation are available based on above categories

Improvements in coverage of sectors

- *Separation of quasi-corporations from the household sector and adding them to the corporate sector*
 - Use of MCA 21 e-governance data for a comprehensive set of over 5.5 lakh companies instead of the RBI sample study of around 4,500 companies
 - And blowing up based on the paid-up capital estimates for the sector as a whole
- A substantially improved coverage of local bodies and autonomous institutions under the General Governance
- Financial corporations to cover a number of capital market enterprises

Methodological changes in compilation

Shifting to the enterprise approach from the establishment approach

head office operations have been allocated to the non-financial corporations in the mining and manufacturing sectors

Adoption of effective labour input method instead of the bland labour input method (LI method) for a majority of unincorporated enterprises

Scope of capital formation have been broadened
intellectual capital and cultivated biological resources added

Changes in Methodology ...

Of the informal sector:

Hitherto through the labour input method

Based on enterprise surveys of NSS, an average value added per worker is taken.

Then total labour input (total of usual and subsidiary activity of workers engaged in the activity) is computed from Employment and Unemployment Surveys. Labour input is also projected for the period between two surveys.

Then: Workforce is multiplied by the average value added per worker to arrive at GVA in that industry

Now: Effective Labor Input Method has been adopted

It gives due weights to different categories of workers such as owners, hired workers and helpers

Changes in Methodology ...

Gross Capital Formation (GCF)

Gross Fixed Capital Formation

- 1) Dwellings, Other Buildings & Structures
- 2) Machinery & Equipment
- 3) Cultivated Biological Resources
- 4) Intellectual Property Products (intellectual capital - investments in R&D; mineral exploration; database and software and other IPPs)

Changes in Stock

Valuables (now attributed to physical savings of HH sector)

Consumption of Fixed Capital

Changes in Methodology

Of the Government sector:

- Local bodies which were captured on a sample basis are now being captured on complete account basis for 60-70 per cent.
- The work is in progress to extend it to close to 100 per cent.
- This was a big change, due to which government accounting improved enormously.

Methodological changes in compilation

A few other important changes

FISIM based on the Reference Rate approach

Output of RBI treated as non-market at cost

Estimates for the unorganised financial services based on specific field surveys rather than the blanket 1/3rd approach.

Method of estimation that did not change

- Commodity flow approach to estimates of capital formation
- Residual approach to household sector
- Blow up factor

Implications

Application of MCA 21 as the primary source for corporate resulted in:

- Aggregate GDS and GCF gone up;
- Sizable upward revision in corporate savings and GCF;
- Due to residual method, household sector's GCF declined and therefore the sector's savings;
- Sectoral GVA of mining and manufacturing gone up

Implications

Application of MCA 21 ...

- Sectoral GVA of trade has gone down because of trade of manufacturing companies now treated as part of manufacturing

This is due to the change from establishment concept to enterprise concept

Have these impacted NAS numbers?

Analysis of level, growth rates and sectoral shares:

Percentage differences (for example, 2011-12)

$$= \frac{\text{Estimates for 2011-12}_{2011-12 \text{ series}} - \text{Estimates for 2011-12}_{2004-05 \text{ series}}}{\text{Estimates for 2011-12}_{2004-05 \text{ series}}}$$

Point differences in Growth rate (for example, 2012-13)

$$= \text{Estimated growth for 2012-13}_{2011-12 \text{ series}} \\ \textit{minus} \text{ Estimated growth for 2012-13}_{2004-05 \text{ series}}$$

Relative share

Expenditure component to GDP

Sectoral GDP to total

Institution-wise savings and investment to total

Overlapping years:

For base years 2011-12 and 2004-05: 2011-12, 2012-13 and 2013-14

For base years 2004-05 and 1999-2000: 2004-05, 2005-06, 2006-07, 2007-08

Percentage differences in national income aggregates (at current prices)

Aggregates	2004-05 series over 1999-2000 series				2011-12 series over 2004-05 series		
	2004-05	2005-06	2006-07	2007-08	2011-12	2012-13	2013-14
GDP at factor cost	3.3	3.3	4.6	6.0	-3.5	-2.0	-0.9
NDP at factor cost	4.0	4.3	5.8	7.5	-4.4	-2.8	-1.2
GNP at factor cost	3.3	3.3	4.5	6.2	-3.5	-2.1	-1.0
NNP at factor cost	4.1	4.3	5.7	7.6	-4.4	-2.9	-1.4
GDP at basic prices					-5.0	-3.7	
NDP at basic prices					-6.1	-4.6	
GDP at market prices	2.9	3.0	4.0	5.6	-3.0	-1.6	-0.7
NDP at market prices	3.6	3.8	5.0	6.8	-3.8	-2.3	-1.1
GNP at market prices	3.0	3.0	4.0	5.7	-3.1	-1.6	-0.8
NNP at market prices	3.6	3.9	4.9	7.0	-3.9	-2.3	-1.2
Gross national disposable income	2.9	2.9	4.0	5.6	-3.0	-1.6	-0.7
Net national disposable income	3.5	3.7	5.0	6.8	-3.7	-2.2	-1.0
Private final consumption expenditure	4.2	4.6	7.3	9.4	-4.5	-1.8	0.4
Govt. final consumption expenditure	4.9	6.9	5.2	7.1	-5.6	-10.7	-14.0
Gross domestic capital formation	5.2	0.6	0.6	3.0	5.5	8.5	9.5
Net domestic capital formation	9.1	2.7	2.6	6.0	5.9	10.2	13.1
Exports of goods & services	0.0	0.0	-1.3	1.9	-0.3	0.5	1.3
Imports of goods & services	0.0	0.0	-0.2	4.4	-0.2	0.0	-1.1
Gross domestic saving	5.3	0.6	0.7	3.2	7.2	10.6	
Net domestic saving	9.3	2.8	2.8	6.4	8.5	13.7	
Consumption of fixed capital	-2.8	-4.4	-4.2	-4.9	4.2	4.3	2.1
GFCF	3.9	0.7	0.0	2.3	4.8	8.1	11.0
Changes in stock	35.7	10.0	35.0	18.3	21.3	24.1	-3.7
Valuables	0.0	0.0	0.0	0.0	2.6	2.7	-4.4

Point differences in growth rate between latest and previous series at current prices

Aggregates	2004-05 series over 1999-2000 series			2011-12 series over 2004-05 series		
	2005-06	2006-07	2007-08		2012-13	2013-14
	At current prices					
GDP at factor cost	0.0	1.5	1.6		1.7	1.4
NDP at factor cost	0.3	1.6	1.9		1.8	1.8
GNP at factor cost	0.0	1.4	1.8		1.7	1.3
NNP at factor cost	0.3	1.5	2.1		1.8	1.7
GDP at basic prices					1.6	
NDP at basic prices					1.7	
GDP at market prices	0.0	1.2	1.7		1.7	1.0
NDP at market prices	0.3	1.3	2.0		1.8	1.4
GNP at market prices	0.0	1.1	1.9		1.7	0.9
NNP at market prices	0.3	1.2	2.2		1.8	1.3
Gross national disposable income	0.0	1.3	1.7		1.6	1.0
Net national disposable income	0.2	1.4	2.0		1.8	1.4
Private final consumption expenditure	0.4	2.9	2.2		3.2	2.4
Government final consumption expenditure	2.2	-1.8	2.0		-6.3	-4.2
Gross domestic capital formation	-5.6	0.1	2.8		3.1	0.9
Net domestic capital formation	-7.7	-0.1	4.1		4.2	2.5
Exports of goods & services	0.0	-1.7	3.6		0.9	0.9
Imports of goods & services	0.0	-0.2	5.1		0.3	-1.1
Gross domestic saving	-5.5	0.2	2.9		3.4	
Net domestic saving	-7.5	0.0	4.3		5.0	
Consumption of fixed capital	-1.9	0.2	-0.8		0.1	-2.4
GFCF	-3.8	-0.8	2.7		3.4	2.8
Changes in stock	-30.4	26.1	-19.3		2.3	-24.4
Valuables	0.0	0.0	0.0		0.2	⁷⁵ -4.5

Point differences in growth rate between latest and previous series, at constant prices

Aggregates	2004-05 series over 1999-2000 series			2011-12 series over 2004-05 series		
	2005-06	2006-07	2007-08		2012-13	2013-14
	At constant prices					
GDP at factor cost	0.0	-0.2	0.3		0.9	1.7
NDP at factor cost	-0.1	-0.2	0.3		1.0	2.1
GNP at factor cost	-0.2	-0.3	0.4		1.5	1.8
NNP at factor cost	-0.2	-0.3	0.5		1.7	2.2
GDP at basic prices					0.9	
NDP at basic prices					0.9	
GDP at market prices	0.0	-0.4	0.7		0.9	1.6
NDP at market prices	-0.1	-0.4	0.8		1.0	1.9
GNP at market prices	-0.2	-0.5	0.9		0.9	1.5
NNP at market prices	-0.2	-0.6	0.9		1.0	1.8
Private final consumption expenditure	1.5	2.2	0.9		0.3	1.9
Government Final Consumption Expenditure	2.7	-1.7	2.2		-5.6	-3.4
Gross domestic capital formation	-3.3	0.2	3.5		1.8	1.4
Net domestic capital formation	-5.4	0.2	4.6		2.5	2.6
Exports of goods & services	8.5	-0.8	3.8		1.8	-0.7
Imports of goods & services	-8.5	-3.0	3.3		-0.6	-5.6
Consumption of fixed capital	0.2	-0.2	0.2		0.5	-0.4
GFCF	-1.4	-0.7	3.3		4.1	3.5
Changes in stock	-35.3	26.2	-20.3		5.2	-20.2
Valuables	0.6	-1.3	0.2		-33.1	-10.6

Point differences in the annual variations in deflators: Latest series over previous series

Aggregates	2004-05 series over 1999-2000 series			2011-12 series over 2004-05 series	
	2005-06	2006-07	2007-08	2012-13	2013-14
GDP at factor cost	0.1	1.5	1.1	0.7	-0.5
NDP at factor cost	0.3	1.6	1.4	0.7	-0.4
GNP at factor cost	0.2	1.5	1.2	0.0	-0.6
NNP at factor cost	0.5	1.7	1.5	-0.1	-0.6
GDP at basic prices				0.6	
NDP at basic prices				0.7	
GDP at market prices	0.1	1.4	0.9	0.7	-0.7
NDP at market prices	0.3	1.6	1.1	0.7	-0.6
GNP at market prices	0.2	1.5	0.9	0.7	-0.7
NNP at market prices	0.4	1.6	1.1	0.8	-0.6
Private final consumption expenditure	-1.0	0.6	1.2	2.8	0.3
Government final consumption expenditure	-0.6	0.0	-0.3	-0.2	-0.5
Gross domestic capital formation	-1.8	-0.1	-0.7	1.1	-0.6
Net domestic capital formation	-1.7	-0.2	-0.6	1.5	-0.2
Exports of goods & services	-7.2	-0.7	-0.4	-0.9	1.5
Imports of goods & services	5.9	2.4	1.5	0.8	5.3
Consumption of fixed capital	-1.9	0.3	-1.0	-0.4	-1.8
GFCF	-2.0	-0.1	-0.6	-0.9	-0.9
Changes in stock	3.6	-1.9	1.2	-3.6	-3.2
Valuables	-0.6	1.2	-0.2	25.9	9.4

Percentage differences in sectoral GDP (at current prices)

Sectors	2004-05 series over 1999-2000 series				2011-12 series over 2004-05 series		
	2004-05	2005-06	2006-07	2007-08	2011-12	2012-13	2013-14
Agriculture, forestry & fishing	2.4	1.9	5.4	6.9	3.0	5.2	2.6
Mining & quarrying	0.3	-0.1	0.7	6.3	15.7	27.7	31.6
Manufacturing	-0.1	0.4	2.8	3.9	13.0	18.2	26.2
Electricity, gas & water supply	4.6	5.5	8.1	10.2	41.5	40.8	28.5
Construction	7.5	1.7	1.0	3.4	12.1	10.9	13.2
Trade, hotels & restaurant	3.5	6.0	7.8	8.9	-40.1	-35.9	-31.6
Transport, storage & communication	2.3	1.8	0.7	-1.3	-11.0	-11.6	-9.0
Financing, insurance, real estate & business services	7.9	9.0	11.9	16.4	8.0	7.3	5.4
Banking & insurance	1.9	2.0	2.1	4.1	-0.3	-2.3	
Real estate, ownership of dwellings & business services	12.2	13.6	18.6	24.8	12.5	12.3	
Community, social & personal services	2.1	1.9	-0.7	-0.8	-11.4	-13.6	-14.3
Public administration & defence	0.7	-0.1	-2.2	0.6	-1.4	-4.0	
Other services	3.1	3.4	0.3	-1.8	-18.9	-20.7	
GDP at factor cost	3.3	3.3	4.6	6.0	-3.5	-2.0	-0.8
Agriculture	2.4	1.9	5.4	6.9	3.0	5.2	2.6
Industry	2.3	1.1	2.4	4.3	14.7	18.3	22.8
Services	4.1	5.0	5.6	6.7	-14.6	-13.8	-12.2

Point differences in the sectoral growth between latest and previous series, at current prices

Sectors	2004-05 series over 1999-2000 series				2011-12 series over 2004-05 series	
	2005-06	2006-07	2007-08		2012-13	2013-14
	At current prices					
Agriculture, forestry & fishing	-0.5	3.7	1.6		2.4	-2.9
Mining & quarrying	-0.4	0.9	6.1		10.4	3.0
Manufacturing	0.5	2.9	1.3		4.9	6.9
Electricity, gas & water supply	0.9	2.6	2.1		-0.6	-11.3
Construction	-6.8	-0.8	2.7		-1.2	2.3
Trade, hotels & restaurant	2.8	2.1	1.1		7.7	7.3
Transport, storage & communication	-0.6	-1.3	-2.2		-0.8	3.2
Financing, insurance, real estate & business services	1.1	3.1	4.5		-0.8	-2.1
Banking & insurance	0.0	0.2	2.1		-2.3	
Real estate, ownership of dwellings & business services	1.5	5.1	5.9		-0.2	
Community, social & personal services	-0.1	-3.0	-0.1		-2.9	-0.9
Public administration & defence	-0.8	-2.3	3.1		-2.9	
Other services	0.3	-3.5	-2.4		-2.6	
GDP at factor cost	0.0	1.5	1.6		1.7	1.4
Agriculture	-0.5	3.7	1.6		2.4	-2.9
Industry	-1.4	1.6	2.2		3.4	4.0
Services	1.0	0.6	1.2		1.1	2.0

Point differences in the sectoral growth between latest and previous series, at constant price						
Sectors	2004-05 series over 1999-2000 series				2011-12 series over 2004-05 series	
	2005-06	2006-07	2007-08		2012-13	2013-14
	At constant prices					
Agriculture, forestry & fishing	-0.7	0.2	0.9		0.2	-0.7
Mining & quarrying	-3.6	-1.4	0.4		2.4	3.9
Manufacturing	1.0	2.5	2.1		5.1	6.5
Electricity, gas & water supply	2.0	4.0	3.0		0.3	-1.9
Construction	-3.4	-1.5	0.7		-0.5	3.1
Trade, hotels & restaurant	1.9	0.7	0.0		5.7	6.9
Transport, storage & communication	-3.1	-3.7	-3.0		0.9	2.6
Financing, insurance, real estate & business services	1.2	0.2	0.2		-1.4	-2.1
Banking & insurance	1.6	0.3	1.3			
Real estate, ownership of dwellings & business services	1.4	0.9	-0.1			
Community, social & personal services	0.0	-2.9	0.1		-1.3	-1.1
Public administration & defence	-0.6	-2.1	3.4			
Other services	0.5	-3.4	-2.2			
GDP at factor cost	0.0	-0.2	0.3		0.9	1.8
Agriculture	-0.7	0.2	0.9		0.2	-0.7
Industry	-0.5	1.2	1.6		2.7	4.7
Services	0.3	-1.2	-0.6		0.9	1.5

Point differences in the annual variations in deflators: Latest series over previous series

Sectors	2004-05 series over 1999-2000 series			2011-12 series over 2004-05 series		2011-12 series over 2004-05 series (Jan 2015)	
	2005-06	2006-07	2007-08	2012-13	2013-14	2012-13	2013-14
Agriculture, forestry & fishing	0.3	3.4	4.0	1.9	0.0	1.3	-2.0
Mining & quarrying	3.2	5.3	10.7	7.8	6.8	6.5	-2.1
Manufacturing	-0.5	-0.4	-1.2	-0.4	-0.2	-0.6	0.9
Electricity, gas & water supply	-1.1	-2.4	-3.3	-0.8	-7.8	-7.5	-13.0
Construction	-2.6	-1.9	-0.3	-0.6	-1.5	-0.7	-0.3
Trade, hotels & restaurant	0.7	1.8	2.8	1.3	1.3	1.3	0.1
Transport, storage & communication	2.2	4.5	5.3	-1.6	-1.1	-1.9	0.7
Financing, insurance, real estate & business services	-0.1	2.4	6.3	0.6	0.8	2.4	0.2
Banking & insurance	-1.3	-1.4	-0.7	0.0		4.6	
Real estate, ownership of dwellings & business services	0.1	3.6	9.1	0.4		0.7	
Community, social & personal services	-0.1	0.0	-0.2	-1.4	-1.1	-2.1	0.7
Public administration & defence	-0.2	-0.2	-0.7	-0.8		-0.9	
Other services	-0.2	0.0	0.0	-1.7		-3.1	
GDP at factor cost	0.1	1.5	2.6	0.6	0.2	0.5	-0.3
Agriculture	0.3	3.4	4.0	1.9	0.0	1.3	-2.0
Industry	-0.8	-0.5	-0.1	0.4	-0.4	-0.4	-0.8
Services	0.6	2.2	3.8	0.1	0.5	0.5	0.6

Sectoral shares (in%) in total GDP at current prices, in 2004-05 and 2011-12

Sectors	2004-05			2011-12		
	1999-2000 series	2004-05 series	Difference	2004-05 series	2011-12 series	Difference
Agriculture, forestry & fishing	19.2	19.0	-0.2	17.9	19.1	1.2
Mining & quarrying	2.9	2.9	-0.1	2.7	3.2	0.5
Manufacturing	15.8	15.3	-0.5	14.7	17.2	2.5
Electricity, gas & water supply	2.1	2.1	0.0	1.6	2.4	0.8
Construction	7.4	7.7	0.3	8.2	9.5	1.3
Trade, hotels & restaurant	16.0	16.1	0.0	17.4	10.8	-6.6
Transport, storage & communication	8.5	8.4	-0.1	7.3	6.8	-0.6
Financing, insurance, real estate & business services	14.1	14.7	0.6	16.5	18.4	2.0
Banking & insurance	5.8	5.8	-0.1	5.7	5.9	0.2
Real estate, ownership of dwellings & business services	8.2	9.0	0.7	10.7	12.5	1.8
Community, social & personal services	14.0	13.8	-0.2	13.8	12.6	-1.1
Public administration & defence	6.0	5.9	-0.2	5.9	6.1	0.1
Other services	8.0	8.0	0.0	7.8	6.6	-1.3
GDP at factor cost	100.0	100.0	0.0	100.0	100.0	0.0
Agriculture	19.2	19.0	-0.2	17.9	19.1	1.2
Industry	28.2	27.9	-0.3	27.2	32.3	5.1
Services	52.6	53.0	0.4	54.9	48.6	-6.3

Correlation between sectoral shares in 2004-05 series and 1999-2000 series = 0.999

82

Correlation between sectoral shares in 2011-12 series and 2004-05 series = 0.901

Expenditure components of GDP at current prices (in %), in 2004-05 and 2011-12

Items	2004-05			2011-12		
	1999-2000 series	2004-05 series	Differences	2004-05 series	2011-12 series	Differences
Private Final Consumption Expenditure	58.4	59.1	0.7	57.1	56.2	-0.9
Government Final Consumption Expenditure	10.7	10.9	0.2	11.4	11.1	-0.3
Gross Capital Formation	31.6	32.5	0.8	36.4	39.6	3.2
Gross Fixed Capital Formation	28.4	28.7	0.3	31.8	34.3	2.6
Changes in stocks	1.9	2.5	0.6	1.9	2.4	0.5
Valuables	1.3	1.3	0.0	2.7	2.9	0.2
Exports of goods and services	18.1	17.6	-0.5	23.9	24.5	0.7
Less Imports of goods and services	19.9	19.3	-0.6	30.2	31.1	0.9
Discrepancies	1.0	-0.8	-1.8	1.5	-0.3	-1.8
Total	100.0	100.0	0.0	100.0	100.0	0.0

Percentage differences in savings and capital formation (at current prices)

Institutions	2004-05 series over 1999-2000 series				2011-12 series over 2004-05 series	
	2004-05	2005-06	2006-07	2007-08	2011-12	2012-13
	Gross Fixed Capital Formation					
Public Sector	11.0	8.3	8.2	2.0	0.3	-11.6
Private Corporate Sector	-1.4	2.1	1.1	12.3	15.5	36.8
Household Sector	4.4	-5.1	-6.3	-8.6	0.2	1.9
Total	3.9	0.7	0.0	2.3	4.8	8.1
	Gross Capital Formation					
Public Sector	10.9	7.9	8.2	3.0	-5.4	-12.7
Private Corporate Sector	-1.1	1.8	2.1	15.1	26.7	46.2
Household Sector	9.1	-2.9	-0.4	-9.8	-2.3	-2.1
Total	5.9	1.4	2.6	3.8	5.7	9.0
	Gross Savings					
Public Sector	8.0	2.5	10.9	17.1	20.8	17.7
Private Corporate Sector	0.2	0.2	-1.1	12.5	25.6	39.1
Household Sector	6.5	0.5	-0.1	-2.8	0.5	1.0
Financial saving	3.3	4.1	0.3	4.9	-1.1	-0.7
Saving in physical assets	9.1	-2.9	-0.4	-9.8	-4.7	-4.6
					-(2.3)	-(2.1)
Total	5.3	0.6	0.7	3.2	6.0	9.4
					(7.2)	(10.6)

Figures in brackets percentage changes including valuables

Gross savings rate (at current prices)

Items	2004-05			2011-12		
	1999-2000 series	2004-05 series	Differences	2004-05 series	2011-12 series	Differences
	As % of Gross National Disposable Income					
Public Sector	2.1	2.2	0.1	1.2	1.5	0.3
Private Corporate Sector	6.6	6.4	-0.2	7.1	9.2	2.1
Household Sector	22.3	23.1	0.8	22.2	23.0	0.8
Financial Saving	9.9	9.9	0.0	6.8	7.2	0.3
Saving in Physical Assets	12.4	13.2	0.8	15.4	15.5	0.1
Total	31.0	31.7	0.7	30.6	33.8	3.2
(Household savings in Valuables)					0.4	
	As percentage to total					
Public Sector	6.9	7.1	0.2	3.9	4.4	0.5
Private Corporate Sector	21.2	20.2	-1.0	23.3	27.3	4.0
Household Sector	71.8	72.7	0.8	72.7	68.2	-4.5
Financial Saving	31.8	31.2	-0.6	22.4	21.2	-1.2
Saving in Physical Assets	40.0	41.5	1.5	50.4	45.9	-4.5
Total	100.0	100.0	0.0	100.0	100.0	0.0
(Household savings in Valuables)					1.1	

Investment rate (at current prices)

Items	2004-05			2011-12		
	1999-2000 series	2004-05 series	Differences	2004-05 series	2011-12 series	Differences
As % of GDP at market prices						
Gross Fixed Capital Formation						
Public Sector	6.4	6.9	0.5	7.1	7.3	0.2
Private Corporate Sector	9.5	9.1	-0.4	9.4	11.2	1.8
Household Sector	12.5	12.7	0.2	15.2	15.7	0.5
Total	28.4	28.7	0.3	31.8	34.3	2.6
Gross Capital Formation						
Public Sector	6.9	7.4	0.5	7.7	7.5	-0.2
Private Corporate Sector	10.8	10.3	-0.4	10.1	13.2	3.1
Household Sector	12.7	13.4	0.8	15.8	15.9	0.1
Total	30.3	31.2	0.9	33.6	36.7	3.0
As percentage to total						
Gross Fixed Capital Formation						
Public Sector	22.5	24.1	1.5	22.3	21.4	-0.9
Private Corporate Sector	33.5	31.8	-1.7	29.7	32.7	3.0
Household Sector	44.0	44.2	0.2	48.0	45.9	-2.1
Total	100.0	100.0	0.0	100.0	100.0	0.0
Gross Capital Formation						
Public Sector	22.7	23.8	1.1	23.0	20.5	-2.4
Private Corporate Sector	35.5	33.1	-2.4	30.1	36.1	6.0
Household Sector	41.8	43.1	1.3	46.9	43.4	-3.6
Total	100.0	100.0	0.0	100.0	100.0	0.0

Key aggregates of national accounts (Base Year 2011-12)

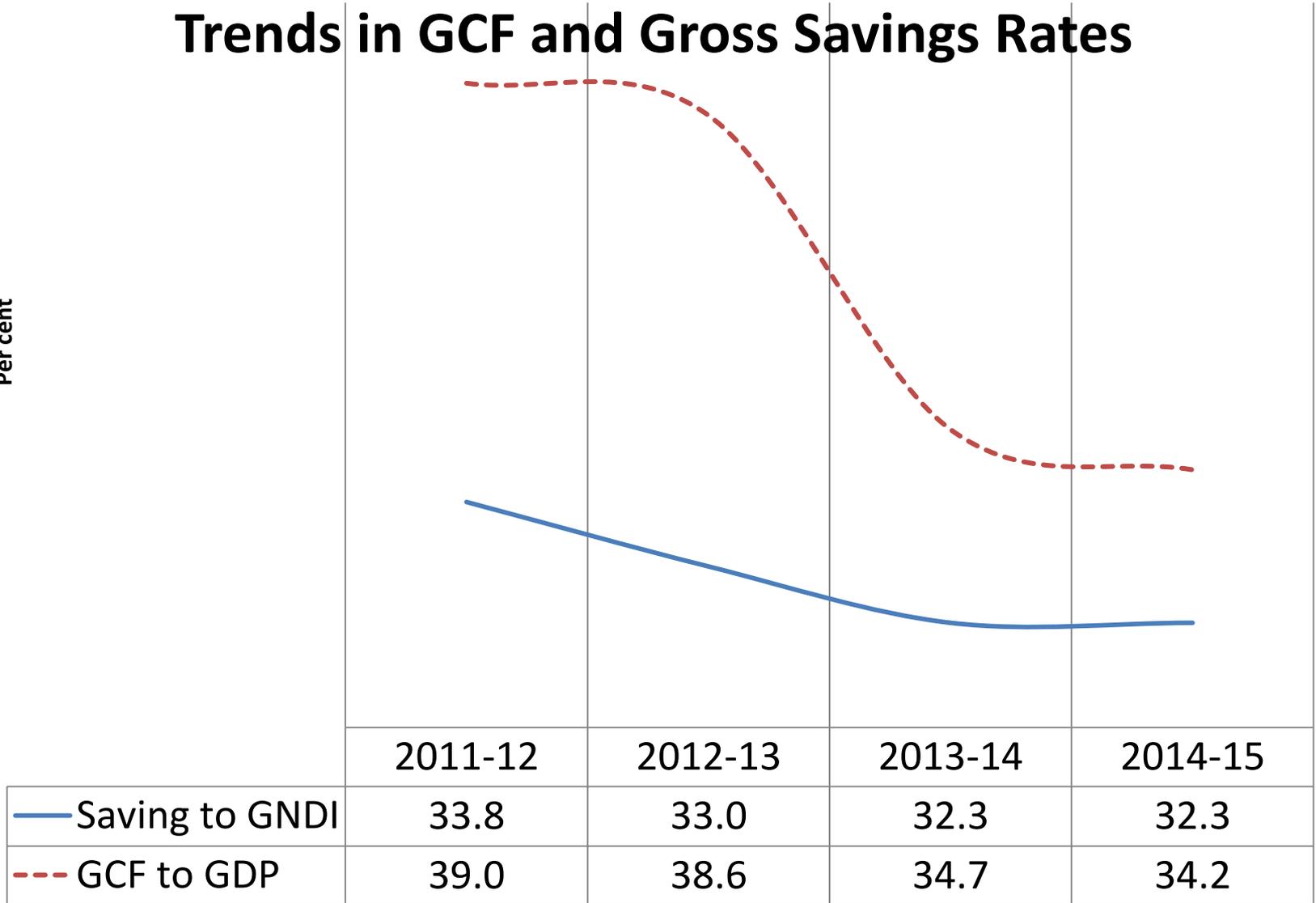
Item	At Constant (2011-12) Prices					At Current Prices				
	2011-12	2012-13	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16
GROWTH RATES										
GVA at factor cost		5.4	6.5	7.1			13.5	12.9	10.6	
GVA at basic prices		5.4	6.3	7.1	7.2		13.6	12.7	10.5	7.0
Taxes on Products		9.5	5.3	8.0	7.5		18.9	13.5	12.4	19.4
Subsidies on Products		12.7	-7.9	4.8	-5.6		21.5	-2.3	8.1	-5.7
GDP at market prices		5.6	6.6	7.2	7.6		13.9	13.3	10.8	8.7
Consumption of Fixed Capital		10.0	9.2	8.3	7.2		15.6	13.1	11.2	8.7
PFCE		5.3	6.8	6.2	7.4		15.5	14.8	10.5	12.3
GFCE		0.5	0.4	12.8	2.2		9.6	8.6	18.4	5.4
GCF of which:		6.8	-1.9	6.3			12.9	1.8	9.3	
GFCF		4.9	3.4	4.9	3.9		10.8	7.3	7.9	3.3
Exports of goods and services		6.7	7.8	1.7	-5.2		13.8	17.0	0.2	-5.4
Imports of goods and services		6.0	-8.2	0.8	-2.8		14.5	2.6	1.3	-5.6
GNDI							13.6	13.2	10.6	8.5
Gross Saving							11.2	10.7	10.5	
Net Saving							9.3	9.6	10.2	

Key aggregates of national accounts (Base Year 2011-12)

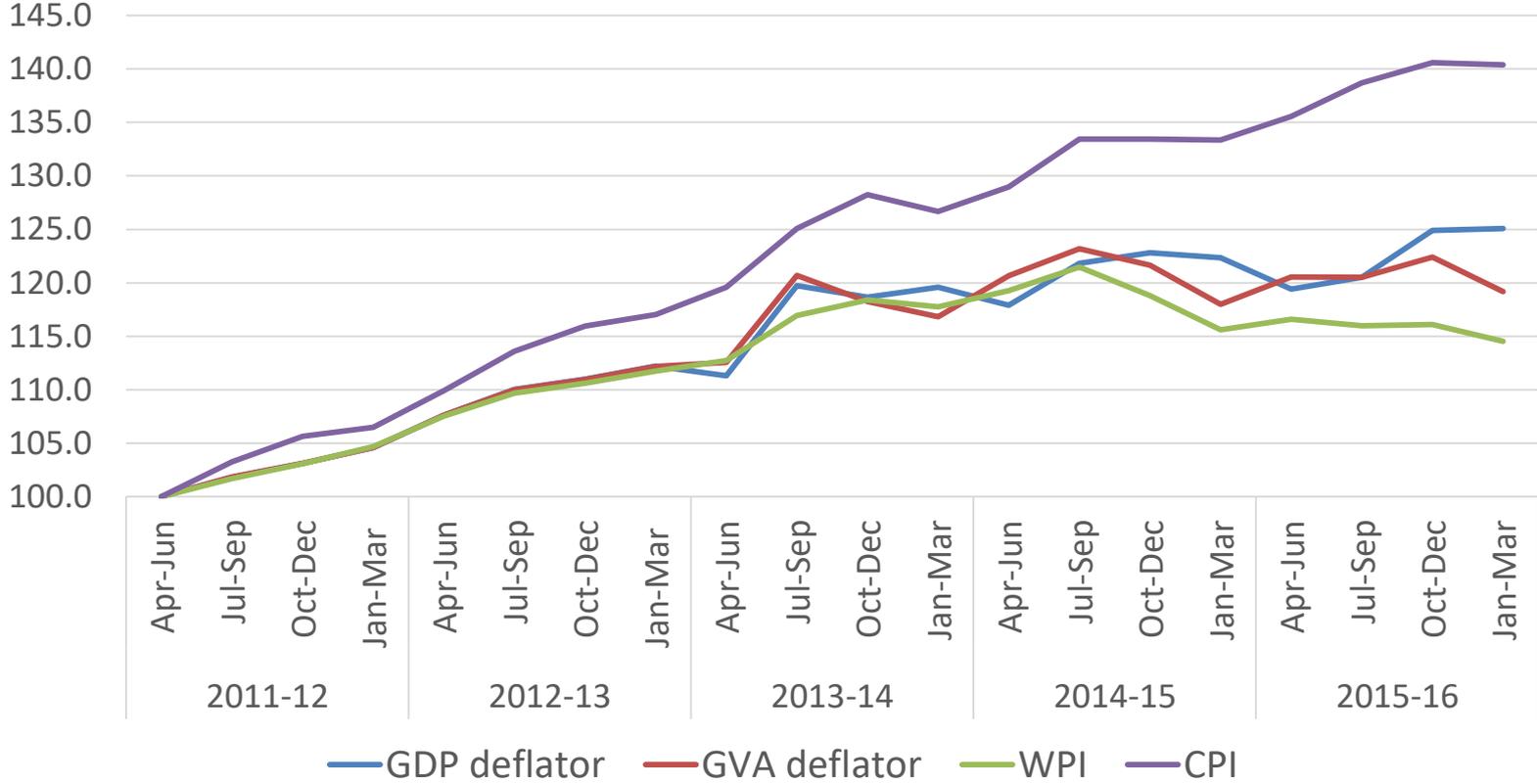
Item	At Constant (2011-12) Prices					At Current Prices				
	2011-12	2012-13	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16
As % of GDP at market prices										
GVA at factor cost	92.7	92.5	92.4	92.3		92.7	92.4	92.1	91.9	
GVA at basic prices	92.8	92.6	92.3	92.2	91.9	92.8	92.6	92.1	91.9	90.4
Taxes on Products	10.2	10.6	10.4	10.5	10.5	10.2	10.6	10.7	10.8	11.9
Subsidies on Products	3.0	3.2	2.8	2.7	2.4	3.0	3.2	2.7	2.7	2.3
Consumption of fixed capital	10.5	10.9	11.2	11.3	11.3	10.5	10.7	10.6	10.7	10.7
PFCE	56.2	56.0	56.1	55.6	55.5	56.2	57.0	57.7	57.6	59.5
GFCE	11.1	10.6	9.9	10.4	9.9	11.1	10.7	10.2	10.9	10.6
Gross capital formation	39.0	39.4	36.2	35.9		39.0	38.6	34.7	34.2	
GFCF	34.3	34.1	33.0	32.3	31.2	34.3	33.4	31.6	30.8	29.3
VALUABLES	2.9	2.8	1.5	1.6	1.5	2.9	2.8	1.4	1.5	1.4
Exports of goods and services	24.5	24.8	25.1	23.8	20.9	24.5	24.5	25.3	22.9	19.9
Imports of goods and services	31.1	31.2	26.9	25.2	22.8	31.1	31.2	28.3	25.9	22.5
Discrepancies	-0.3	0.8	-0.4	-0.3	1.9	-0.3	0.8	0.4	0.4	0.1
Gross Saving to GNDI						33.8	33.0	32.3	32.3	
PFCE to NNI	63.4	63.8	64.1	63.5	63.4	63.4	64.6	65.5	65.3	67.5

Trends in GCF and Gross Savings Rates

Per cent



Movements in Price Indices



Problems arising from the use of MCA

21

Blow up factor could not be dispensed and this could impact the level due to

Inability to determine

Non-existing companies

Companies not actively engaged in economic activities

21-digits CIN code poses additional problem

SDP estimates

Industry groups

Concluding Remarks

- Revisions are necessary to reflect changes in the structure of the economy
- This new series have attracted widespread interests due to:
 - Lack of corroborative evidences supporting numbers;
 - Changes in conceptual framework such as discarding GDP at fc and adoption of GDP at mp as the measure of national income;
 - Methodological issues

Needs attention

- declining trend in saving and investment rate and rising growth rate do not tie up
- corporate data and motivation of companies
- reconstruction of IIP with rebasing of NAS
- WPI to the base year of NAS – but PPI is more appropriate
- reconciling production-side and consumption-side estimates
- double deflation method

Needs attention

- Non comparison over the previous years due to changes in scope

Capital formation, savings and institutional categories

though suitable adjustments may be made, data availability in the past will leave much desired

Manufacturing GVA: New Series Compared with 2004-05 Series

	Growth at Current Prices		Growth at Constant Prices		GVA Share in Total GDP	
	2004-05 Series	2011-12 Series	2004-05 Series	2011-12 Series	2004-05 Series	2011-12 Series
2011-12	-	-	-	-	14.7	18.1
2012-13	6.9	11.6	1.1	6.2	14.1	17.9
2013-14	2.2	9.3	(-) 0.7	5.8	12.9	17.3

Part A: GVA of Organised Manufacturing						Part B: GVA of Total Manufacturing (Organised plus Unorganised)	
Year	Public Sector ¹	Private Corporations ²	Total Corporate Sector [2+3]	ASI (GVA at Current Prices) ³	Derived GVA on Account of Head Office Operations [4-5]		
(1)	(2)	(3)	(4)	(5)	(6)		
2011-12	1,31,973	10,98,467	12,30,440	9,76,939	2,53,501	[25.9]	14,09,986
2012-13	1,32,864	12,30,222	13,63,086	10,07,280	3,55,806	[35.3]	15,73,632
	(0.7)	(12.0)	(10.8)	(3.1)	(40.4)		(11.6)
2013-14	1,38,184	13,37,727	14,75,911	10,65,111	410,800	[38.6]	17,14,730
	(4.0)	(8.7)	(8.3)	(5.7)	(15.5)		(9.0) ⁹⁶

Issues and Challenges related to use of Official statistics

S V Ramana Murthy, DDG
National Accounts Division
Bangalore
18-05-2018

Use of Official Statistics In National accounts

- Administrative Statistics- by product of governance, implementation of laws
 - Budgets
 - MCA data
 - Export Import Data
- Surveys & Censuses- specific to the cause
 - Population census
 - Housing census
 - Live stock census
 - Specific products
 - IIP
 - WPI

Contd.

- The National Accounts compiled by institutional sectors and by industry
 - The 5 Institutional sectors can broadly be classified as
 - Public sector- General Government, Departmental enterprises, local governments, Autonomous Institutions, Non departmental enterprises
 - Private corporate sector- companies, limited liability partnerships, banks
 - Private unincorporated sector- unorganised enterprises, money lenders etc.
 - The industry classification based on NIC

Timelines and Coverage

- As per the release calendar of National Accounts, annual estimates are frozen after 6 releases, 2 advances, provisional, FRE, SRE, TRE depending on the availability of data.
- 1st Advance (Jan) only 8 months of high freq. data – indicator based
- 2nd Advance (Feb) based on data up to Dec- indicator based
- PE (May) based on full year high freq data- indicator based
- FRE- no ASI, partial MCA, Budget data RE, NDE accounts (few), local bodies
- 2RE ASI, MCA, Budget data actual, local bodies accounts, large no of NDEs
- 3RE refinement in data based on data received from states

Share of Institutional Sectors

GVA by economic activity and Institutional Sectors (%)- 2011-12							
S.No.	Item	GG	DE	NDE	Pvt. Corp	HH	Total
1.	Agriculture, forestry and fishing	0.0	2.7	0.1	2.5	94.7	100.0
2.	Mining and quarrying	0.0	0.0	61.6	16.6	21.9	100.0
3.	Manufacturing	0.0	1.8	7.1	78.9	12.1	100.0
4.	Electricity, gas, water supply & other utility services	9.9	5.2	57.1	24.7	3.1	100.0
5.	Construction	5.5	1.5	0.4	17.0	75.5	100.0
6.	Trade, repair, hotels and restaurants	0.0	0.0	2.3	41.6	56.1	100.0
7.	Transport, storage, communication & services related to broadcasting	0.0	14.5	9.9	36.5	39.2	100.0
8.	Financial services	0.0	1.2	50.8	48.0	0.0	100.0
9.	Real estate, ownership of dwelling & professional services	0.2	0.0	0.3	43.4	56.2	100.0
10.	Public administration and defence	100.0	0.0	0.0	0.0	0.0	100.0
11.	Other services	45.0	0.0	0.1	31.1	23.9	100.0
	TOTAL GVA at basic prices	9.7	2.1	8.6	34.7	44.9	100.0

Issues and Challenges in producing estimates for Public Sector- GG, DE and Autonomous Inst

- For GG & DE, Local bodies and autonomous- from budget documents of Central, State and local governments and autonomous bodies accounts
- Challenges- coverage of data improves over time.
 - Budgets are available in pdf formats, require transcription manually, conversion and classification of items head wise taking time
 - Sometimes estimates in DDGs do not tally with AFS
 - Central estimates allocation to states based on indicators especially the supra regional

Non Departmental enterprises

- Current database- 1600 central & state NDEs
- 350 central NDEs and remaining state PSEs
- Some NDEs created on Act of parliament or state such Airports Authority Ltd(AAI), FCI
- Lay down accounts in parliament or state legislatures before they are released.
- FRE- 70-75% of GVA, rest imputed
- 2nd RE 95-98% GVA
- Estimates of central NDEs Allocated to states based on DPE survey – usually two year lag, CE – no of employees and OS – based on gross block

Corporate sector

- IN the 2004-05 series, ASI was used to estimate the manufacturing sector contribution
- ASI was based on 67000 units (including census and sample)
- In the services sector a small sample of RBI (out of 3500) was used to estimate the service sector
- In the new series, 2011-12, 1,38,502 enterprises data was used to derive the manufacturing sector estimate compared to 21,104 establishments from ASI
- Over 5 lakh companies data were made use of in the new series.
- Includes over 30000 xbrl companies contribute 70% of the GVA

Size and Coverage of MCA 21 data

- E-governance project of MCA
- 14 lakh companies are on the rolls
- No of active companies as on 31st March, 2017 11,69,303 of which 11,02,730 are private limited and the rest public.
- The authorised capital for private limited companies is Rs 18,20,600 crores compared to Rs 36,07,452 crore of public limited

MCA-21 data

XBRL (More Detailed)

- Listed (and their subsidiaries)
- Paid Up Capital > Rs 5 Cr
- Turnover > Rs 100 Cr
- 30000 in number

Exemptions:

Banking, NBFCs, Power , Insurance

Non XBRL (Less Detailed) : Other Reporting Companies
over 5 lakh in number

Identification of Industrial Activity (Based on CIN)

Digit No.	What it Shows?	Remarks
1 st digit	Listing status	If Company is Listed it will start with 'L' and if Company is not Listed it will start with 'U'
Next 5 digit	Industry code	As per NIC 2004
Next 2 digit	State code	i.e. MH for Maharashtra.
Next 4 digit	Year of incorporation	I.e. for Company formed in Calendar Year 2011 the same will be 2011.
Next 3 digit	Ownership	PLC for Public Limited Company PTC for Private Limited Company.
Last 6 digit	ROC reg.	i.e. 090868 for ROC- Mumbai i.e. 090633 for ROC- KOLKATA

Name of The Company	WIPRO LIMITED	HOUSING DEVELOPMENT FINANCE CORPORATION LIMITED	BOSCH LIMITED
Rank (GVA)	6 (Rs 30,000 Cr)	7 (Rs 30,000 Cr)	67 (Rs 4000 Cr)
CIN	L32102KA1945PLC020800	L70100MH1977PLC019916	L85110KA1951PLC000761
Industrial Activity	Manufacture of electrical capacitors	Real Estate Activities	Human Health Activities
Actual Business	Computer & Related Activities	Finance	Manufacturing

Distribution

	2011-12		2015-16	
	XBRL	Non XBRL	XBRL	Non XBRL
Number of Companies	30,094	4,43,824	39,661	5,88,661
Paid Up Capital (Rs lakh Cr)	8.4	4.3	12.3	6.6
Turnover (Rs lakh Cr)	71	20.7	92.2	33.1
GVA (Rs lakh Cr)	14.8	5.7	23.4	8.8
No. of Companies (%Share)	6.4	93.6	6.3	93.7
Paid Up Capital (% Share)	66.1	33.9	65.1	34.9
Turnover (% Share)	77.4	22.6	73.6	26.4
GVA (% Share)	72.2	27.8	72.7	27.3

Receipt of data from MCA

- MCA shares data with MOSPI based on the following timelines of corporate filings
 - 31st July, 2017 for 2015-16 filings
 - 30th November, 2017 for 2016-17 filings
 - Data is received in 3 phases – (i) data items mainly relating p& L and Balance sheet (ii) balance sheet items reserve surplus, inventories, cash & bank balance, borrowings etc- XBRL. (iii) fixed assets block from XBRL
 - The XBRL format is detailed. Ratios derived from XBRL are used to disaggregate items from non XBRL companies

Issues Related with MCA data

- Correct Identification of Industrial Activity
- Classification in case of Multiple Activity Enterprise
- Blowing up of estimates with PUC- contentious but has been going on for decades (RBI)
- State Wise Allocation of GVA

Present Resolution

- Online Research (companies website, Reuters, Bloomberg etc.)
- MGT_7 Form(MCA Digitised)[1404819158_mgt_7.pdf](#)
- Based on the number of business activities undertaken entered, the table to enter details of the business activities will be populated with a maximum of ten rows.
- % of turnover of the company for each main activity undertaken. Ensure sum of all % entered is at least 50%, if activities are not more than 10. Details of the activities contributing 10% or more of the turnover are provided.
- MGT (Form (Non digitised, Directors Report)

Future

- Linking of the Financial Filings with MGT -7 and provision of Industrial Activity Codes by MCA along with Profit & Loss Accounts and Balance Sheet information.

Multiple Activity

- Presently , entire GVA contribution attributed to major activity
- Future : Depending on availability of MGT- 7 information, matter would be put before ACNAS for decision whether apportioning needs to be done.

State Wise GVA allocation

- State of Registration (CIN) may be different from the State where actual Production Takes Place.
- Establishments may be spread across several States.

Present Method

- **Agriculture :**

State wise Sectoral distribution is not done.

- **Mining :**

Proportion of production : Coal - O/o Coal Controller, Crude Oil
- M/o Petroleum & Natural Gas,
Others - Indian Bureau of Mines

- **Manufacturing :**

Private corporate component of ASI

- **Services:**

Labour Input Proportion (State wise) calculated for different services in the base year (68th Round) applied on the GVA.

Alternatives for Future

- Surveys: Establishment wise Information collection for at least large sized companies
- Administrative Statistics : Exploring alternative sources like GSTN, EPFO for availability of establishment wise data to provide some size measure for state wise allocation

Unincorporated /HHSector

- Data sources- NSS surveys on Unincorporated enterprises, Employment unemployment surveys, census of housing stock, population, indicators, indicators- sales tax, service tax, cargo handled at ports, passenger tonne km, education health expenditure,
- Derive bench mark estimates ($GVA=ELI*GVAP EW$) and move forward using indicators
- Improvements in the new series
 - Effective labour input method- differential weights to employers, hire workers and unpaid family workers
 - In the old series all had equal weights ($GVA= LI*GVAPW$)
 - LI moved using inter survey growth

Unincorporated sector- challenges

- Challenges
 - Sample size not representative at compilation category level
 - Lack of representative indicators- IIP, ASI(HUF)
 - Allocation to states a challenge as Sample size not representative at state level [73rd round results.xlsx](#)

New Series
of
National Accounts Statistics

Ministry of Statistics & Programme Implementation

OUTLINE OF THE PRESENTATION

- **BASE YEAR REVISION – Guiding Principles**
- **MAJOR CHANGES - Coverage, Methodology, Data Sources etc.**
- **FREQUENTLY RAISED ISSUES IN MEDIA**
- **ISSUES AND CHALLENGES**

BASE YEAR REVISION-GUIDING PRINCIPLES

- Revision of base year to a more recent year
- Review of the existing data base and methodology
- Implementing the international guidelines on the compilation of national accounts, the System of National Accounts (SNA), 2008

CONSULTATION WITH EXPERT BODIES

- Advisory Committee on National Accounts Statistics (ACNAS)
- Subcommittees of ACNAS – to look into the issues in the compilation of national accounts and make necessary recommendations for the new series of national accounts

CONSULTATION WITH EXPERT BODIES - SUBCOMMITTEES

- Sub-Committee on Unorganised Manufacturing & Services Sectors
- Sub-Committee on Agriculture and Allied Sectors
- Sub-Committee on Private Corporate Sector including PPPs
- Sub-Committee on System of Indian National Accounts
- Committee on Private Final Consumption Expenditure

Major changes

- Presentation of Macro economic aggregates for different Institutional sectors
 - General Government
 - Non-financial corporations
 - Financial corporations
 - Households including Non-Profit Institutions Serving Households

Major Changes- Institutional Sectors

Old (base year: 2004-05) series	New (base year: 2011-12) series
<ol style="list-style-type: none"> 1. Public Sector <ol style="list-style-type: none"> 1.1 Administrative Departments 1.2 Departmental Enterprises 1.3 Non-Departmental Enterprises 2. Private Sector <ol style="list-style-type: none"> 2.1 Private Corporate Sector 2.2 Household Sector including Non-Profit Institutions Serving Households (NPISHs) 	<ol style="list-style-type: none"> 1. Public Non-Financial Corporations 2. Private Non-Financial Corporations 3. Public Financial Corporations 4. Private Financial Corporations 5. General Government 6. Household Sector including NPISHs

Coverage

- Non-financial /Financial corporations
 - Departmental Commercial Undertakings, NDCUs and Private Corporate Sector
 - Includes Quasi-Corporations
 - Unincorporated Enterprises covered in Annual Survey of Industries
 - Unincorporated enterprises of manufacturing that are not covered under ASI but maintain accounts
 - Co-operatives providing non-financial services
 - Unincorporated enterprises providing non-financial services maintaining accounts
 - Unorganised financial enterprise
- General Government
 - Government Administrative Departments
- Households including Non-Profit Institutions Serving Households

Improvements in coverage –

2004-05 series

RBI Study on Company Finances - Estimates were compiled on the basis of financial results of around 2500 companies.

Corporate sector

2011-12 series

Comprehensive coverage of Corporate Sector thro' MCA21 database - over 3 lakh companies for FRE and over 5 lakh (common companies) for SRE

Financial corporations

Financial corporations in the private sector, other than banking and insurance, limited to a few mutual funds and estimates for the Non-Government Non-Banking Finance Companies based on RBI studies

Inclusion of stock brokers, stock exchanges, asset management companies, mutual funds and pension funds, as well as the regulatory bodies, SEBI, PFRDA and IRDA.

Improvements in coverage –

2004-05 series

Local Bodies

Estimates compiled on the basis of information received for seven autonomous institutions and local bodies of four States

2011-12 series

Improved coverage of local bodies and autonomous institutions, covering around 60% of the grants/transfers provided to these institutions.

Use of results of recent surveys

Incorporation of the results of the recent NSS Surveys, viz., Unincorporated Enterprise Survey (2010-11) and Employment-Unemployment Survey (2011-12), alongwith the adoption of an “Effective Labour Input Method” ***for unincorporated manufacturing and non-financial services enterprises***

Effective Labour Input method

- Effective LI method to address the issue of differential labour productivity by assigning weights to different categories of workers engaged in an economic activity based on their productivity.

Use of results of recent surveyscontd

- All India Livestock Census, 2012
- NSS 70th round (2013) - All India Debt and Investment Survey and Situation Assessment Survey
- Population Census, 2011
- Study on yield rates of meat products & by-products of different livestock species conducted by National Research Centre on Meat, Hyderabad
- Study on the inputs in the Construction sector by Central Building Research Institute (CBRI), Roorkee
- Study on 'Harvest and Post-harvest losses of major crops and livestock products in India' conducted by Central Institute of Post-Harvest Engineering and Technology (CIPHET), Ludhiana.

Private Corporate sector

- Comprehensive coverage of Corporate Sector thro' MCA21 database – over 3 lakh companies for FRE and over 5 lakh for SRE (constitute approximately 85% of total PUC of non-financial private corporate sector as provided by MCA)
- Two e-platforms, namely 23 AC/ACA and XBRL
- XBRL format (Extensible Business Reporting Language) is a global standard for exchanging business information.
 - Listed (and their subsidiaries)
 - Paid Up Capital > Rs 5 Cr
 - Turnover > Rs 100 Cr
- Non XBRL
 - Others

MCA Data in brief Contd.

- Banking companies, Power companies, Non-Banking Financial Companies (NBFC) and Insurance companies are exempted from XBRL filing as of now.
- Company Identification Number (CIN) provides information on type of ownership , major economic activity etc.

Coverage - Private Non-financial corporate Sector

- In addition to MCA 21 data the following are also covered:
 - Estimates derived from data on Limited Liability Partnership (LLP) from MCA (contributing less than 1% of GVA of non-financial private corporate sector in 2011-12)
 - Estimates for quasi private corporate sector from NSSO's sample survey results (Enterprise Survey)

Coverage and methodology in 2004-05 Series

- Mining and Quarrying: Data from IBM, Office of Coal Controller, Ministry of Petroleum and Natural Gas etc.
- Manufacturing: Annual Survey of Industries
- Electricity: Analysis of private electricity companies as per listed by Central Electricity Authority (CEA)
- Service Sector Industries:
 - Base year estimates prepared by Labour Input method
 - Moving the base year estimates for further years by use of growth rate as observed in the sample study of RBI or inter survey growth rate etc.

Major changes...

- Local Bodies
 - Includes urban local bodies and rural local bodies – municipalities, DRDAs, panchayats
- Reporting of accounts improved in the local bodies in the recent years
- Accounts reported have been captured in national accounts, accounting for 60% of the funds transferred to such bodies

Industry-wise changes

- ***Agriculture, forestry and fishing***
 - Segregation of crop and livestock production
 - Adoption of Agriculture Census (2010-11) and Livestock Census (2012)
 - Revision of yield rates of meat & by-products of different livestock species
- ***Mining***
 - Estimation of value addition from extraction of sand through an indirect method, in accordance with its use in construction
 - ‘Enterprise Approach’ using MCA21 database to account for head offices, ancillary activities, etc. not covered under the ‘establishment approach’

Industry-wise changes - Mining

- Major minerals , coal & lignite and Crude petroleum and natural Gas - Annual Reports of Public Sector Companies, MCA21 database for the annual reports of Private Sector Companies
- Minor minerals Except sand - State Geological Departments
- Sand - indirectly estimated as input of sand used in the construction sector
- Constant price estimates are derived using deflators compiled using relevant WPI and from the IBM data on production, prices and input rates.

Industry-wise changes – Manufacturing

- Organised Manufacturing
 - Annual Survey of Industries – the only source of information till now
 - Limitation of ASI
 - “establishment approach” in ASI
 - Designed for capturing the manufacturing activity only
 - Services provided by head offices, other establishments not sufficiently covered
 - Supplemented with the MCA21 database

MANUFACTURING – enterprise approach

- GG/ Public corporations - Analysis of Budgets and accounts of public enterprises
- Private corporations - MCA data base
- Proprietorship, partnerships, quasi corporate sector (unorganised enterprises maintaining accounts) - based on ASI data.
- IIP at 2-digit level of NIC is used to extrapolate previous years' value added when ASI is not available.

MANUFACTURING – enterprise approach

- ***Unorganised Manufacturing***

- ***Compilation of base year estimates***

- Modified method - “Effective Labour”
 - Different relative weightage of owners, helpers and hired workers.
 - Estimates of value added calculated on the basis of “effective labour”
 - Weights estimated by using a Nested Cobb Douglas production function
- The benchmark compilation category-wise estimates are moved to subsequent years using the ASI growth.
- Constant price estimates: Single deflation using relevant WPI

Industry-wise changes –

- Electricity , Gas and water Supply – Use of MCA data base as against data from annual reports of private electricity companies registered with CEA in 2004-05 series

Industry wise changes - Construction

- Rates and ratios based on information received from study on cost of construction by CBRI.
- Estimation of value of output used in construction for Bitumen and bitumen mixtures, and Glass and glass products in addition to Cement and cement products, Iron & steel, Bricks & tiles, Timber and Fixtures & fittings.

Industry wise Changes - Unorganised Non-financial Services

- No regular source of information; Quinquennial Surveys of NSS the only option;
- Trade not covered in the earlier Survey - Gap of more than 10 years (For the 2004-05 series, results of NSS 55th Round in 1999-2000 was used)

Compilation of base year estimates (in 2004-05)

- LI Method –
 - number of workers (from Employment Survey) and the value added per worker (from Enterprise Survey) in the industry.

Limitation – assumed equal productivity for each type of worker

Unorganised Services in the New Series....Major changes...

Compilation of base year estimates – Using effective labour Input method

Extrapolating to the succeeding years

- Use of indicators reflecting current situation
 - Sales tax used in the case of unorganized trade
 - Use of Service Tax (in some cases) as an indicator for growth in the respective service(s)

Financial corporations sector - Major changes

- Financial Corporations
 - Increased coverage to capture extensive growth in financial sector
 - all mutual funds as registered under SEBI
 - all pension funds as registered under PFRDA
 - all financial auxiliaries
 - stock brokers, stock exchanges, asset management companies, regulatory authorities (SEBI, IRDA, PFRDA)

Financial corporations sector - Modifications: Methodological

Description	Base year 2004-05	Base year 2011-12
Computation of FISIM	<p>FISIM = total property receipts (dividend+ interest+ net profit on sale of investments) - total interest payments by the banking sector</p>	<p>Reference Rate (RR) approach $FISIM = (LR-RR) * \text{average stock of loans} + (RR-DR) * \text{average stock of deposits}$. RR = harmonic mean of lending rate and deposit rate for the banking sector</p>
GVA computation of Central Bank	<p>Banking department and issue department were treated separately. Issue department - a part of General Government, outside financial sector. Market output computed for banking department, a part of financial sector.</p>	<ul style="list-style-type: none"> • Entire RBI included in financial sector • Entire RBI treated as non-market • Output computed using cost method

Financial corporations sector - Modifications: Additional Data

Description	Base 2004-05	Base 2011-12	Data source
Private Mutual Funds	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	list and data from SEBI
Private Pension funds	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PFRDA
Regulatory authorities IRDA, SEBI, PFRDA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	IRDA, SEBI, PFRDA
Stock exchange, stock brokers (registered with SEBI) and AMC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	list from SEBI, data from MCA
Unorganised financial sector	fixed ratio: 1/3 rd of GVA of Government Companies and NGNBFC	<input checked="" type="checkbox"/>	Moneylenders: RBI Basic Statistical Returns, AIDIS 2012 and 67 th round of NSS enterprise survey Remaining unorganised: 67 th round of NSS enterprise survey

Expenditure-side aggregates....

- Updation of expenditure pattern of the households using NSS CES (2011-12)
- PFCE of education and Health supplemented by expenditure incurred by NPISHs.
- Updation of wastage ratios of crops and livestock products using a study conducted by CIPHET
- Revision of service lives of assets
- Indirect taxes and subsidies classified as production and product.

Expenditure-side aggregates

- “Intellectual Property Products” (IPPs) included as asset
 - consists of research and development
 - mineral exploration
 - databases and software
 - other IPPs
- IPPs are recognised in the business accounts as “Intellectual Capital”
- Valuables purchased by households as savings alongwith “household savings in physical assets”

Key National Accounts Estimates

- 2004-05 series
 - Economic growth measured by GDP at factor cost
- 2011-12 series
 - GVA at basic prices
 - Basic Prices are inclusive of production taxes (such as fees for setting up an enterprise, land revenue tax) less production subsidies (such as subsidies on seeds, fertilizers)
 - Natural price for the entrepreneur,
 - production taxes/subsidies are considered by entrepreneur for deciding the price of the product

BASIC PRICES AND FACTOR COST

- Gross value added at factor cost used in the 2004-05 series is not a concept used explicitly in the SNA.
- There is a conceptual difficulty with gross value added at factor cost as by definition, "other taxes or subsidies on production" are included in the price considered by the producer for deciding the price of the product.
- Gross value added at factor cost estimated in the 2004-05 series is not strictly a measure of value added devoid of all taxes or subsidies on production.

National Accounts Estimates....

- Measurement of growth
 - GDP at market prices
 - Market prices are reference prices for valuation
 - Includes “Taxes on products -Subsidies on products”
- IMF/ WB compares economies by “GDP at market prices” and its growth

SNA 2008 recommendations

- Valuation of various GVA at basic prices and GDP at market prices
- Estimates of the institutional sectors – Non-financial and financial Corporations, General Government and households are shown separately
- Distinction between General Government and public corporations has been made
- Unincorporated enterprises belonging to households, which have complete sets of accounts have been treated as quasicorporations.

SNA 2008 recommendations

- Allocation of head office to the non-financial corporations sector - In the new series, this has been implemented in the mining and organised manufacturing sectors .
- Output of Financial Intermediation Services Indirectly Measured (FISIM) has been calculated using a reference rate for the financial sector, except in the case of central bank (Reserve Bank of India).
- Output of central bank (RBI) is measured at cost.
- Asset classification as recommended by SNA2008 - non-financial assets have been classified as 'dwellings, other buildings and structures', 'machinery and equipment', 'cultivated biological resources' and 'intellectual property products'.

FREQUENTLY RAISED ISSUES

IIP growth and manufacturing growth

- IIP is only a volume based index which measures output or production
- GVA - Captures the value addition in the economy
- GVA for manufacturing is compiled using the enterprise approach.

FREQUENTLY RAISED ISSUES

IIP growth and manufacturing growth

- Use of enterprise approach has captured ancillary activities and head offices.
- This component of value added was earlier being excluded from GDP because it was not covered in ASI, although the concerned enterprise belonged to the manufacturing segment.
- IIP methodology, on the other hand, uses only a fixed basket of items with weights assigned according to their relevance in the base year
- Thus, the two measures are not comparable because of (i) different data sources, (ii) methodological differences.

Frequently raised issues

Growth in Trade

- For the 2004-05 base revision, results of NSS 55th Round in 1999-2000 was used.
- In years succeeding the base year, the estimate of value added was moved using volume indicators .
- The indicator based growth had overstated value added estimated for 2011-12 in the old series - the 2011-12 estimates in the new series are lower than those in the old series.
- Change of indicator from a volume indicator to one based on value, namely sales tax collections.
- In the 2004-05 series volume indicator based on output of commodity producing sectors was used.

Frequently raised issues

Deflators used in National Accounts

- The only price indicators available with CSO for national accounts compilation is the data on CPI and WPI.
- The use of CPI in national accounts has been restricted to those services for which sector specific CPI are available and also in the case of collective services like public administration and defence, where lion share of value added is compensation of employees.

Frequently raised issues- GDP Data Revisions

- Recent RBI study compares the growth rates of AE and Final estimates during the period 2003-04 to 2016-17
- Three base year revisions during the period 2003-04 and 2016-17(1999-00, 2004-05 and 2011-12)
- Between the FAE, SAE and Final Estimates of any particular year, CSO also releases the Provisional Estimates (PE), First Revised Estimates (FRE) and Third Revised Estimates (TRE)

Frequently raised issues- GDP Data Revisions

- Base Revision exercise entails a review/revision in the set of data sources, incorporation of recent survey results, methodological changes, new censuses and type studies and improvements in coverage and procedures of compilation.
- Estimates across different base years are not directly comparable.
- Base year of GDP estimates for 2008-09 (AE) was 1999-2000, while for the Final Estimates (2008-09 FE) it was 2004-05.
- Base year of GDP Advance Estimates of 2011-12 (AE), 2012-13 (AE) and 2013-14 (AE) was 2004-05 while the base year of Final Estimates of these years was 2011-12.

Frequently raised issues- GDP Data Revisions

Revisions in headline GDP data in the 2011-12 series are given in the table below. The differences in AE and FRE estimates may be noted.

Year	GDP Estimates (2011-12 Base Year)					
	First Advance (FAE)	Second Advance (SAE)	Provisional (PE)	First Revised Estimates (FRE)	Second Revised Estimates (SRE)	Third Revised Estimates (TRE)
2014-15	7.4		7.3	7.2	7.5	7.4
2015-16	7.6		7.6	8.0 ^{&}	8.2	
2016-17*	7.1	7.1	7.1	7.1		
2017-18	6.5	6.6				

* - First Advance Estimates was released from 2016-17

&- Revisions were impacted by use of WPI 2011-12 series. The growth in WPI (all commodities) was (-)3.7% in 2011-12 series as against (-)2.5 % in the 2004-05 series

Frequently raised issues- GDP Data Revisions

- Advance Estimate of GDP released by CSO provides the first signal from the system of national accounts about the status of the economy.
- Compiled using the same methodological framework adopted for later estimates as per recommended procedures in the SNA.
- Indicators used are agricultural production data (advance estimates of agricultural production for agricultural year from the source agency), corporate data (latest information or the 'early birds' are taken into account), IIP, motor vehicles growth, cargo handled at major ports, Budget/Revised estimates of Revenue expenditure and receipts etc.

Frequently raised issues- GDP Data Revisions

- Revisions in the source data also results in revisions in PE/FRE/SRE/Final estimates.
- In 2008-09 the growth in tax revenue receipts which was 15.9 % at BE stage was revised downwards to 5.9% at RE stage and actuals was 2%.
- In 2009-10 growth in non-plan revenue expenditure, which was 10.7 % at BE stage, was subsequently revised upwards to 14.8% at RE stage and actuals was at 17.7%.

Frequently raised issues- GDP Data Revisions

- ***Extract from the RBI Mint street memo No.12***

“...It may be advisable for data users to read GDP growth numbers carefully along with other high frequency indicators of the real economy. For example, just two days after the release of first advance estimates (FAE), i.e., on January 7, 2018, the Ministry of Agriculture and Farmers Welfare issued a press release expressing optimism about upward revisions in output of ‘agriculture, forestry and fishing’ sector. Furthermore, corporate results of the ‘early birds’ showed encouraging operating performance for 2017–18:Q3”

Frequently raised issues- GDP Data Revisions

- Advance estimates are compiled by CSO based on actual data and not on optimism or anecdotal evidence.
- Transparency is a key aspect of communications policy for Advance Estimates.
- Reasons for revisions, if any, in the Advance Estimates are indicated clearly when the PE/FRE is released by MoSPI, to facilitate users to understand the factors underlying revisions and interpret possible changes in the economy.

Issues and Challenges

- Contribution of Private Corporate Sector is around 27% in total GVA
- Issues in compiling State level estimates as operational details are not available. What is available is only State wise registration details.
- At present Statewise Allocation of Private Corporate Sector estimates is done using different indicators

Issues and Challenges

- Data (Annual Reports/Budgets) are received mostly in hard copies or pdf files.
- Availability of Service production and Price indices – Slow progress
- Presence of a large informal sector- lack of regular data flow – Hence base year estimates extrapolated using indicators.

Issues and Challenges

- Data for the new and emerging areas, like payments bank, credit and debit card units, mobile payments platforms, etc. are not available as of now.
- NAD has taken up this issue with the National Payments Corporation of India (NPCI).
- Frame of all financial enterprises, particularly in the organised sector is to be developed and updated.

Official Statistics: Some Issues Related to National Accounts Statistics

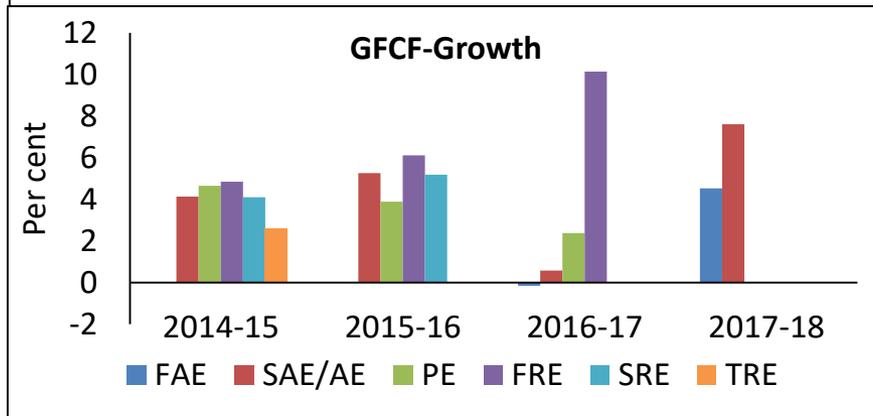
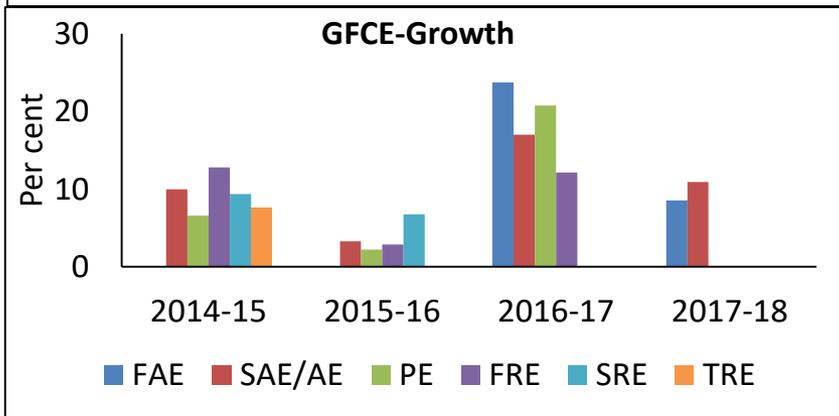
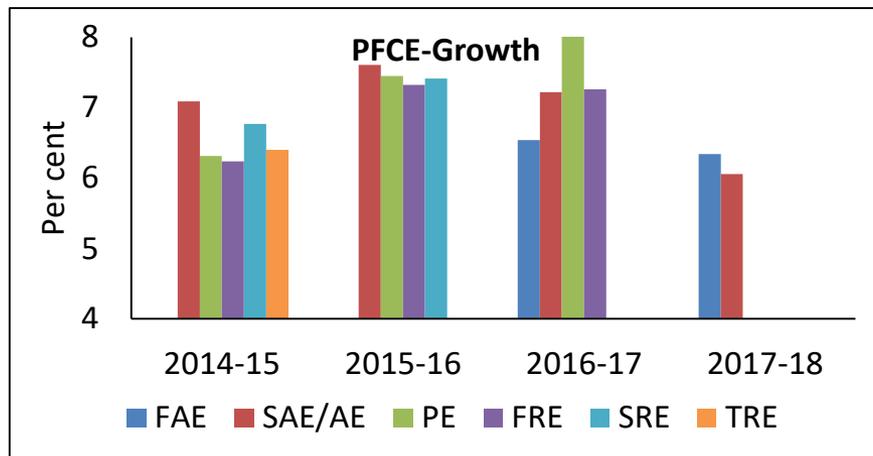
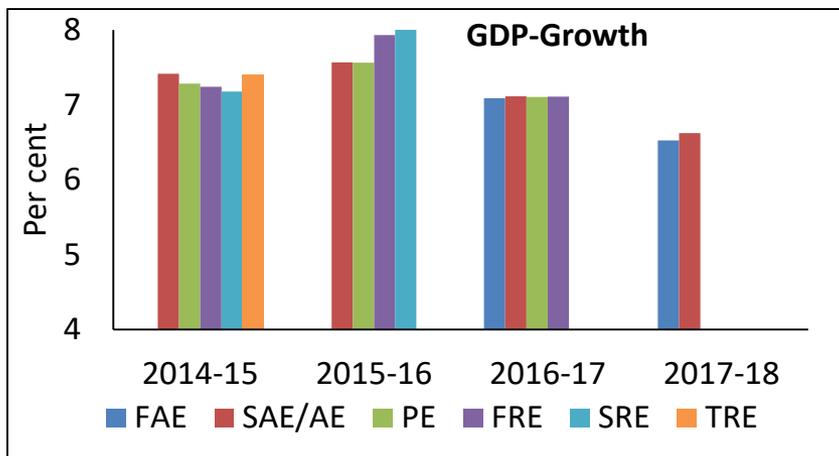
By: **Sanjay Singh**

*Workshop on 'Challenges and Issues with Data on Official
Statistics'*

Bengaluru

May 18-19, 2018

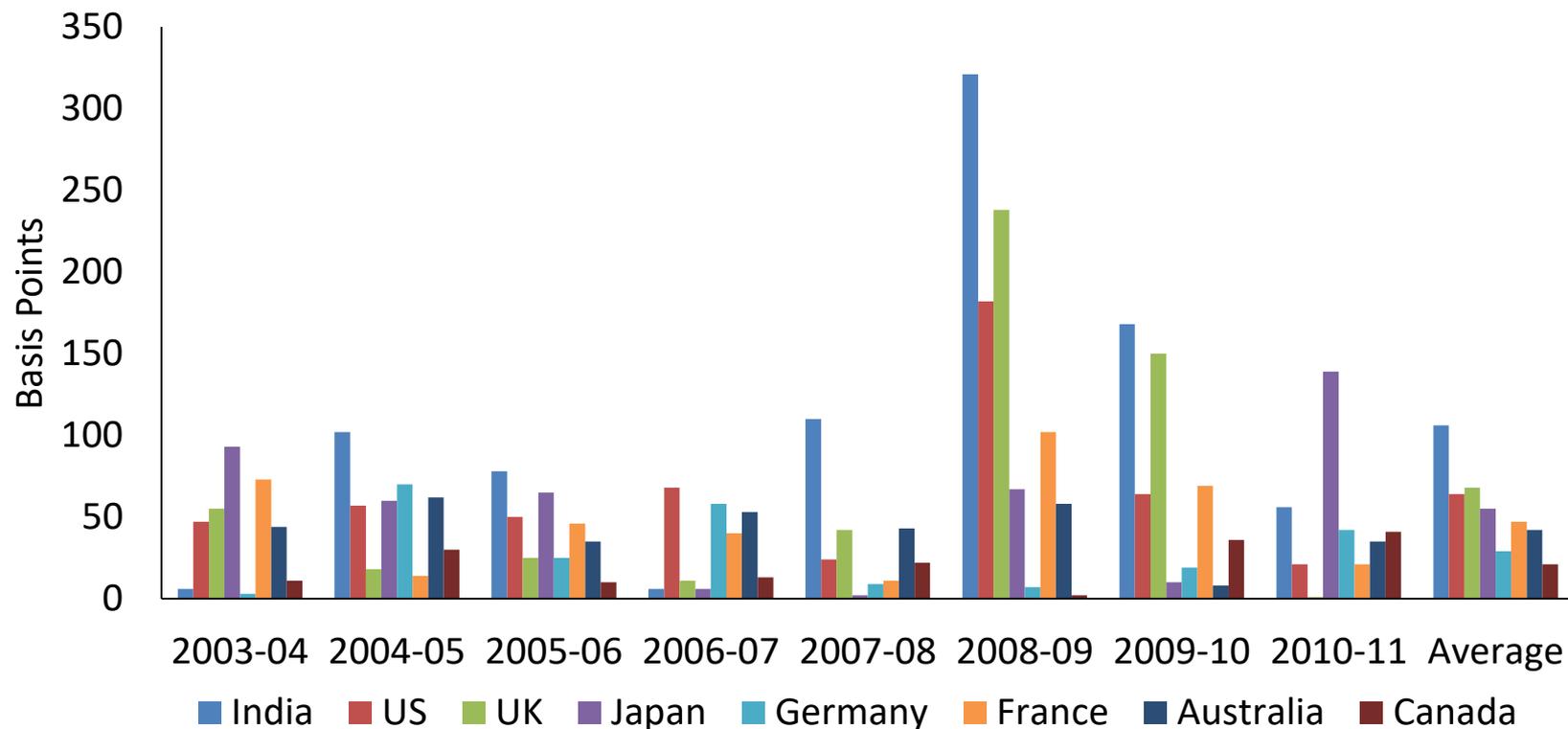
GDP Revision in India-New Series



FAE=First advance est., SAE=Second advance est., AE: Advance est., PE=Provisional Estimate, FRE: First revised est., SRE: Second revised est., TRE: Third revised est.,

- Though overall GDP growth did not revise much, but its components recorded considerable revision.
- GFCE observed significant revision.
- GFCF revised upward sharply during demonetisation.

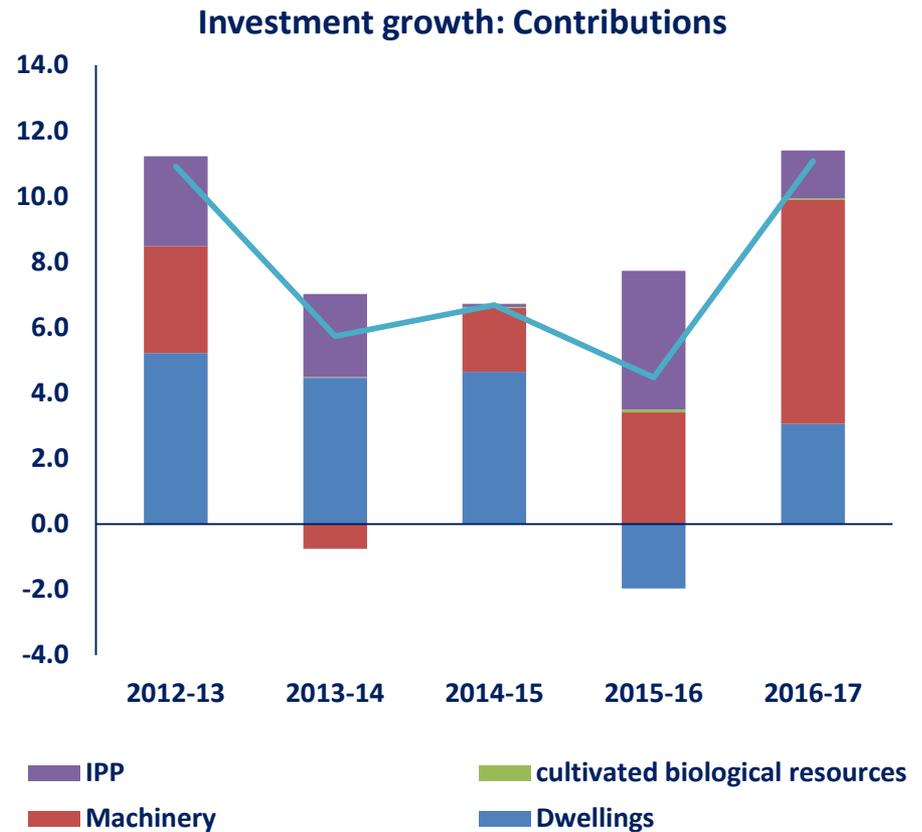
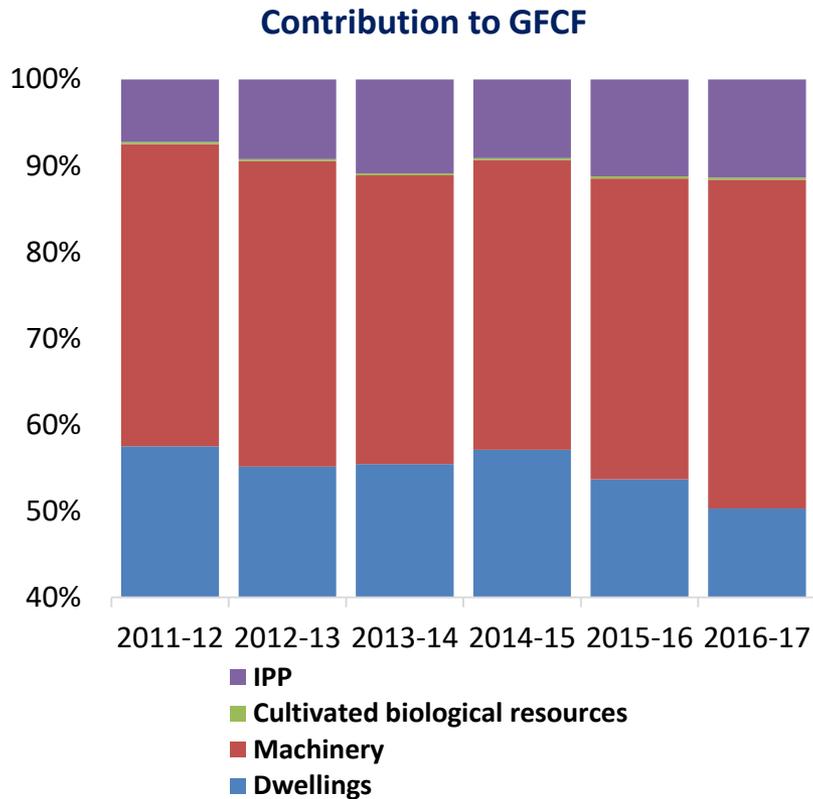
Absolute Revision in GDP Growth After Three Years – An International Comparison



Average Absolute Revision (bps): India=106, US=64, UK=68, Japan=55, Germany=29, France=47, Australia=42, Canada=21.

Source: OECD

Drivers of investment growth



- Investment in Intellectual property products (IPP), which has a share of over 10% in GFCF, measured based on the corporate balance sheet.
- Whether, coverage of IPP can be expanded? (like, start-ups)

Filing of Intellectual Property Applications: Can it be used

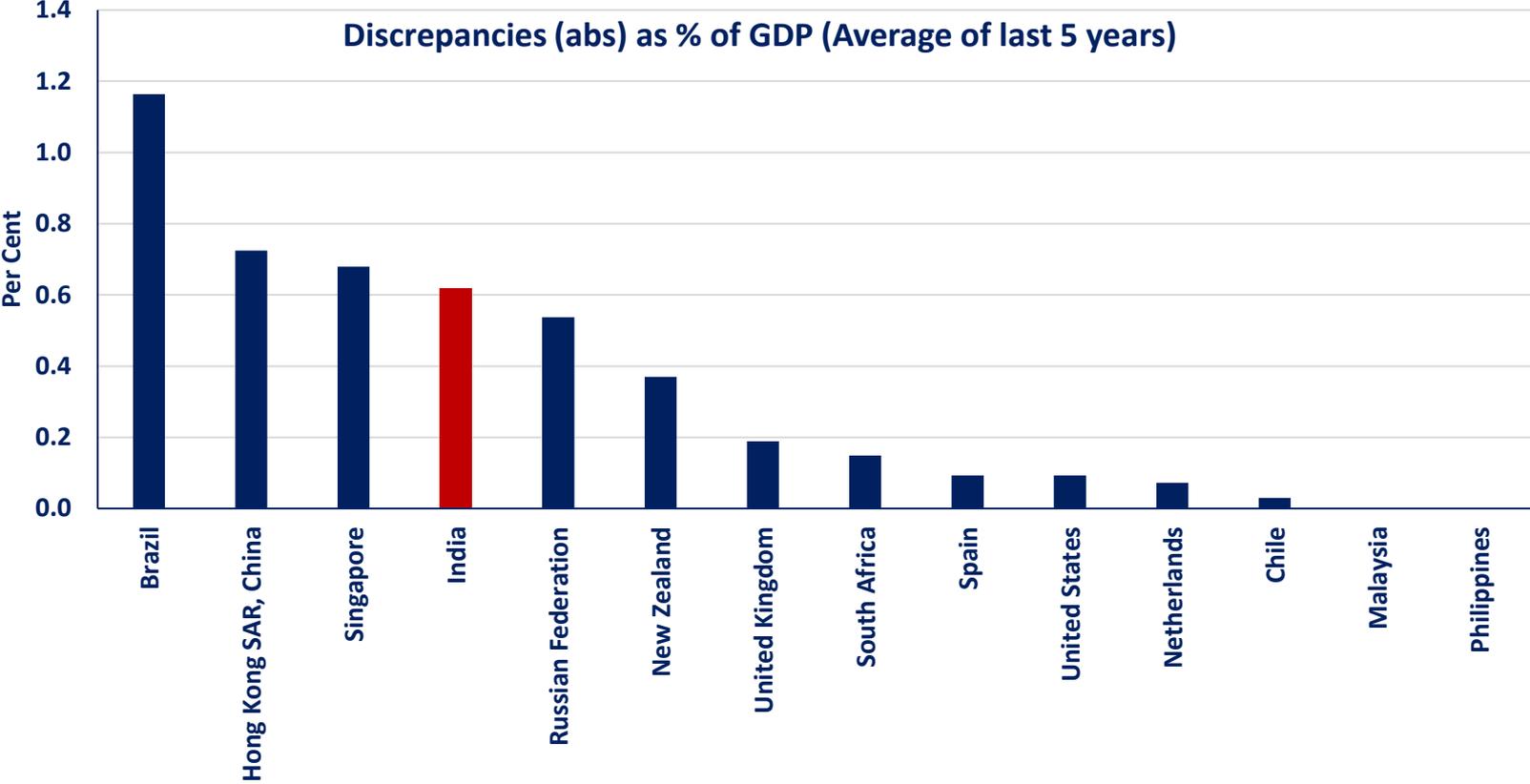
Application	2012-13	2013-14	2014-15	2015-16	2016-17
Patent	43,674	42,951	42,763	46,904	45444
Design	8,337	8,533	9,327	11,108	10213
Trade mark	1,94,216	2,00,005	2,10,501	2,83,060	278170
Geographical Indication	24	75	47	14	32
Copyrights	Copyright administration shifted to DIPP/ CGPDTM in 2016-17			14812	16617
Semiconductor Integrated Layout Designs (SCILD)	SCILD administration shifted to DIPP/ CGPDTM in 2016-17			-	--
Total	2,46,251	2,51,564	2,62,638	3,55,898	3,50,467

Source: Office of the Controller General of Patents, Designs, Trademarks and geographical indicators, DIPP, Ministry of Commerce and Industry.

GVA: Manufacturing sector

	Quarterly Estimates	Annual Estimates			Contribution
		Advance Estimate	Provisional Estimate	Revised Estimate	
Organized Manufacturing					
DCUs	Assumed Growth	Assumed Growth	Assumed Growth	Budget/Accounts	1.7
NDCUs	Assumed Growth	Assumed Growth	Assumed Growth	Budget/Accounts	6.2
Private corporate sector	Quarterly Statements of listed companies	Quarterly Statements of listed companies	Quarterly Statements of listed companies	MCA database	65.2
Quasi Corporates	IIP Data	IIP Data	IIP Data	ASI Data	6.7
Total contribution of Organized Sector					79.9
Unorganized Sector					
Unorganized sector	IIP Data	IIP Data	IIP Data	ASI Data	20.1
Total					100

Discrepancies in National Account Estimates – International experience



Source: World Bank

Some data gaps on NAS

General

- Unorganized trade and transport.
- GVA from Petroleum products undergo significant revisions.

G-20 Data Gaps Initiatives

- Publication of GFCF for dwellings at quarterly frequency.
- Housing Start-up.

Other

- Public and private sector investment at quarterly frequency.
- Publication of PFCE for fruits and vegetable separately as done in the case of earlier (2004-05) series.
- Supply and use table – available till 2012-13 (Improving timeliness).

Structure of Presentation

Issues related to;

- Price Statistics
- National Accounts

Price Statistics – compiled by RBI

House Price Index

- RBI compiles quarterly House Price Index, based on registration prices, for ten major cities.
- An aggregate House Price Index is also derived based on these ten indices.
- Examining to extend the HPI by incorporating few more cities.

Banking Service Price Index

- Monthly Banking Services Price Index (a part of the Experimental Services Price Index).
- Both for Direct and Intermediation Services.
- Data are released through the web-site of the Office of the Economic Adviser, Govt. of India.

Price Statistics – further improvement

Consumer Price Index (Housing) compiled by the CSO

- Housing price index is released along with the sub-groups rent (house, garage); residential building & land (cost of repairs only), water charges and watchman charges.
- Providing Separate Rent data under the head : CPI for owner occupied housing, Employer provided housing (also separately for Central Govt., State Govt. and PSUs) and Other housing.

G-20 Data Gaps Initiatives

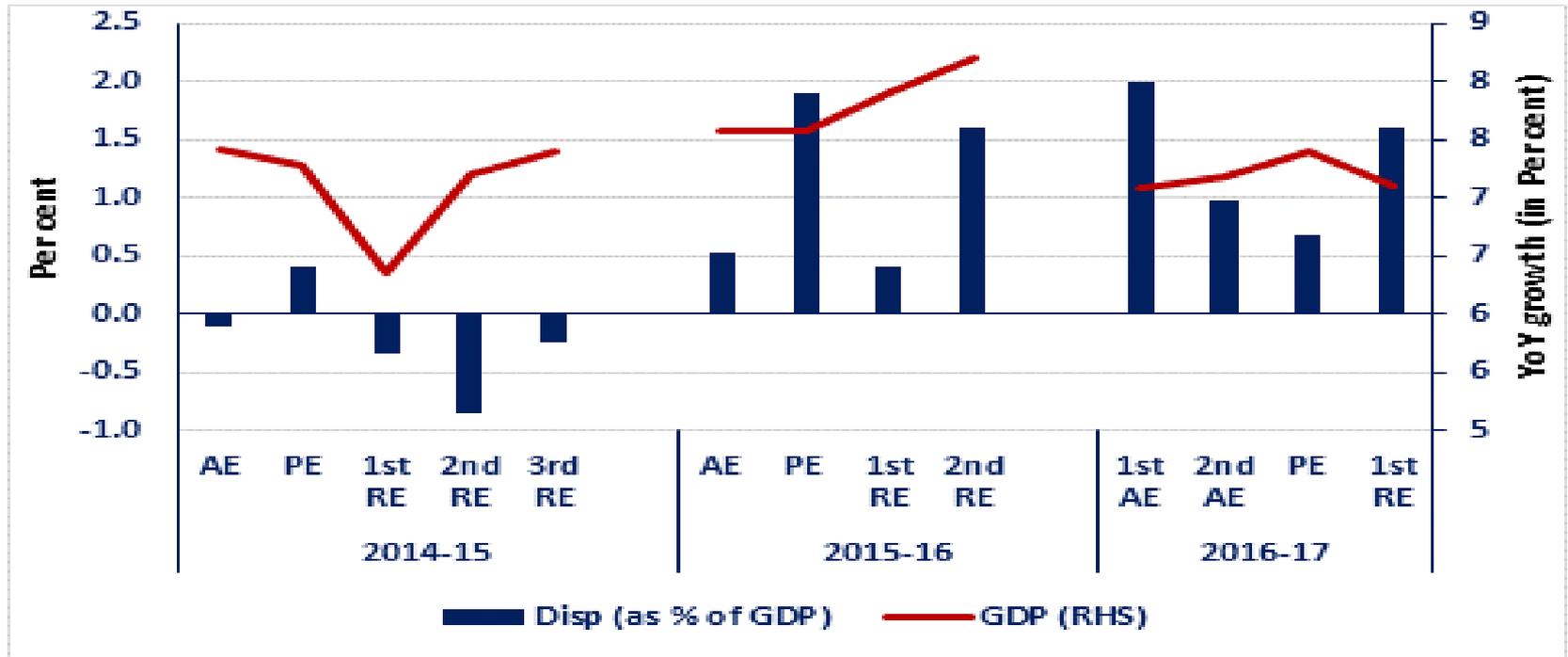
- Need to explore for compilation of Commercial Property Price

Consumer Expenditure– deviation in NSSO and NAS data

	NSSO (Rural)	NSSO (Urban)	NAS (all India)	Real Per Capita GDP growth
1999-00 over 1993-94	1.7	2.2	3.7	4.0
2004-05 over 1999-00	0.2	1.3	2.6	4.7
2011-12 over 2004-05	2.9	3.4	6.9	6.9

NAS estimates are higher than NSSO numbers.

Statistical Discrepancies in GDP Estimation



Examining Gross Domestic Product Data Revisions in India

**Anupam Prakash, Avdhesh Kumar Shukla, Anand
Prakash Ekka and Kunal Priyadarshi***

*: The views and opinions expressed in this paper are those of the authors and do not represent the views of the RBI.

Outline

- Motivation
- Literature review
- Release Calendar and Policy of Revisions
- Examining data revisions
- Conclusions and Suggestions

Motivation: Why to study GDP data revisions?

- Advance and quarterly GDP data are of crucial importance for policymaking and business planning
- These estimates are widely used by policymakers, analysts, researchers, forecasters and other economic agencies
- Since decision making is on real time basis, timeliness and reliability of data assumes paramount importance
 - However, there is trade off between the two
- Advance numbers are based on high frequency real time indicators while detailed information arrive at a significant lag
- Therefore, final estimates are treated as reliable and override earlier estimates
- Revisions reflect improvements in accuracy relative to earlier estimates
- Similar studies have been conducted for other countries as well

Literature Survey

- Zwiijnenburg (2015) in a study of Revisions of quarterly GDP in selected OECD countries (19) shows that most countries have upward revisions
- Bishop, Gill and Lancaster (2013) in a study on Australian GDP found that initial estimates are revised upward on an average
- Fixler et al, 2014 has done similar study for the USA.
- Shrestha and Marini, 2013: Study of 16 G20 countries where they found that revisions were large and in the downward direction during the crisis years.
- Sim, de Castro and Pascua, 2009: Study of six Asian economies where they found that annual GDP growth was revised upwards three years later and in the latest period.
- Landefeld, Seskin and Fraumeni, 2008: Study on the US where they found that mean absolute revisions for the quarterly estimates of GDP and gross domestic income (GDI) are slightly more than 1.0 percentage point.
- Sapre and Sengupta, 2017: Indicator based advance estimates released by the CSO usually tend to understate the growth of the Indian economy

Methodological issues

- Whether to study revisions in level or growth rate
 - Base year changes make it very difficult to analyse changes in level
 - Majority of the studies globally, therefore, have analysed revisions in growth rate
- Two key indicators
 - Mean revision
 - Mean absolute revision
- Analysing first and latest estimates or looking at the path of revisions
- **Present study analysed mean revision in growth rate**
- **Aim to analyse revisions in longer term interval**

Release Calendar and Revision Policy of GDP Estimates

First Advance Estimates (FAE)	January 07 (T - 83 days)	Benchmarked to Provisional Estimates of previous year. Estimates obtained by extrapolation using data available for 7/8 months.
First Revised Estimates (FRE) for previous year	January 31 (T + 10 months)	Detailed Estimates of various sectors is available. Estimates of savings, disposable income and capital formation are also provided.
Second Advance Estimates (SAE) / Third Quarter Estimates	February 28 (T - 1 month)	Benchmarked to First Revised Estimates of previous year. Estimates obtained by extrapolation using data available for 9 months.
Provisional Estimates (PE) / Fourth Quarter Estimates	May 31 (T + 2 months)	Based on indicators which now become available for the whole of financial year.
First Revised Estimates	January 31 (T + 10 months)	Revised Estimates of Budgets of Central and State Governments are available. Information of 42 crops, horticulture, animal husbandry and forestry are used.
Second Revised Estimates	January 31 (T + 22 months)	Figures available from actual expenditure of Central and State Government budgets along with data from Annual Survey of Industries.
Third Revised Estimates	January 31 (T + 34 months)	Improved coverage of central and state Government accounts, accounts of public and private corporations and accounts of local bodies.

T: Date of end of financial year.

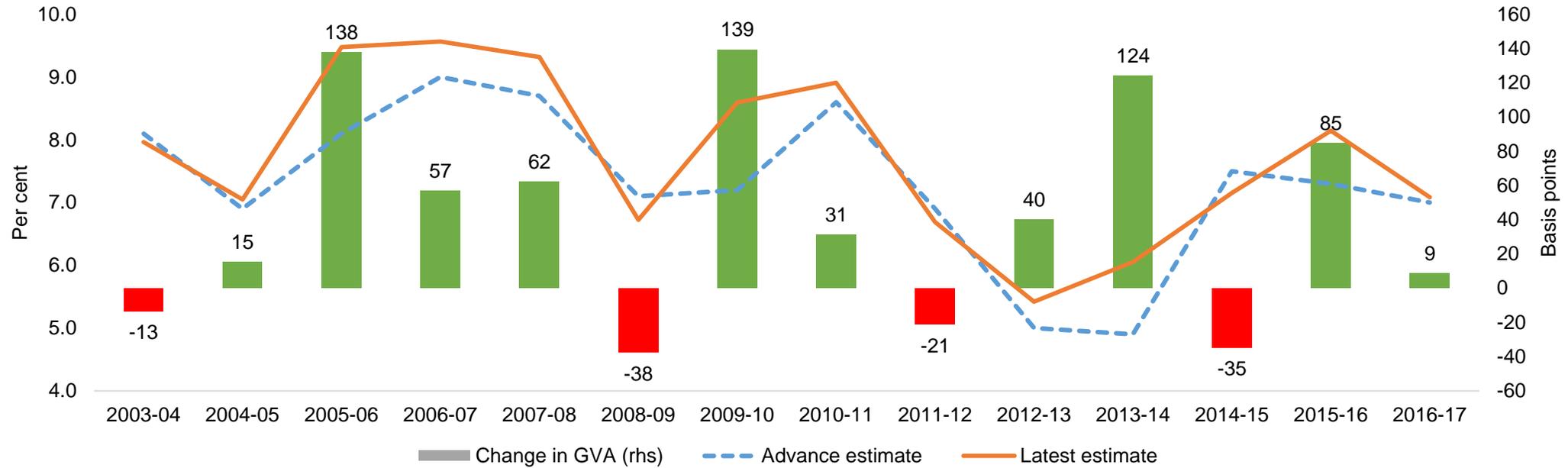
Note: Besides above regular revisions, base year revision of national account and key economic indicators are also a possible source of new information.

Source: MOSPI.

Sequence of Release in National Accounts Aggregates

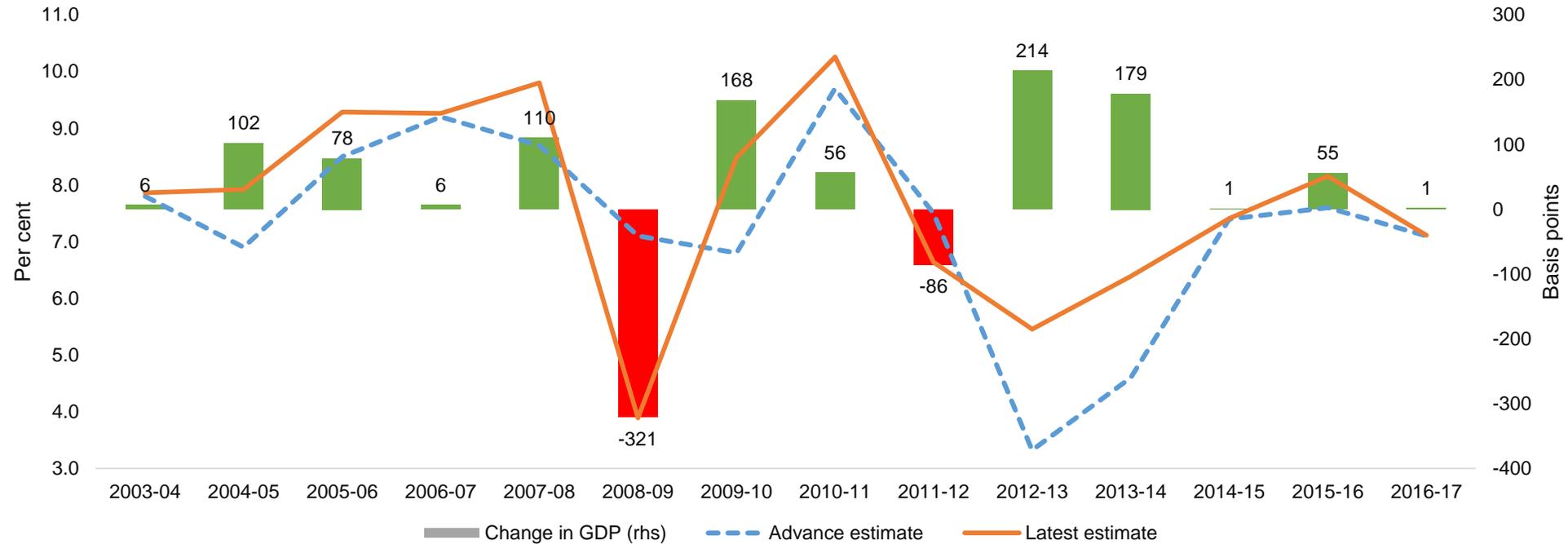
GDP at Market Prices (in per cent)						
	FAE	SAE	PE	FRE	SRE	TRE
2017-18	6.5	6.6	-	-	-	-
2016-17	7.1	7.1	7.1	7.1	-	-
2015-16	7.6	-	7.6	7.9	8.2	-
2014-15	7.4	-	7.3	7.2	7.2	7.4
GVA at Basic Prices (in per cent)						
2017-18	6.1	6.4	-	-	-	-
2016-17	7.0	6.7	6.6	7.1	-	-
2015-16	7.3	-	7.2	7.8	8.1	-
2014-15	7.5	-	7.2	7.1	6.9	7.2
FAE: First Advance Estimates; SAE: Second Advance Estimates; PE: Provisional Estimates; FRE: First Revised Estimates; SRE: Second Revised Estimates; TRE: Third Revised Estimates.						

Examining GVA data revisions



Years of Upward Revision	10
Average Upward Revision	70 basis points
Years of Downward Revision	4
Average Downward Revision	27 basis points
Average Revision	42 basis points

Examining GDP data revisions



Years of Upward Revision	12
Average Upward Revision	81 basis points
Years of Downward Revision	2
Average Downward Revision	204 basis points
Average Revision	41 basis points

Test of equality of mean and median of difference in first and last estimate of real GVA growth

(in percentage points)

Variable	Annual Growth (14 years)		Quarterly growth rate (60 quarters)			
	Mean	Median	Mean		Median	
GVA	0.43	0.37	0.55	***	0.54	***
Agriculture, forestry and fishing	0.84	0.99	0.34		0.74	*
Mining and quarrying	2.34	1.18	1.97	***	1.31	***
Manufacturing	2.06	1.75	2.09	***	1.15	***
Electricity, gas, water supply and other utility services	-0.20	-0.36	0.35		0.50	*
Construction	1.34	0.51	0.75		0.23	
Trade, hotels, transport, communication and services related to broadcasting	0.47	0.87	0.34		0.54	
Financial , real estate and professional services	0.49	0.43	1.08	***	1.26	***
Public Administration, defence and other services	-1.31	-0.81	-0.46		-1.06	**

Notes: 1. ***, ** and * indicates statistical significance at 1%, 5% and 10%, respectively.
2. Wilcoxon signed-rank test has been performed for median.
3. $H_0 = 0$ and $H_1 \neq 0$.

Test of equality of mean and median of difference in first and last estimate of real GDP growth

(in percentage points)

Variable	Annual Growth (10 years)		Quarterly growth rate (32 quarters)			
	Mean	Median	Mean		Median	
GDP	0.38	0.56	0.71	**	0.36	**
Private final consumption expenditure	1.56	1.14	1.31	**	1.19	**
Government final consumption expenditure	-0.92	0.41	-0.12		2.49	
Gross fixed capital formation	1.96	1.91	2.89	*	0.80	
Change in stocks	-7.39	-29.17	-3.65		-21.82	
Valuables	8.23	4.09	9.31		6.22	
Exports of goods and services	1.97	1.29	3.59	*	2.04	*
Imports of goods and services	2.99	2.43	15.33		2.67	**
Discrepancies	399.70	-46.67	-21.62		-96.68	

Notes: 1. ***, ** and * indicates statistical significance at 1%, 5% and 10%, respectively.

2. Wilcoxon signed-rank test has been performed for median.

3. $H_0 = 0$ and $H_1 \neq 0$.

Conclusions

- This study documents that on most occasions, the advance estimates underestimate real GVA and real GDP growth.
- This is mainly because firmer data are captured in successive rounds of revisions accompanied with gradual increase in data coverage.
- Furthermore, at the component level, 'mining and quarrying', 'manufacturing' and 'private final consumption expenditure (PFCE)' show significant revisions in subsequent releases relative to AEs.
- Improved data coverage over time is a major driving factor in the case of the manufacturing sector with information on corporate value added substituted by data from Annual Survey of Industries (ASI).

Impact of base year revisions

Base year revision 2011-12			
	2012-13	2013-14	
Advance numbers	3.3	4.6	
Old series - last reported number	4.7*	5.0^	
New series - first reported number	5.1\$	6.9\$	
Latest data	5.5	6.4	
*: FRE			
^: PE			
\$: Base year growth rate			

Base year revision 2004-05					
		2005-06	2006-07	2007-08	2008-09
Advance estimate growth rate		8.5	9.2	8.7	7.1
Latest growth numbers of old series		9.3	9.7	9.1	6.1
First number in 2004-05 series		9.3	9.4	9.6	5.1
Latest numbers of 2004-05 series		9.3	9.3	9.8	3.9

NATIONAL ACCOUNTS – OTHER ISSUES

Challenges in compilation of GDP in a digitised economy

- **E-commerce activities** : Information on digital transactions are available with the National Payments corporation of India. Data availability in respect of specific e-commerce transactions need to be explored.
- **Peer-to-peer (consumer to consumer) transactions** facilitated by web-based intermediaries like Uber, AirBnB etc.
- **Prices:** Quality-adjusted deflators for digital goods and services are required.
- **Financial sector** - Transactions in emerging areas like Payments bank , credit card operations,. also need to be captured

Challenges in compilation of GDP in a digitised economy

- Consumers as producers: blurring the production boundary
- Internet access by households has led to blurring between household production for market purposes, own account production, consumption
- Examples: – Own booking of hotels, flights by households – On-line banking

Challenges in compilation of GDP in a digitised economy

- Increasing migration of socio-economic activities to the Internet are leading to the generation and use of huge volumes of data – commonly referred to as “big data”.
- These large data sets are becoming a core asset in the economy
- Use of big data is a challenge to national accountants

Some data and conceptual issues in the National Accounts

Amey Sapre
amey.sapre@nipfp.org.in

200

Outline

- Some issues from a data users' perspective
 - On the new Enterprise method in manufacturing
 - Revisions in GDP data
- Some conceptual issues
 - MCA21 dataset and the estimates of the Manufacturing sector
 - Comparison of Pvt. Final Consumption Expenditure of Households

201

Motivation

Address issues of measurement and estimation

- To address some measurement issues before we use aggregates for estimation purposes
- Clarity in understanding Sources and Methods of GDP computation
- Can we develop some data quality checks?

202

Measuring GDP: The environment

Requirements of a metric

What are the issues in measuring GDP?

- Conceptual** - Requires definitions of “what to capture”
- Data** - Requires data based on definitions
- Statistical** - Requires a technique to estimate, aggregate and compile
- Comparability** - Requires comparability with other countries

IMF - **Special Data Dissemination Standard** - Guidelines on:

Legal environment	Relevance	Quality Management	Transparency
Ethical standards	Concepts	Scope of measurement	Classification
Valuation	Source data	Statistical techniques	Validation
Revisions	Consistency	Accessibility	

203

Some conceptual and data issues

- Use of Production Approach for estimation using MCA21 data for Manufacturing and Services
- Reconciling estimates from ASI and MCA21 dataset
- Allocation of manufacturing/service sector estimates based on ASI
- Comparable back series both at national and state level
- Data for building revision metrics
- Changes in choice of high frequency indicators

Limitations for a data user/researcher

- Limited availability of raw data and lack of comparability with other data sources
- Cannot entirely replicate sources and methods of computation
- Components of GDP by Expenditure are not available at the state level
- Some documentation on Benchmarking of estimates and allocation of GSDP at the state level

Details

206

Background: What changed in the Manuf. sector?

Methodology and Data sources

- Compliance with recommendations of SNA (2008)
- Goldar Committee report provided the road map for GVA estimation of the Pvt. Corporate Sector
- MCA21 data for Private Corporate Sector, instead of RBI study of company finances
- Shift from *Establishment* to *Enterprise* approach
- New formula and data from computing GVA
- Concept of active set of companies

Problem I: Measures of output and costs

Differences due to establishment and enterprise approach

- ASI used **Sales** as an output measure (2004-05 series)
- MCA21 uses **Disaggregated revenue** items as an output measure (2011-12 series)
- Disaggregated revenue includes:
 - ▶ Revenues from after sales services, financial services, treasury operations
 - ▶ Trading income and ancillary manufacturing activities
 - ▶ Some major expense items such as Power & Fuel, Advertising exp. could not be traced
 - ▶ Does it inflate total value of *output*?
- Difference in measures of output leads to an average 1 - 1.5% higher growth in GVA
- Difficulty in measuring costs at the Enterprise level
- Cases of negative GVA and blow-up of estimates
- Disconnect of GVA series with other volume based measures of output

208

Problem - II: Classification of Manufacturing firms

CIN codes can be misleading

- CIN is 21 digit unique number assigned to the companies at the time of formation, eg: L28920MH1992PLC004520
- ITC-HS codes of products were either unreported or unavailable in the XBRL forms
- CIN can be misleading as the economic activity and the registered NIC code may be different
- CIN for a company does not change with a change in business activity
- NIC codes change from time to time, eg: NIC 2004, 2008

209

What do we know about the manufacturing sector estimates?

scaling up and identification pose challenges

- Methodological improvements have led to quality improvements, but with some concerns
- Enterprise method has to some extent changed our view about the manufacturing sector performance
- Identification requires looking into product schedules and main revenue generating product
- Need clarity of how the state level estimates are allocated?

210

Some issues regarding Household Pvt. Final Consumption Expenditure

Resolving divergence between NSS and NAS estimates

- PFCE is the single largest component in the GDP
- The 2011-12 NAS series shows that at current prices, PFCE nearly doubled from INR 49.10 trillion in 2011-12 to 89.27 trillion in 2016-17
- The share of PFCE (at current prices) was around 58.79% of GDP in 2016-17 CSO (2017)
- Comparing PFCE of Households from 3 data sources: NSS, NAS and CMIE Consumer Pyramids

211

Consumer Pyramids Household survey

- CMIE Consumer Pyramids, provides unit level data on expenditures of over 1,58,000 households in India on a monthly basis
- The data set covers 25 states including some of the union territories
- Captures expenditure on food, intoxicants, restaurants & recreation, clothing & cosmetics, toiletries & home care products, bills, rent, EMIs & appliances, power, fuel, transport & communication, education, health and other misc. items.
- Sample share of each state closely follows the distribution of NSS
- Estimates are presented for the financial year 2016-17

212

Estimation Strategy

Scaling sample estimates using household weights

- Estimation strategy is similar to the NSSO's methodology: Sample estimates are scaled by household weights
- Aggregate expenditure by item, rural/urban and state wise
- MPCE by household
- Estimates in 3 groups:
 - ▶ Expenditures by broad categories, i.e. Food and Non-Food
 - ▶ Non-Food items: Intoxicants, Clothing & Footwear, Power and Fuel, Health, Education, etc.
 - ▶ Comparison of expenditure shares with NSS and NAS

213

Estimates of item wise PFCE, 2016-17

- Food and breakup of Non-food expenditures

Aggregate household expenditure by category,
Current prices, 2016-17

S.No.	Item	Value INR Cr.	% of PFCE
1	Food	1513821.08	49.77
2	Non-Food	1527803.31	50.23
2.1	Intoxicants	95204.96	3.13
2.2	Clothing, Footwear	158755.12	5.22
2.3	Cosmetics	179998.22	5.92
2.4	Power, Fuel	419306.59	13.79
2.5	Transport	84936.40	2.79
2.6	Appliances	18513.17	0.61
2.7	Rent, Etc	28228.16	0.93
2.8	Communication	120799.71	3.97
2.9	Health	83275.80	2.74
2.10	Education	127716.11	4.20
2.11	Recreation	11343.71	0.37
2.12	Restaurants	44696.19	1.47
2.13	Misc items	155029.17	5.10
	Aggregate PFCE	3041624.38	100.00

Computed using CMIE Consumer Pyramids

Estimates of state wise PFCE, 2016-17

Breakup by major states

State wise PFCE of Households, 2016-17, Current Prices in INR Cr.

State	Total	Rural %	Urban %	Rural % of Agg. PFCE	Urban % of Agg. PFCE
Andhra Pradesh	116999.45	67.59	32.41	4.36	3.09
Assam	71398.45	91.41	8.59	3.60	0.50
Bihar	211110.05	85.55	14.45	9.96	2.48
Chandigarh	3827.21	0.00	100.00	0.00	0.31
Chhattisgarh	55740.43	70.15	29.85	2.16	1.35
Delhi	50452.77	1.73	98.27	0.05	4.04
Goa	12112.29	24.61	75.39	0.16	0.74 /
Gujarat	184344.03	50.66	49.34	5.15	7.40
Haryana	86770.07	59.66	40.34	2.85	2.85
Himachal Pradesh	30612.00	86.87	13.13	1.47	0.33
Jammu & Kashmir	39579.18	63.14	36.86	1.38	1.19
Jharkhand	66996.04	65.32	34.68	2.41	1.89
Karnataka	185408.11	44.74	55.26	4.58	8.34
Aggregate PFCE HH	3041624.36	–	–	100.00	100.00

Computed using CMIE Consumer Pyramids

215

Estimates of state wise PFCE, 2016-17 ..

State wise PFCE of Households, 2016-17, Current Prices in INR Cr.

State	Total	Rural %	Urban %	Rural % of Agg. PFCE	Urban % of Agg. PFCE
Kerala	134121.39	40.12	59.88	2.97	6.54
Madhya Pradesh	149677.61	69.54	30.46	5.74	3.71
Maharashtra	361480.44	44.92	55.08	8.96	16.21
Odisha	66630.42	78.78	21.22	2.90	1.15
Puducherry	2434.16	58.68	41.32	0.08	0.08
Punjab	86758.82	56.24	43.76	2.69	3.09
Rajasthan	148376.40	74.00	26.00	6.06	3.14
Tamil Nadu	241866.08	45.15	54.85	6.02	10.80
Telangana	83377.53	50.38	49.62	2.32	3.37
Uttar Pradesh	408326.18	71.03	28.97	16.00	9.63
Uttarakhand	29806.96	57.72	42.28	0.95	1.03
West Bengal	213418.29	61.16	38.84	7.20	6.75
Aggregate PFCE HH	3041624.36	–	–	100.00	100.00

Computed using CMIE Consumer Pyramids

Comparing with NSS (68th Round, 2011-12)

Comparison of shares of items with NSSO's CES, Current Prices
CP data (2016-17), NSS 68th Rd. (2011-12)

Item	% of PFCE	% of PFCE	NSS 68th Rd.	
	Rural	Urban	Rural	Urban
Total Household Exp.	–	–	–	–
Food	52.30	46.03	52.90	42.60
Alcoholic Beverages	3.36	2.79	3.20	1.60
Clothing and Footwear	5.06	5.45	7.00	6.40
Power and Fuel	12.56	15.59	8.00	6.70
Transport	2.77	2.82	4.20	6.50
Applicances (Durables)	0.53	0.72	4.50	5.30
Rent, Housing, etc.	0.31	1.84	0.50	6.20
Health	2.75	2.72	6.70	5.50
Education	3.66	5.00	3.50	6.90
Misc. Goods and Services	5.54	4.44	4.00	5.60
Cosmetics	5.91	5.93	–	–
Recreation	0.30	0.49	–	–
Communication	3.56	4.59	–	–
Restaurants and Hotels	1.39	1.59	–	–

Computed using NSSO 68th Round CES and CMIE Consumer Pyramids

217

Annual and Monthly Per Capita Consumption Expenditure, Current Prices (Rs.)

State	Popl. (Cr.) (2015)	CP Monthly Per Capita Cons. Exp (Rs.)	NSS 68th Rd.	
			MPCE (R)	MPCE (U)
Andhra Pradesh	4.56	2139.45	1754	2685
Assam	3.10	1922.19	1219	2189
Bihar	10.91	1612.45	1127	1507
Chandigarh	0.11	2875.10	2633	3357
Chhattisgarh	2.59	1795.96	1027	1868
Delhi	1.57	2675.49	2762	3298
Goa	0.13	7510.34	2408	3051
Gujarat	5.56	2764.49	1536	2581
Haryana	2.41	2996.13	2176	3817
Himachal Pradesh	0.66	3854.29	2034	3259
Jammu & Kashmir	1.25	2642.26	1743	2485
Jharkhand	3.17	1758.70	1006	2018
Karnataka	5.71	2708.03	1561	3026
Kerala	3.05	3663.23	2669	3408

Computed using NSSO 68th Round CES and CMIE Consumer Pyramids

Annual and Monthly Per Capita Consumption Expenditure, Current Prices (Rs.)

State	Popl. (Cr.) (2015)	CP Monthly Per Capita Cons. Exp (Rs.)	NSS 68th Rd.	
			MPCE (R)	MPCE (U)
Madhya Pradesh	7.33	1701.99	1152	2058
Maharashtra	10.19	2956.86	1619	3189
Odisha	4.03	1376.59	1003	1941
Puducherry	0.12	1696.65	2173	3216
Punjab	2.62	2754.66	2345	2794
Rajasthan	6.85	1804.33	1598	2442
Tamil Nadu	6.81	2960.48	1693	2622
Telangana	3.36	2067.95	–	–
Uttar Pradesh	19.59	1737.13	1156	2051
Uttarakhand	0.98	2527.13	1726	2339
West Bengal	–	–	1291	2591

Computed using NSSO 68th Round CES and CMIE Consumer Pyramids

Comparing with NAS, 2015-16

Comparison of shares of items in PFCE, Current Prices, Rs. Cr.

S.No.	Item	NAS 2015-16	% of PFCE	Item	CP 2016-17	% of PFCE
1.1	Food	2365895	29.65	Food	1513821.08	49.77
1.2	Alcoholic beverages, Etc.	194166	2.43	Intoxicants	95204.96	3.13
1.3	Clothing and footwear	556306	6.97	Clothing, Footwear	158755.12	5.22
1.4	Housing, electricity, gas, fuels	1232038	15.44	Rent, Power & Fuel	447534.75	14.71
1.5	Furnishings, equip. etc.	261146	3.27	Appliances	18513.17	0.61
1.6	Health	342945	4.30	Health	83275.8	2.74
1.7	Transport	1150752	14.42	Transport	84936.4	2.79
1.8	Communication	177756	2.23	Communication	120799.71	3.97
1.9	Recreation and culture	74931	0.94	Recreation	11343.71	0.37
1.10	Education	311483	3.90	Educ	127716.11	4.20
1.11	Restaurants and hotels	165031	2.07	Restaurants	44696.19	1.47
1.12	Misc. goods and services	1146456	14.37	Misc.	335027.39	11.01
	PFCE in Domestic Market	7978905	100.00	Aggregate PFCE	3041624.38	100.00

Computed using NAS 2017 and CMIE Consumer Pyramids

Issues related to revisions in GDP data

Communicating uncertainty in official data

- The First National Income Committee presented error estimates of macro aggregates
- Over time this practice has not gained its due importance
- Initial estimates of various sectors tend to overstate the growth rate
- Policy to preserve GDP vintage data for comparing historic revisions

Revisions at the sub-sector level

Analysing the magnitude and direction of revisions

- Revisions at the sub sector level reveal the true picture of the economy's growth performance

Trend of revisions (AE - 2nd RE) at the sub sector level, 2008-09 to 2015-16

Sector	Trend
Agriculture	AE's understate growth, and the magnitude of revision has been widening
Manufacturing	AE's overstate growth, and the extent of overestimation has been increasing
Mining & Quarrying	AE's overstate growth,
Electricity, Gas & Water Supply	No consistent trend
Construction	No consistent trend, large swings in magnitude in either direction
Trade & Transport	AE's overstate growth, but the extent has reduced over the years
Finance	No consistent trend
Community & Personnel services	No consistent trend

Points to consider on revisions in GDP data

- Two aspects of revisions: *Data and Methods*
- Routine revisions should not be interpreted as changes in growth momentum
- Large revisions may be due to low quality data on the high frequency indicator
- Magnitude of revision is expected to decline with better coverage of high frequency and survey data
- Large and unpredictable revisions raise issues of credibility and reliability of estimates

Way forward

- Need historic time series data on revisions to assess the reliability and accuracy of revisions on a regular basis
- Error bands or Confidence intervals can be published along with growth estimates

How Equipped Are We To Measure Change in E-U Parameters?

G. C. Manna

Characteristics Studied

- LFPR, 15+, CWS
- UR, All Age-groups, CWS

Data Sets Used

- NSS 68th Round
- PLFS Sample Size

Study of Interest

- Likely levels of RSE as per adopted (PLFS) sample size
- No. of states/UTs by extent of deviation of CLs from true value (mean)
- No. of states/UTs where adopted sample size is able to detect specified change in levels between 2 time points

Method of Calculations for Deriving RSE and Confidence Limits

- Parameter value of LFPR/UR (p)
- $q = 1-p$
- $D = D_{eff}$ (taken as 2)
- Lower confidence limit (CL)
- Upper confidence limit (CU)
- $RSE = \text{SQRT}(Dq/np)$
- $CL = p (1 - 1.96 * RSE)$
- $CU = p (1 + 1.96 * RSE)$

Method for Required Sample Size to Detect Specified Change in Levels

- p_1 / p_2 : Value of levels at time points 1 / 2
- $q_1 / q_2 = (1-p_1) / (1-p_2)$
- Required sample size (n) =
$$D^* \text{sq}[1.96/(p_1-p_2)] * \text{sq}[\text{sqrt}(p_1q_1) + \text{sqrt}(p_2q_2)]$$

Value of Level Parameters, NSS 68th Rd

Sector	Male	Female	Person
LFPR (%), CWS, 15+			
Rural	80.1	30.5	55.4
	(69.9 – 92.4)	(5.2 – 67.3)	(44.4 – 73.8)
Urban	76.0	19.7	48.7
	(66.4 – 86.7)	(7.5 – 37.6)	(39.8 – 62.6)
UR (%), CWS, All age			
Rural			3.4
			(0 – 19.6)
Urban			4.4
			(0 – 25.4)

Findings: RSE

(No. of States/UTs by Likely RSE)

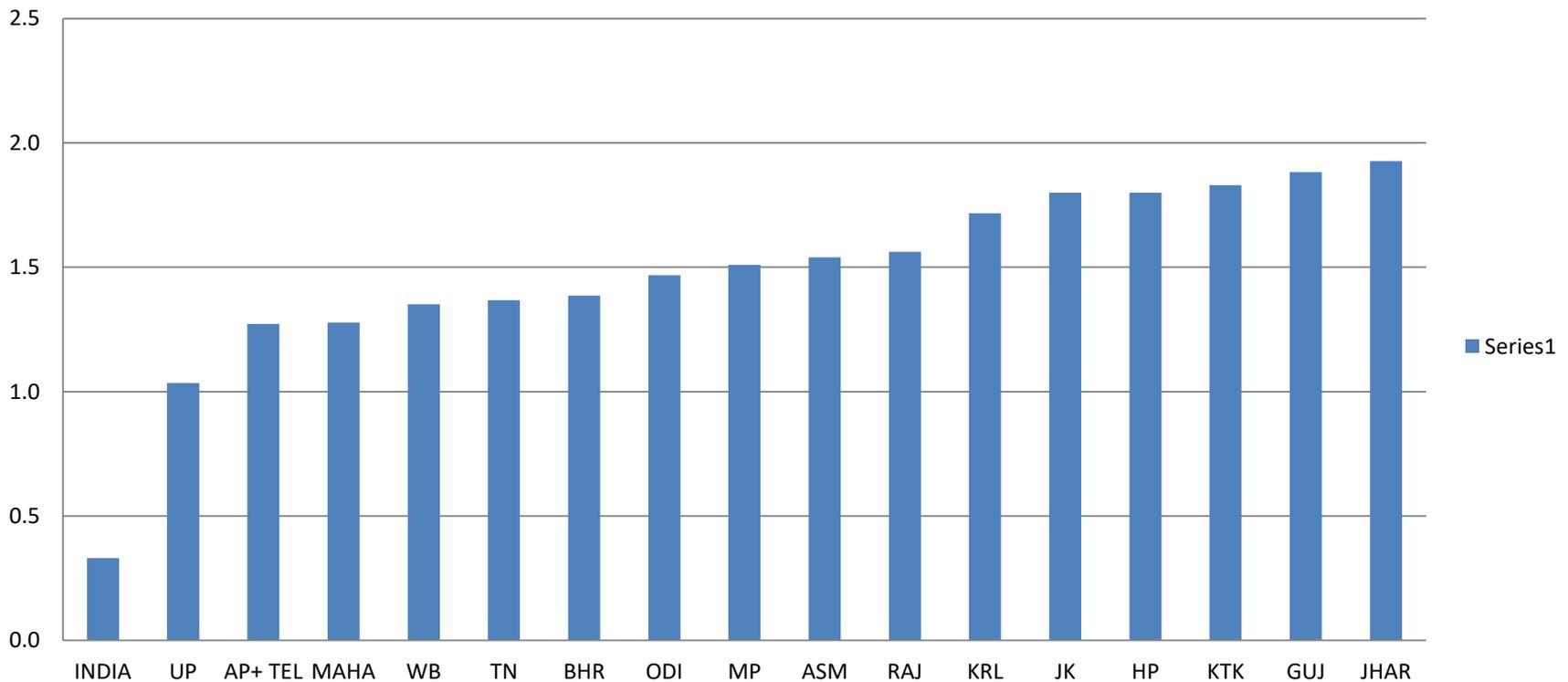
Charac.	RSE ≤ 5%			RSE ≤ 10%		
	M	F	P	M	F	P
LFPR_R	32	25	29	36	28	36
LFPR_U	34	10	32	36	26	36
UR_R*	-	-	1	-	-	10
UR_U**	-	-	1	-	-	10

*(3 states/UTs ignored, p = 0); **(1 state/UT ignored, p = 0)

Findings: Confidence Limits

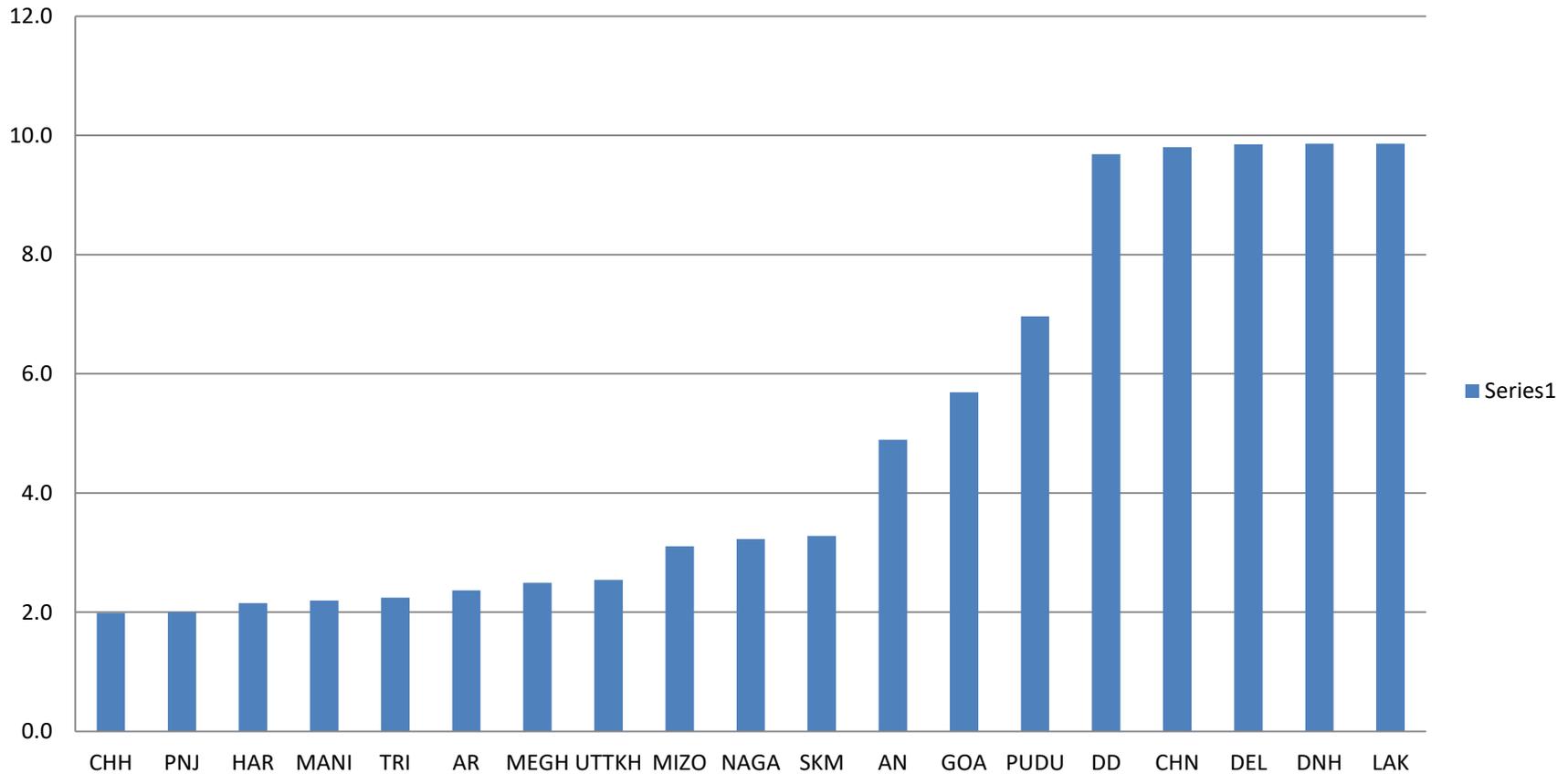
Deviation of Confidence Limits from True Value

Chart 1: LFPR, Rural – Deviation less than 2% point



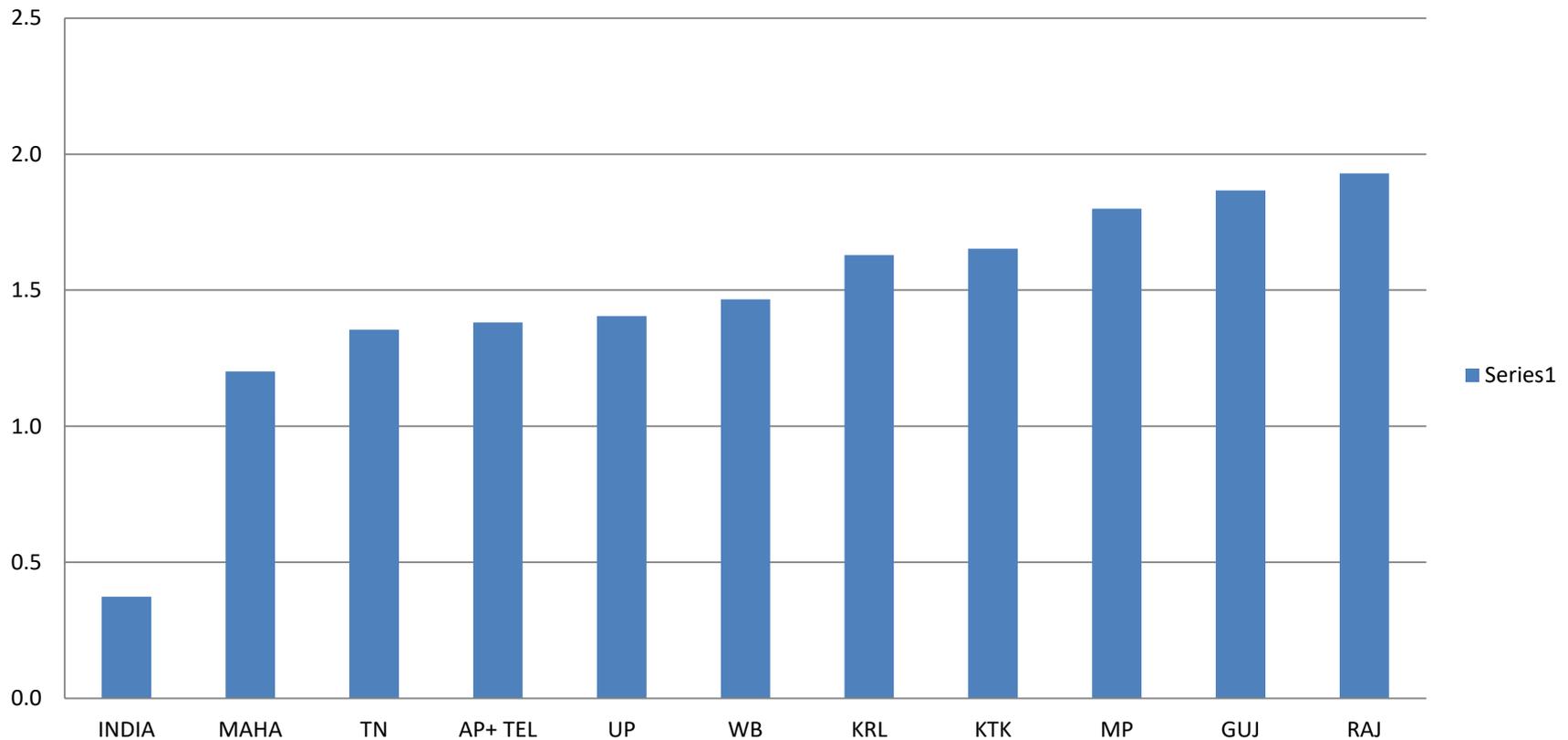
Findings: Confidence Limits ...

Chart 2: LFPR, Rural - Deviation 2% point or more



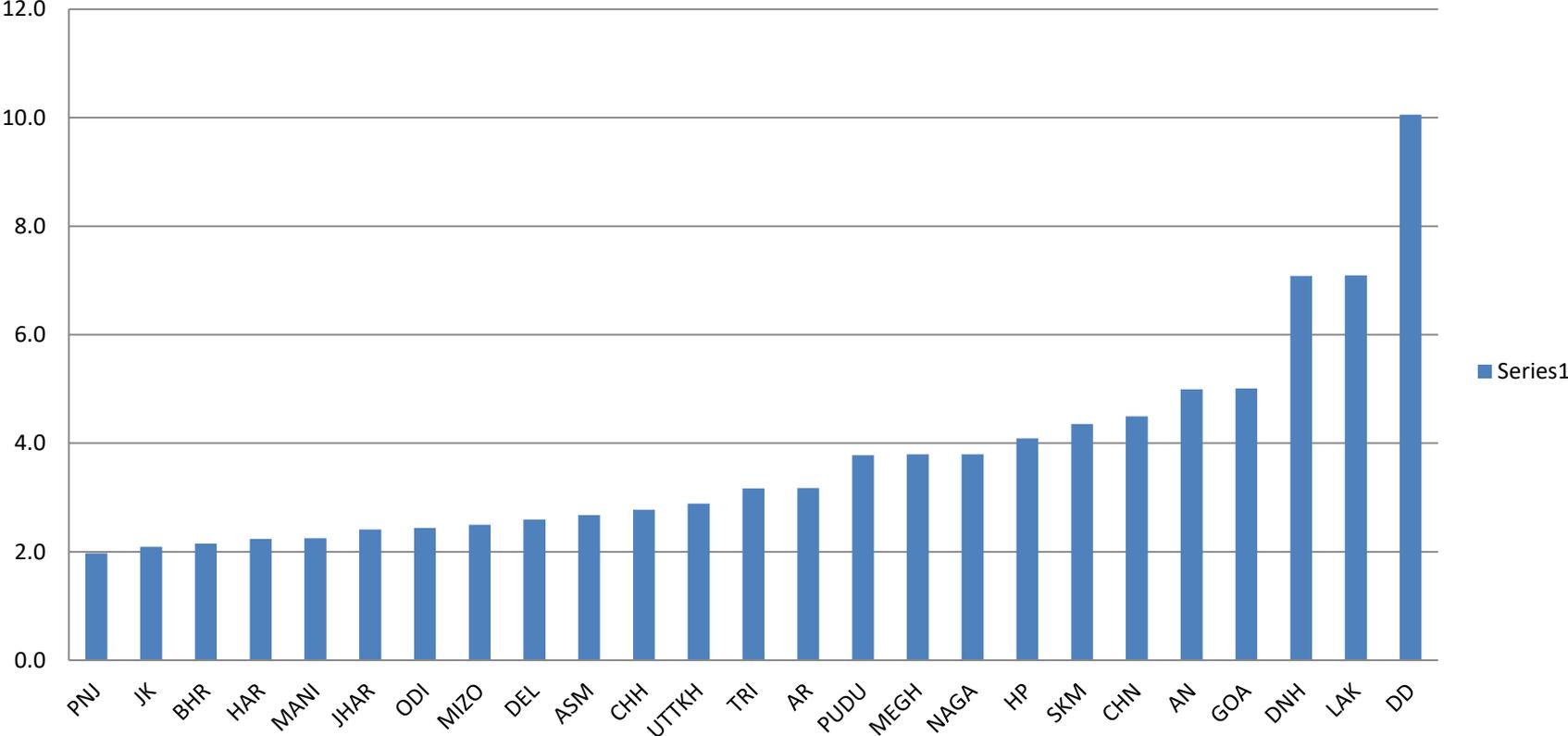
Findings: Confidence Limits ...

Chart 3: LFPR, Urban - Deviation less than 2% point



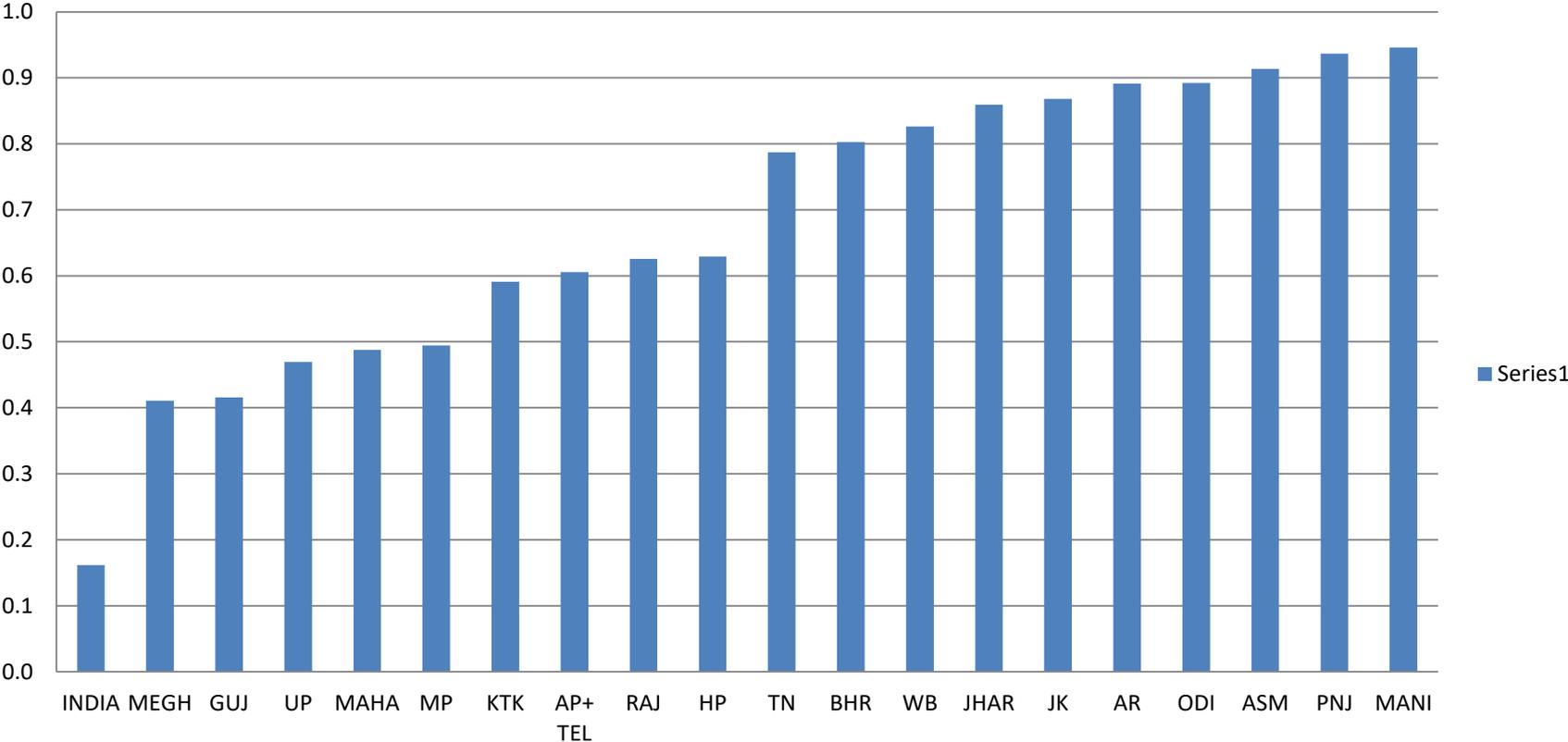
Findings: Confidence Limits ...

Chart 4: LFPR, Urban - Deviation 2% point or more



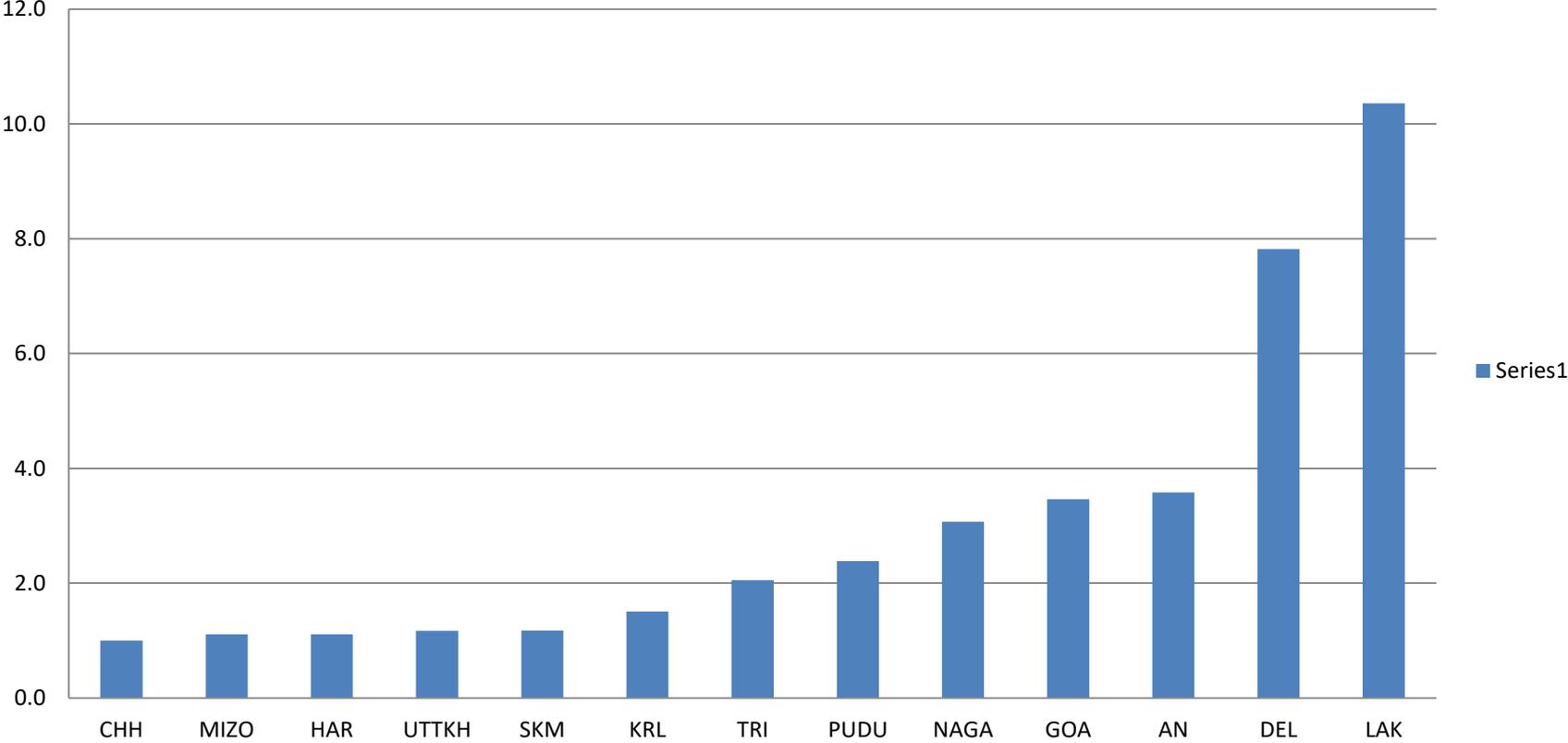
Findings: Confidence Limits ...

Chart 5: UR, Rural - Deviation less than 1% point



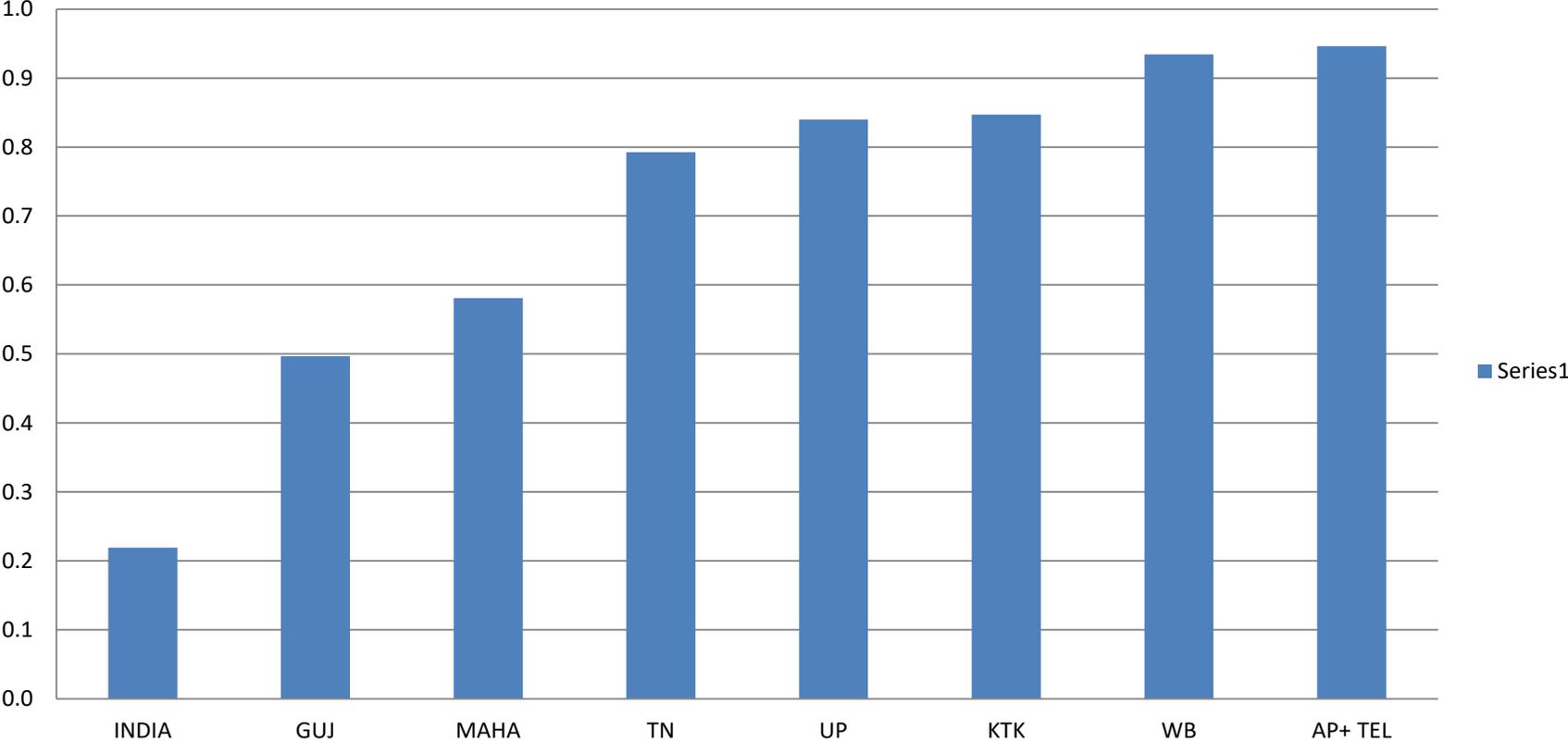
Findings: Confidence Limits ...

Chart 6: UR, Rural - Deviation 1% point or more



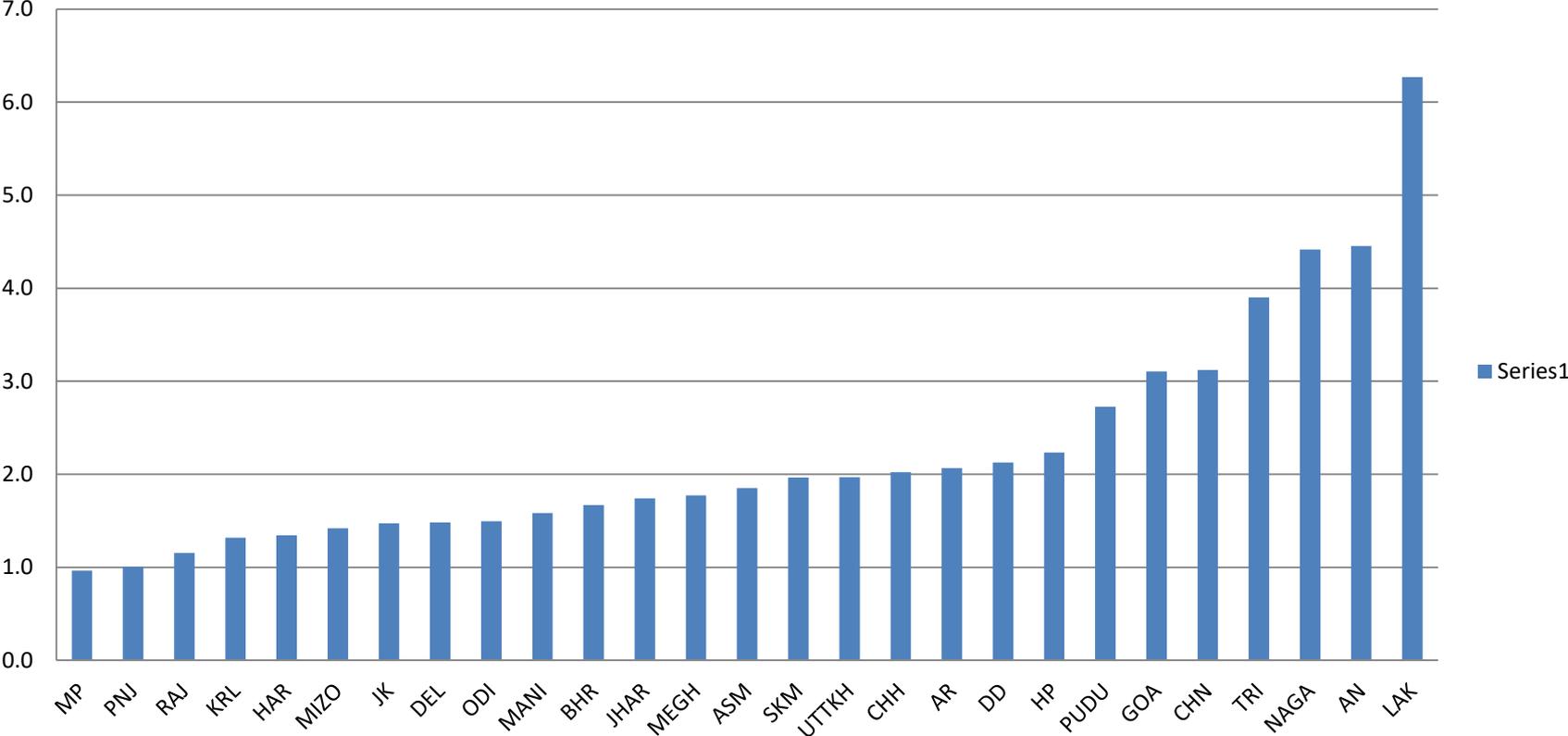
Findings: Confidence Limits ...

Chart 7: UR, Urban - Deviation less 1% point



Findings: Confidence Limits ...

Chart 8: UR, Urban - Deviation 1% or more



Findings: Adequacy of Adopted Sample Size to Specified Change

Charac.	No. of cases out of 36 capable to detect change (Δ) by specified value of change					
	$\Delta=0.5\%$	$\Delta = 1\%$	$\Delta = 2\%$	$\Delta = 3\%$	$\Delta = 5\%$	$\Delta = 10\%$
LFPR_R	-	1	1	8	24	29
LFPR_U	-	-	-	6	19	33
UR_R	2	7	25	-	-	-
UR_U	-	2	10	-	-	-

Concluding Remarks

- Precision of level parameters: LFPR – M & P very satisfactory, F – Issues; UR – Poor (majority)
- Deviation of CLs from true value (LFPR):
 - > 2% (Rural: 17 cases, Urban: 24 cases)
- Deviation of CLs from true value (UR):
 - > 1% (Rural: 13, Urban: 27)
- Ability to detect change in level:
 - 3% change in LFPR (Rural: 8, Urban: 6)
 - 1% change in UR (R: 7, U: 2)
 - 2% change in UR (R: 25, U: 10)

Awareness Workshop on “Challenges and Issues of Official Statistics, 18-19 May 2018

[Presentation: Ajit K Ghose]

Let me say straightaway that I am an admirer of the NSSO surveys of employment and unemployment. I have made much use of these surveys. I recently worked on a report – India Employment Report 2016 – in which I provide detailed analysis of the current state and past evolution of employment conditions in India based on data from the NSSO surveys. And I have found the surveys to be very good, much better than the usual labour force surveys carried out in most countries of the world.

- The standard labour force surveys are designed with employment and labour market conditions in developed countries in view: employment basically means *regular salaried employment (there usually is a small amount of self-employment)* and unemployment is excess supply of labour in relation to demand. The existence of *a variety of social assistance programmes including unemployment benefit systems* ensures that unemployment is affordable and that there is a *minimum supply price of labour*.
- Conditions are fundamentally different in developing economies such as India. Here regular salaried jobs account for a very small proportion of total employment. Much of the employment is either self-employment or casual wage employment.
- In these types of employment, there is *underemployment and work-sharing*; in fact, underemployment arises from work-sharing.
- What do I mean by work-sharing? That a certain given amount of work is performed by many workers working part-

time but could have been performed by fewer workers working full-time.

- To put it another way, we have a large surplus labour and this is accommodated through work-sharing. *Surplus labour shows up in underemployment, not in unemployment.*
- In the absence of social assistance programmes, most people cannot afford to be unemployed. *They must work even if the work they can find is irregular, part-time, low-productivity and low-income-yielding.* That's why work-sharing exists and *that's why many of the employed are poor.*
- But we do have some unemployment. How does this arise? Unemployment in India represents queuing by the “young and educated” for jobs in the formal sector of the economy. Queuing involves waiting. So, the “young and educated” must be supported through the waiting period. In the absence of social assistance programmes, the “young and educated” have to be supported by their families through the waiting period. Which means they come from relatively well-off families. There is no surprise here. In India, very few of the educated come from poor families.
- This is the “*complex reality in a big country*” that the NSSO surveys had been designed to capture. That's why *sophisticated sampling methods and multiple reference periods* had to be used and *multiple concepts of employment and unemployment* had to be devised.
- And, in my view, the NSSO surveys of employment and unemployment did a remarkable job of capturing “the complex reality in a big country” that I have talked about, thereby enabling us, the users, to develop a good

understanding of how the employment conditions in India's dualistic economy has been evolving.

Why, then, do we hear so many complaints about the inadequacies of the NSSO surveys?

- **I believe there are three main reasons: frequency of surveys; presentation of results; conceptual confusion.**
- **Undoubtedly, the NSSO surveys, *being elaborate and costly operations*, have been infrequent. With occasional exceptions, surveys have been conducted every five years since the early seventies. This naturally posed problems for users. I think the NSSO could have used *projections to produce annual series* on a few indicators such as participation rate, unemployment rate, etc. much as the Census Commission produces annual series on *demographic variables*. The variables involved – such as the participation rate, employment rate, unemployment rate, and so on – are slow-moving and projections could not have gone far wrong. And availability of annual series would have made many of the critics happy. Anyway, NSSO has now launched what is called *the periodic labour force survey*, which will produce quarterly data for urban areas and annual data for rural areas.**
- **Secondly, it is also true that survey results were presented in forms that were not readily usable. Let me take an illustrative example. Take the labour force participation rate: this was being presented separately for *rural male, rural female, urban male and urban female*. And for each of the four statuses: *UPS, USS, CWS and CDS*. There are good reasons why all this was done. A lot of possibilities were left open. But then it all looked rather complicated. Users**

looking for an overall participation rate would have to estimate it, which required quite a bit of effort. And if one wanted to know the size of the labour force, one would have to derive population figures from censuses and use these together with the detailed participation rates. *Again, an additional publication giving the estimates (already using census population) would have been helpful.*

- Thirdly, there is a serious lack of understanding of the employment and labour market conditions in India among researchers in India. Many assume these are the same as those in developed countries. Let me give an example. Since the early 1980s, the growth of labour force has been decelerating basically because of declining female participation rate. This has meant decelerating growth of employment. GDP growth, however, has been accelerating during this period. So there has been an inverse relation between GDP growth and employment growth. This has been interpreted to mean a rapidly declining employment intensity of growth (sometimes called jobless growth) while in truth this only shows decelerating labour force growth. This shows a lack of understanding of employment and labour market conditions in India. Similarly, many researchers want to reproduce the kind of analysis done in developed countries: *estimate wage equations or returns to education or analyse job polarisation*, and so on. NSSO surveys (for good reasons) do not produce the kind of data they look for. So they proclaim NSSO surveys to be of no use.
- This third kind of criticism can be ignored. But the first two kinds of criticisms can and should be responded to. In addition to the detailed reports, NSSO should bring out publications giving estimates of certain variables in absolute numbers already using census estimates of population.

Finally, impatience with the absence of high-frequency data has now led to a desperate search for such data. One result is the recent release of monthly estimates of payroll data derived from certain databases such as EFPO, ESIC and NPS. In a way, this is to be welcomed. These databases should be cleaned up and properly processed to produce estimates that can be very useful complements of other available employment data.

But the disquieting fact is that some people have shown a serious lack of understanding of what these estimates can tell us in the best of circumstances. And some people even view these data as substitutes for data generated by the NSSO surveys.

In the best of circumstances, these sources can give us partial estimates of formal employment defined as regular employment with entitlement to some kind of social security. I say partial estimates because enrolment is not obligatory for workers who earn an above-threshold salary. In the case of EFPO, for example, the salary threshold is Rs. 15,000 per month. (I recently wrote a piece on these issues: “Payroll Data and Formal Employment”, *Business Standard*, 7 May 2018.)

On the other hand, NSSO surveys since 1999/00 have generated data from which estimates of formal employment with greater clarity. And the periodic labour force surveys should give us annual estimates. Payroll estimates will make comparative analysis possible, just like the estimates from the ASI.

A User's Perspective on NSS Employment Surveys

Ravi Srivastava

Former Professor of Economics, JNU, and Member, NCEUS,
Gol

Main data sources on employment in India

- National Sample Survey Organisation: Quinquennial Surveys on Employment-Unemployment (till 2011-12)
- Population Census (Decennial)
- Labour Bureau Annual Survey on Employment-Unemployment (since 2017-18) & quarterly repeat rounds for urban areas.
- National Family Health Surveys (Periodic)
- India Human Development Survey (non-governmental & periodic)
- Consumer Pyramids Household Surveys (CPHS) of the CMIE
- For segments of workers: ASI, administrative data etc.

NSS Quinquennial Rounds

- The Quinquennial Rounds have been a very rich source of data on employment and earnings, using both the usual status (one year reference period) and current status (each half day of the reference week).
- Scope of the survey enlarged to provide coverage to relevant topics – contextually, as well as vide ILO (skills, social background, informality, social security, under-employment, and time related unemployment).
- Provide basis for National Accounts Statistics, and to varied policy relevant studies on trends and pattern of employment.

NSS Quinquennial Rounds

- Household details
- Demographic, education and skill details
- Activity status (principal and subsidiary status), industry, occupation.
- Formal sector and formal employment: employment status enterprise type, location of workplace; for paid non-farm employment: type of contract, payment.
- Social security status of non-agricultural employees.
- Activity status for each half day over reference week to give weekly and current daily status; industry; occupation, wages & earnings; mode of payment.
- Under employment, seeking/available for work/alternative employment
- Follow up questions on production of goods for household consumption and availability for employment for women engaged in domestic duties (no detailed question on household production of self-consumed services)
- No survey after 2011-12

Major Issues with the Surveys

- Periodicity of the data (several countries, even in the region moved towards QLFS)
- Coverage of issues smaller than most countries in the region (LFS in many countries much more exhaustive in coverage of issues).
- Since 2013 and the 19th ICLS, issue of moving towards new standards in measurement which can provide deeper understanding of labour market dynamics (unaddressed in the PLFS).

Bangladesh QLFS 2015-16

- Employment profile of 15+ age group
- Separate Blocks on work for pay or profit, and production of goods and services for household use.
- Details relating to Main job and secondary job, including hours per day during reference week.
- Information on production of goods and services for own use.
- Informality
- Underemployment and unemployment as before.
- Unpaid trainee work and volunteer work included
- Occupational safety and health; conditions of work
- (In)migration

Nepal Labour Force Survey

- Carried out in 1998-99 and 2008
- Data collected on “current economic activities” over a 7 day reference period, including paid employment, self-employment, and collecting firewood, fetching water, or any other home based economic activities (except services) (hours per week) for all persons >5 years.
- Includes data on activities with job-attachment, not worked during reference week.
- Data separately collected on other home based activities (services) (hours per week).
- Type of activity, type of enterprise, and for paid work: type of contract, social security, paid leave, wages/earnings.
- Usual activity status with reference period on one year also collected.
- Duration of un- and under-employment and inadequacy of earnings.
- “Work” = one hour of work in reference week on any economic activity.

Srilanka Quarterly labour force survey (QLFS)

- Information about demographic characteristics of household members, literacy in three languages, general and vocational education attainment.
- Activity status, industry, occupation, job status, size of enterprise, type of contract, social security.
- Reference period for employment is whether engaged in any income-earning activity for at least an hour the previous week.
- Data needed to define informal employment available since 2006.
- Salaries and wages of daily or monthly paid employees (reliable data since 2006); earnings of self-employed (since 2013).
- Information about job search, job aspirations, discouragement, if not employed. Availability for additional work.
- Representative up to district level.
- Roughly 25,000 households covered island-wide. Series began in 1992, but Northern and Eastern Provinces could not be covered completely until 2011. **Trend comparison island-wide possible only from 2011 onwards.**
- QLFS 2017 included a special schedule on women's time use.

General observations on the LFS in the Region

- Most countries have moved to quarterly surveys.
- Topics covered include demographic and migration status, current activity status, details of paid jobs, informality, under-employment and unemployment, occupational health and working conditions (except India).
- All surveys now use current WEEKLY status. Information collected on usual status varies.
- All surveys still do not adhere to 19th ICLS concepts
- All surveys, except India, collect information on hours of work, at least for principal and secondary activity “for pay or profit” (HOURLY WAGE CAN BE CALCULATED FOR PAID WORK)
- Variations exist on age cut-offs, benchmark hours to estimate underemployment; inclusion of types of work to constitute labour force (although till date all surveys adhere to 13th ICLS and 1993 SNA).
- Surveys generally focus on main and subsidiary occupation (except Nepal).

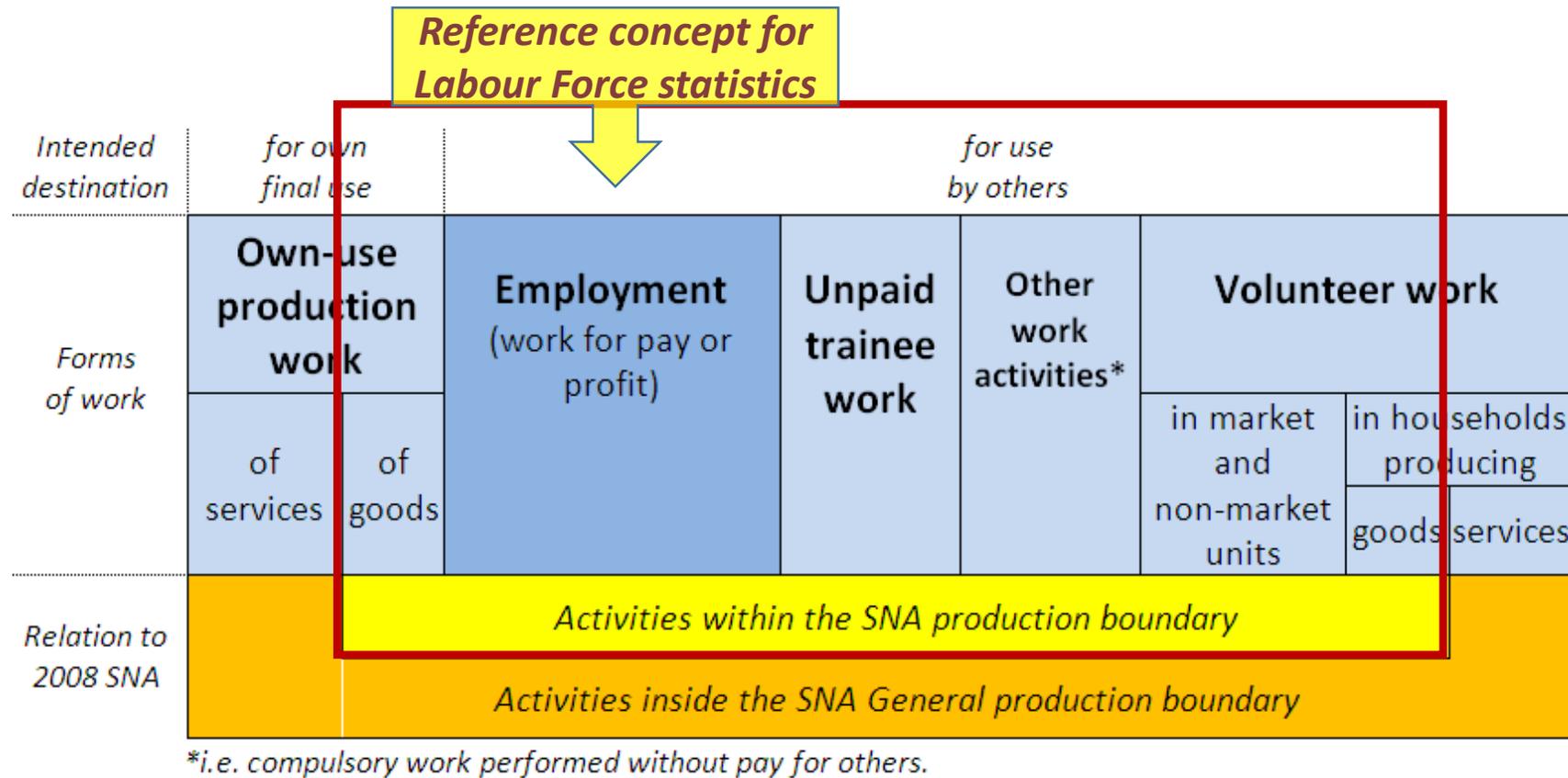
19th ICLS (2013)

- Flows from a wider conceptual framework and has considered:
- The ambiguities in the existing concepts (13th ICLS).
- Problems of comparability in the operational definitions used by countries
- Changes in the world of work, including new and non-standard forms of employment, unpaid and voluntary work.
- Need to have wider measurements of the pool of employables.
- Inter-relationship between different forms of work, paid and unpaid.
- Need to have a conceptual framework which can address issues of equity and inclusion

19th ICLS

- Has clearly distinguished between three forms of work within the extended SNA framework, with a) and b) falling within the general production boundary.
- Employment for pay or for profit
- Unpaid and volunteer/trainee work involved in the production of goods, including goods for household consumption.
- Unpaid work, including volunteer work and work within families involved in the production of services
- By excluding b) from the notion of “employment” has used a narrower definition of employment and labour force.
- Has called for a simultaneous measurement of all three types of work
- Has made new and sharper distinction between “unemployment”, “time related unemployment”, “unmet need for employment” (or labour under-utilization) and “potential labour force”

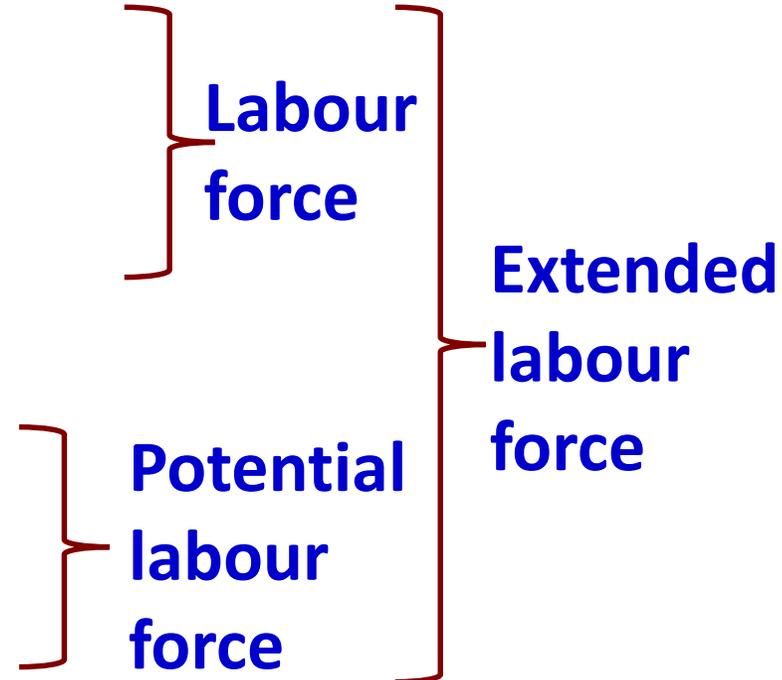
Forms of work



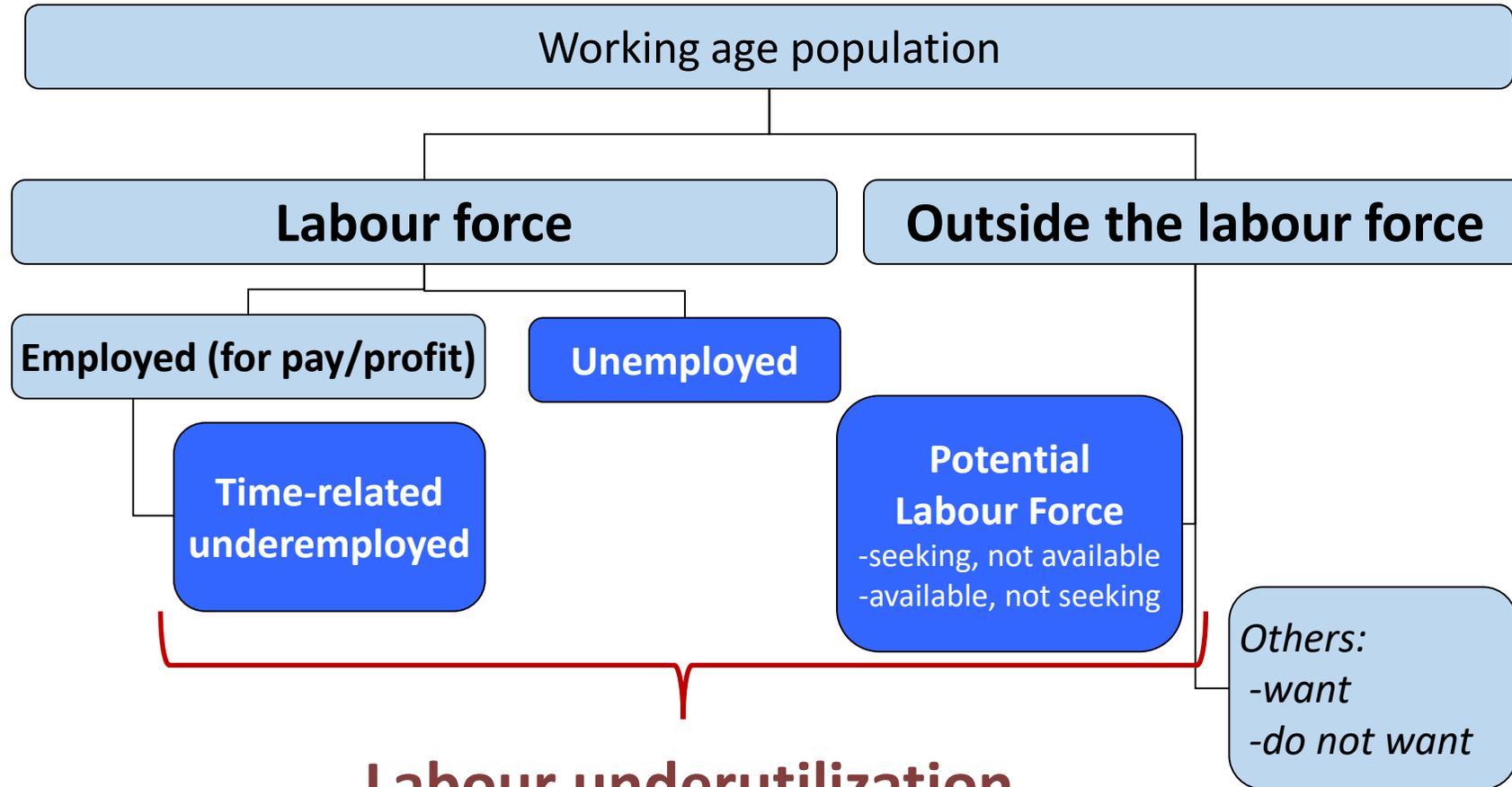
Work: “Any activity performed by persons of any sex and age to produce goods or provide services for use by others or for own use”

Labour force status classification

- **Employed** (for pay/profit)
- **Unemployed** (seeking + avail.)
- **Outside the labour force**
 - Seeking, not available
 - Available, not seeking
 - Others, want work
 - Others, do not want work



Labour underutilization



Labour underutilization
(unmet need for employment)

The PLFS Committee

- Between 2004-05 and 2011-12, two intermediate thick rounds of employment surveys were carried out.
- A Committee on Annual Estimates of Employment and Unemployment was set up by the Planning Commission to examine the feasibility and the design of an Annual Survey of Employment.
- NSC set up a Committee chaired by Prof Kundu in 2009 to examine the issue of monthly/quarterly employment surveys in urban areas.
- The Committee recommended the current design of the PLFS in 2009 using of rotational panel data on line with several other LFS.
- Focused on CWS and **on three main employment indicators – WPR, LFPR and UR**
- These surveys were not intended to replace the thick Quinquennial Rounds which had a more extensive coverage of issues.

Periodic Labour Force Survey 2017-18 (PLFS)

- Initiated from 2017-18
- Annual Survey for rural and urban areas (Visit 1); Revisit survey (quarterly) for urban areas.
- **Visit 1:** Activity status (principal and subsidiary status), industry, occupation, employment status, enterprise type, location of workplace; for paid non-farm employment: type of contract, availability of paid leave & social security.
- Weekly activity status **for activity codes 11 to 82 & 98** (up to two activities) for each day over reference week to give weekly and current daily status; industry; occupation, hours worked, wages & earnings; availability for additional work.
- Captures hours of work for weekly status to give hourly earnings. Single question on earnings of self-employed last 30 days.
- **Revisit Schedule** to collect current status in urban areas.

Limitations of the PLFS

- With the PLFS, focus has shifted to employment for pay or for profit.
- Only the first visit will provide estimates of employment across rural and urban areas (will ignore rural-urban labour flows, seasonality issues more germane to rural areas).
- Coverage of issues more restricted than the quinquennial rounds.
- Conceptual framework not consistent with 19 ICLS – even in the PLFS, hence revision in the focus and conceptual framework ignored.
- Voluntary paid and unpaid work, trainee work, work in co-operatives excluded.
- Subsidiary work on household production of goods for own use captured as non-work.
- Care work (work on household production of services for own use) not captured.



DATA BASE ON EMPLOYMENT AND LABOUR MARKET

Alakh N. Sharma
Director, Institute for Human Development
Delhi



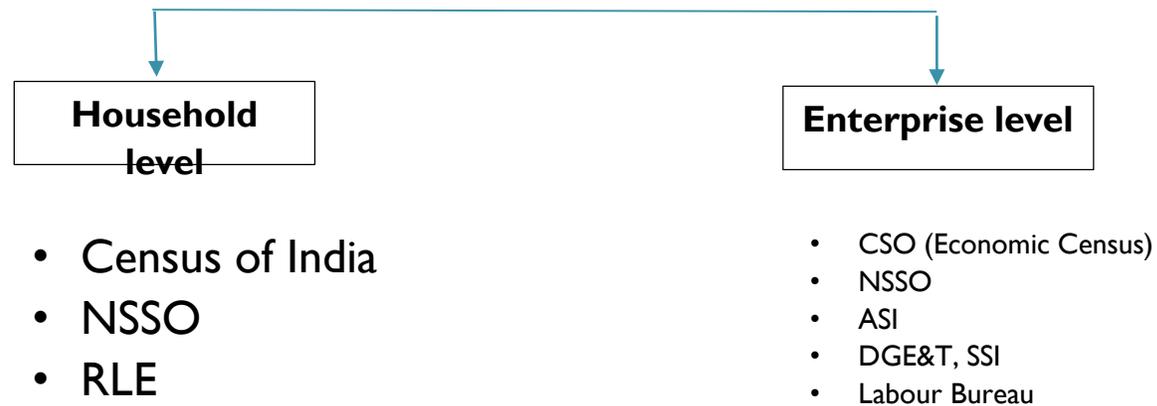
I. Complexities of the Indian Labour Market

- Labour market in India is very different from developed countries
- Open unemployment low, but high level of disguised underemployment
- High poverty and adversely related to unemployment
- Multiplicity of occupations
- High incidence of self-employment and casual wage work and hence lack of explicit employer-employee relationship
- Regular wage work relatively lower
- As a whole, high level of informality
- Standard theories of labour market do not largely apply in the Indian context

2. Estimating Employment/Unemployment

- Given the complexities of the Indian labour market, difficult to come out with robust indicators of employment and labour market performance
- Like developed countries, unemployment is not a valid indicator
- Hence, India has developed its own system of estimation of employment/unemployment
- Usual Principal Status (UPS)
 - Usual Principal and Subsidiary Status (UPSS)
 - Current Weekly Status (CWS)
 - Current Daily Status (CDS)
- The concepts are unique for any developing country and have more or less served well

3. Sources of Information on Employment



4. Enterprise Survey

Coverage

- Mostly unorganized / unincorporated enterprises
- Large number of enterprise characteristics
e.g. type of enterprise, size of employment, capital, expenses, receipts, outstanding loan etc.

Limitations

- No socio-economic information on workers.
- Problem related to coverage (exclusion of large units, corporate sector)
- Likely under-reporting of receipts and accordingly gross value added
- Integrating so many activities in a year/round (e.g. 67th/73rd) affecting precision of estimates at the activity/ industry level
- ASI on useful source, but underreporting a problem
- Underreporting of employment is a major issue

5. Household Survey: Census

- HH based – complete enumeration
- Ground data
- Dis-aggregation up to village/town level
- Fewer socio economic variables
- Limited scope of generating new tables
- Underreporting of women employment
- In general, not suitable for collecting data on employment

6. NSSO HH Survey

- Sample HH based
- Unit level data
- Dis-aggregation up to state/region
- Large number of socio economic variables
- Many cross classification possible

7. Some Brief Description of NSSO Information Base

Comprehensive. Quinquennial surveys specially designed for labour markets information. Periodic Labour Force Survey (introduced in April 2017)

Possible Levels of analysis	
Cross section	Time Series
Rural –urban	Different rounds
State & Region level	
Sex, Age Cohorts, Social Groups, Expenditure quintiles	

7. Brief Description of NSSO

Contd....

- Possible to develop a number of analytical categories/variables
- Underemployment/surplus labour
- Unemployment for various categories (social groups, educational level, location, gender etc.)
- Sectoral distribution of employment
- Possible to develop unique analytical categories of labour market
 - Organised sector/unorganised sector
 - Regular formal-regular informal
 - Casual-self-employed
 - Formal/informal workers

7. Brief Description of NSSO

Contd....

Major Issues Covered

- WPR, UR, LFPR, child labour, old age participation etc. by age/sex/social group...
- Types & Sectors of employment: by dis-aggregated NIC and NCO
- Employment Status: Self-employed, Regular, Casual; Education and Skill/Vocational training; Unemployment; and daily intensity of activity during reference week;
- Some aspects of social security of workers (for wage/salaried & casual workers)
- Informal & Unorganised Sector employment
- Wages and earnings
- Consumption expenditure (through one / few shot questions)
- Additional items in PLFS: Hours actually worked and hrs. available for additional work on each day during reference week

8. Problems and Limitations Related to NSSO HH Survey on E-U

- Issue of reliability of estimates below state level i.e. region/district level; even there are precision issues for smaller states/Uts
- Methodological interventions thro' increase of sample size or otherwise including pooling of central & state sample data
- High margin of errors associated with unemployment rates by gender even at the state level for a number of states
- Refinements through stratification / sampling?
- Tackling the issue of underestimation of population for urban areas
(Improving UFS frame; Modifying stratification and sampling techniques)
- Underestimation of workforce, particularly women workers in the informal sector (eg. huge difference between estimates of 1999-00 and Time Use Survey of 1998-99 conducted by CSO)
- Also significant divergence between estimates of unemployment rates between different surveys (eg. Unemployment estimates of NSSO quinquennial round 2011-12 and Labour Beureau survey of 2011-12)
- Some crucial Issues are not Directly Available
 - Out-migration
 - Activity pattern of those outside labour force
 - Quality of employment
 - Spell of unemployment
 - Earnings of Self-Employed
 - Contract Labour

9. Conclusion

- India's employment database reasonably good
- Issues of comparison and homogeneity
- Standardization of concepts and definition
- Narrowing employment estimates between NSSO hh survey and enterprise surveys
- Linking with other data base (EPFO, ESIC)?
- Periodicity and frequency
- Underreporting in ASI/large enterprise surveys
- Capacity of the National Statistical System
(shortage of regular field investigators, contract workers, coordination problem etc.)

Employment and Unemployment Surveys of NSSO

Objective of Employment-Unemployment Surveys

- **to get estimates of Labour Force parameters - labour force participation rate (LFPR), worker population ratio (WPR), unemployment rate (UR), extent of underemployment, wages of employees, etc., - at the national and State/UT level**
- **in cross classification of region, age, education, gender, level of living, industry and occupational category.**
- **Structural aspects of the workforce - status in employment, industrial distribution and occupational distribution**
- **Employment in the informal sector and informal employment**

Series of Employment and Unemployment surveys

•Quinquennial surveys

27th round: July 1972-June 73

32nd round: July 1977- June 78

38th round: January-December 1983

43rd round: July 1987- June 1988

50th round: July 1993- June 1994

55th round: July 1999- June 2000

61st round: July 2004- June 2005

66th round July 2009-June 2010

68th round July 2011-June 2012

•Annual surveys

Starting from NSS 45th round (1989-90) upto 59th round (2003) [along with consumer expenditure schedule]

Separate Schedule 10 : 60th and 62nd , 64th

Plan of release of results

- **Unit level data and Key Indicators of Employment and Unemployment in India within one year of completion of the field work.**
- **The Key Indicator document contain main indicators like :**
 - **LFPR**
 - **WPR**
 - **UR**
 - **Wage Rate.**

Plan of release of results: Reports

1) Employment and Unemployment Situation in India

- **labour force, work force, unemployment, underemployment, industrial distribution, occupation distribution, wage rate**
- **demographic characteristics, like literacy rate, educational level, etc.**

2) Informal Sector and Conditions of Employment in India

- **estimates of the workers in informal sector,**
- **conditions of employment of the workers**

Plan of release of results: Reports

- 3) Employment and Unemployment situation among Social Groups in India**

- 4) Employment and Unemployment situation among Major Religious groups in India**

These two reports contains:

- feature of the labour force and work force**
- for different religious groups and social groups**
- And also demographic characteristics, like literacy rate, educational level, etc.**

Plan of release of results: Reports

5) Status of Education and Vocational Training in India

- level of education and vocational training - includes literacy rate, educational level, Gross Attendance Ratio, Net Attendance Ratio, percentage of persons with vocational training, field of training, etc.

6) Participation of Women in Specified Activities along with Domestic Duties

- participation of women in specified activities along with their domestic duties; willingness to accept work along with their domestic duties if work is made available to their household premises, type of assistance required to undertake the desired work etc.,

7) Employment and Unemployment situation in Cities and Towns in India

- WPR, UR, industrial distribution, etc. of the workforce, in different class 1 cities (population \geq 1 million), class 2 towns (towns with population 50,000 to \leq 1 m.) class 3 towns (population \leq 50,000)

Approaches to measure employment - unemployment indicators

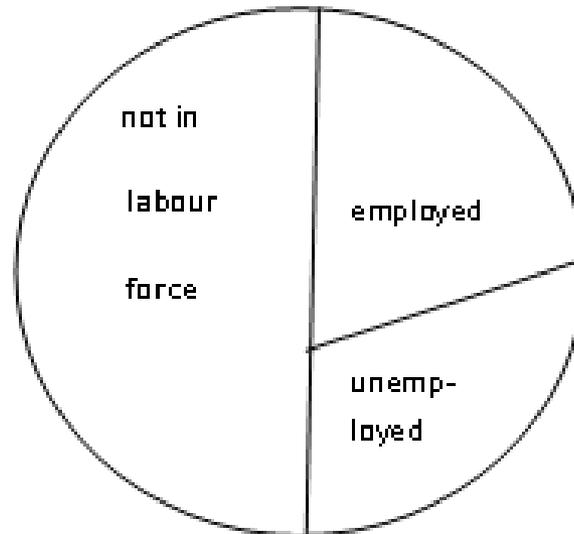
- **Usual status approach** - a long reference period of last 365 days
 - Principal activity status - activity status on which a person spent major time during the 365.
 - Subsidiary economic activity status (at least 30 days of work during the last 365 days)
- **Current weekly activity status (CWS)** - reference period of last 7 days preceding - decided on priority cum major time criterion.
- **Current daily activity status (CDS)** - current daily activity status is determined on the basis the activity status on each day of the reference week using a priority-cum-major time criterion.

Approaches of measurement: Definition of Economic Activity

- **‘economic activity’ in the EUS of NSSO includes:**
 - **all the market activities i.e., the activities performed for pay or profit which result in production of goods and services for exchange,**
 - **of the non-market activities,**
 - a) all the activities relating to the primary sector which result in production (including free collection of uncultivated crops, forestry, firewood, hunting, fishing, mining, quarrying, etc.) of primary goods, including thrashing and storing of grains for own consumption, and**
 - b) the activities relating to the own-account production of fixed assets.**

Categorisation of Population for Labour Force Statistics

- Population can be classified into three mutually exclusive and exhaustive categories: **employed**, **unemployed** and **not in the labour force**.



- This relationship between the broad activity statuses may be expressed as:
 - (i) **labour force = employed + unemployed**
 - (ii) **population = labour force + not in the labour force.**

Architecture of key employment and unemployment indicators

activity profile*		key indicators
activity status (code)	category of persons	
11, 12, 21, 31, 41, 42, 51, 61, 62, 71, 72	workers	1. Labour Force Participation Rate (LFPR): $\frac{\text{no. of employed persons} + \text{no. of unemployed persons}}{\text{total population}}$
81, 82	unemployed	2. Worker Population Ratio (WPR): $\frac{\text{no. of employed persons}}{\text{total population}}$
91, 92, 93, 94, 95, 97, 98	not in labour force	
		3. Proportion Unemployed (PU): $\frac{\text{no. of unemployed persons}}{\text{total population}}$
		4. Unemployment Rate (UR): $\frac{\text{no. of unemployed persons}}{\text{no. of employed persons} + \text{no. of unemployed persons}}$
Note: *: Activity status codes, 42, 61, 62, 71, 72, 82, and 98 are used only in <i>the current status</i> (in CWS and CDS) and the remaining activity status codes are used in both <i>usual in current status</i>		

Some observations of different approaches of measurement

- **usual status**
 - ✓ reflects the perennial activity situation of population due to having long reference period of last 365 days
 - ✓ fails to take into account the short-term fluctuations in the employment and unemployment situation in the economy.
- **current weekly status & current daily**
 - ✓ measures short-term fluctuations owing to seasonality in the labour market.
- **cross examination of the activity status of the population in respect of these three approaches, can throw light on the extent of visible underemployment.**

Classification of workers: statuses in Employment

- **Self-employed:**
 - **own-account workers:** operates their enterprises on their own account or with one or a few partners
 - **Employers:** The self-employed persons by and large run their enterprise by hiring labour
 - **helpers in household enterprise**
- **Regular wage/ salaried persons:** Not subject to periodic renewal of work contract.
- **Casual Labour**

Industrial and Occupation classification of the workers

- **Industrial classification:**

- One of the fundamental characteristics of the economically active population is the type of industry or branch of economic activity in which a person works.
- Employment data by branch of economic activity form an essential part in the analysis of national production.
- Provides information on the level and trend of industrialisation and on the relative movements from one branch of economic activity to another for economically active population.
- In NSS surveys, industry of activity of the workers are collected using the National Industrial Classification.

Industrial and Occupation classification of the workers

- **Occupation classification:**
 - It refers to the kind of work done during the reference period by the workers, irrespective of the industry or status in employment.
 - Information on occupation provides a description of a person's job.
 - A standard occupation classification (National Classification of Occupation) is used in India to classify the occupations of the workers.

Informal sector

- **As per Fifteenth International Conference of Labour Statisticians (January 1993) for statistical purposes, the informal sector is regarded as a group of production units which, according to the definitions and classifications provided in the SNA 1993 (Rev. 4), form part of the household sector as household enterprises or, equivalently, unincorporated enterprises owned by households.**
- **In NSS labour force surveys information on the type of enterprise is collected for the workers**
- **The proprietary and partnership enterprises are classified as informal sector.**

Informal employment

- **Informal employment defined by the **Seventeenth International Conference of Labour Statisticians** (November-December 2003)**
- **Informal employment includes the following types of jobs:**
 - a) **own-account workers employed in their own informal sector enterprises;**
 - b) **employers employed in their own informal sector enterprises;**
 - c) **contributing family workers, irrespective of whether they work in formal or informal sector enterprises;**
 - d) **members of informal producers' cooperatives;**
 - e) **employees holding informal jobs in formal sector enterprises, informal sector enterprises, or as paid domestic workers employed by households;**
 - f) **own-account workers engaged in the production of goods exclusively for own final use by their household, if considered employed.**

Informal employment

- **In NSS labour force surveys, various features of the conditions of employment are collected which are used to study informal employment. These are**
 - **type of job contract (written contract)**
 - **whether eligible for paid leave**
 - **availability of social security benefits (viz., PF/pension, gratuity, health care, maternity benefits, etc.)**

Underemployment

- **Whether sought/ available for alternative work during the days he/ she had work**
- **Reason for seeking/ available for alternative work (present work not remunerative enough)**
- **Whether sought/ available for additional work during the days he/ she had work**
- **Reason for seeking/ available for additional work (to supplement income /not enough work)**
- **Usual Status (ps) Workers who did not Work Regularly throughout the year**

Limitation of the Employment and Unemployment Surveys of NSSO

- **Estimates of labour force parameters are available quinquennially and not in more frequent time interval**
- **Estimates are generally presented as rates and ratios and not in absolute numbers (with population adjusted)**
- **No information on hours worked.**
- **Information on underemployment not associated with hours available for additional work**
- **Estimates of change in the labour force status of the persons are not available.**
- **Estimates of earning from self-employment not available.**

Periodic Labour Force Survey (PLFS)

- **The objective of PLFS is primarily on two aspects.**
 - **The first is to measure labour force participation **short time interval of three months for the urban areas only in the Current Weekly Status (CWS)**. Thus, in every quarter, PLFS will bring out **the level and change estimates** of the key labour force indicators in CWS viz. Employment Population Ratio (EPR), Labour Force Participation Rate (LFPR), Unemployment Rate (UR).**
 - **Secondly, for both rural and urban areas, level estimates of all important parameters in both usual status and CWS will be brought out annually.**

Periodic Labour Force Survey (PLFS)

- **Some important features:**
 - **Estimates of level and change of the labour force parameters will be available every quarter**
 - **Hours worked is collected.**
 - **Earning from self-employment activity will be available**
 - **Hours available for alternative work is collected**

- **Forms of Work**: Five mutually exclusive *forms of work* are identified for separate measurement. These forms of work are as follows:
 - a) own-use production work comprising production of goods and services for own final use;
 - b) employment work comprising work performed for others in exchange for pay or profit;
 - c) unpaid trainee work comprising work performed for others without pay to acquire workplace experience or skills;
 - d) volunteer work comprising non-compulsory work performed for others without pay;
 - e) other work activities (not defined in this resolution).

- **Different reference periods**: The various forms of work are measured with respect to a short reference period. The appropriate reference period for each form is based on the intensity of participation and working time arrangements:
 - a) **seven days or one week, for *employment and unpaid trainee work***;
 - b) **four weeks or one calendar month, for *own-use production of goods, unpaid trainee work and volunteer work***;
 - c) **one or more 24-hour days within a seven-day or one-week period, for *own-use provision of services***

- **Measures of labour underutilization**
- *time-related underemployment*, when the working time of persons in employment is insufficient in relation to alternative employment situations in which they are willing and available to be engaged;
- *unemployment*, reflecting an active job search by persons not in employment who are available for this form of work;
- *potential labour force*, referring to persons not in employment who express an interest in this form of work but for whom existing conditions limit their active job search and/or their availability.

Child Labour

- Whether or not particular forms of *work* can be called *child labour* depends on the child's:
 - Age,
 - The type of work performed (both economic and non-economic),
 - Hours of work performed,
 - The conditions (hazardous/non-hazardous) under which it is performed, and
 - The objectives pursued by individual countries (typically mentioned in the relevant legislations of the country).

Decent Work

- **The promotion of decent work for all women and men everywhere is the central objective of the International Labour Organisation (ILO), which describes decent work as**
 - **“opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security and human dignity”.**

Statistical indicators of Decent Work

- **Statistical indicators of decent work are identified in the following 11 groups of indicators:**
 - **Employment opportunities**
 - **Unacceptable work**
 - **Adequate earnings and productive work**
 - **Decent hours**
 - **Stability and security of work**
 - **Combining work and family life**
 - **Fair treatment in employment**
 - **Safe work environment**
 - **Social protection**
 - **Social dialogue and workplace relations**
 - **Economic and social context of decent work**

Sustainable Development Goal (SDG)

- The SDGs and targets in the outcome document agreed by UN Member States on 1 August 2015 includes different targets relating to employment. These are:
- **Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**
- **Target 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro, small and medium-sized enterprises, including through Access to financial services.**
- **Target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value.**

Reliability of the Estimates

Table : Number of states/UTs with range of RSEs of the estimates of WPR in usual status (ps+ss) and cws during 2011-12

range of RSE	usual status (ps+ss)				CWS			
	rural male	rural female	urban male	urban female	rural male	rural female	urban male	urban female
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<5%	31	16	31	4	30	13	31	2
5%-10%	1	10	3	14	2	13	3	16
10%-15%	2	4	0	9	3	5	0	8
>=15%	1	5	1	8	0	4	1	9

Results

Table 1: Labour force participation rate (LFPR) (in per cent) according to usual status (ps+ss) in NSS 50th (1993-94), 55th (1999-2000), 61st (2004-2005), 66th (2009-10) and 68th (2011-12) rounds

	1993	1999	2004	2009	2011
	-	-	-	-	-
	1994	2000	2005	2010	2012
(1)	(2)	(3)	(4)	(5)	(6)
rural					
male	56.1	54.0	55.5	55.6	55.3
female	33.0	30.2	33.3	26.5	25.3
Urban					
male	54.3	54.2	57.0	55.9	56.3
female	16.5	14.7	17.8	14.6	15.5

Results

Table 2: WPRs (in per cent) in usual status (ps+ss) during 50th round (1993-94) to 68th round (2011-12) of NSSO

round (year)	rural			urban			all		
	male	female	person	male	female	person	male	female	person
(1)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
68 th (2011-12)	54.3	24.8	39.9	54.6	14.7	35.5	54.4	21.9	38.6
66 th (2009-10)	54.7	26.1	40.8	54.3	13.8	35.0	54.6	22.8	39.2
61 st (2004-05)	54.6	32.7	43.9	54.9	16.6	36.5	54.7	28.7	42.0
55 th (1999-00)	53.1	29.9	41.7	51.8	13.9	33.7	52.7	25.9	39.7
50 th (1993-94)	55.3	32.8	44.4	52.1	15.5	34.7	54.5	28.6	42.0

Results

Table 3: Unemployment rates (in per cent) according to usual status (ps+ss) during NSS 50th round (1993-94) to 68th round (2011-12)

round (year)	male	female
rural		
68 th (2011-12)	1.7	1.7
66 th (2009-10)	1.6	1.6
61 st (2004-05)	1.8	1.6
55 th (1999-00)	1.0	1.7
50 th (1993-94)	0.9	1.4
urban		
68 th (2011-12)	5.2	3.0
66 th (2009-10)	5.7	2.8
61 st (2004-05)	6.9	3.8
55 th (1999-00)	5.7	4.5
50 th (1993-94)	6.1	4.1

Results

Table 1: Percentage of workers in usual status (ps+ss) in informal sector and percentage of employees (i.e., *regular wage/salaried employees and casual labourers*) in usual status (ps+ss) with different conditions of employment among those engaged in AGE GC and non-agriculture sectors during 2011-12

Indicator	value (in percent)
1. Percentage of workers engaged in the informal sector among workers in usual status (ps+ss) engaged in AGE GC and non-agriculture sectors during 2011-12	72.4
2. Percentage of employees in usual status (ps+ss) engaged in AGE GC and non-agriculture sectors who are not eligible for paid leave	71.2
3. Percentage of employees in usual status (ps+ss) engaged in AGE GC and non-agriculture sectors who are not eligible for social security benefits (PF/Pension, gratuity health Care & Maternity Benefit)	72.2

Employment and Unemployment

Labour Bureau
Ministry of Labour & Employment

About Labour Bureau...Mandate

- Compilation & maintenance of Index Numbers Viz. CPI (IW), CPI (AL), CPI (RL), WRI.
- Collection, compilation and dissemination of Administrative Labour Statistics on 11 Labour Welfare Acts.
- Conducting Various Surveys in the field of labour Viz Annual EUS, QES, OWS etc.
- Labour Bureau has overall Sanctioned Strength of 400 Employees, from IES/ISS/SSS/CSS/Labour Bureau Cadre .
- Main wings of Labour Bureau are Located at Chandigarh & Shimla, with Five Regional offices located at Kanpur, Kolkata , Chennai, Ahmedabad ,Guwahati & One Sub-regional Office at Mumbai.

NEED FOR EMPLOYMENT DATA

- For planning and policy purposes;
- To assess effectiveness of the **Employment Generating Programmes/Schemes**;
- Inter State and Intra States Comparison;
- **Eradicating poverty**;
- Timely measures to address un/under-employment.

SOURCES OF DATA

- ❖ Population Census;
- ❖ Economic Census;
- ❖ Annual Survey of Industries;
- ❖ Enterprise Surveys of NSSO;
- ❖ Employment and Unemployment Surveys of NSSO;
- ❖ Annual Employment and Unemployment Surveys of Labour Bureau.
- ❖ Quarterly Employment Survey (QES) By LB,
- ❖ Periodic Labour Force Survey(PLFS) of NSSO (by 2018)

Surveys Related to Employment and Unemployment

- Annual Employment – Unemployment Survey
 - Periodicity: Annual; Household Survey

Current Surveys related to Employment

- Quarterly Employment Survey
 - Periodicity: Quarterly; Establishment Survey
- PMMY Survey
 - Periodicity: Annual (One Time Survey); Establishment Survey



Annual Employment – Unemployment Survey (EUS)

Annual Employment- Unemployment Survey

- A need was felt to **assess the impact of Global Financial Crisis of 2007-08** on employment/unemployment in the country.
- Estimates on labour market parameters were however available only through the surveys conducted by **the NSSO with five years interval.**
- The Ministry of Labour and Employment therefore entrusted the task of conducting such surveys on annual basis to the Labour Bureau

Annual Employment & Unemployment Survey (EUS)

- Six EUS surveys have been conducted so far & reports for five EUS have been released
- The EUS has been discontinued as per the guidelines of Task Force on Employment after Sixth EUS (2016).
- The key Labour Force Indicators measured under EUS are Labour Force Participation Rate (LFPR), Worker Population Rate (WPR) & Unemployment Rate (UR).

Scope & Coverage of Survey

Particulars	1 st EUS	2 nd EUS	3 rd EUS	4 th EUS	5 th EUS	6 th EUS
Launch of Survey	April, 2010	July, 2011	October, 2012	December, 2013	April, 2015	August, 2016
Reference Period	Fixed Reference Period of financial Year 2009-10	Fixed Reference Period of Agriculture Year 2010-11 i.e. July, 2010 to June, 2011	Moving Reference Period i.e. last 12 months from the date of survey	Moving Reference Period i.e. last 12 months from the date of survey	Moving Reference Period i.e. last 12 months from the date of survey	Moving Reference Period i.e. last 12 months from the date of survey
Coverage	300 Districts of 28 States/UTs	All Districts of all 35 States/UTs	All Districts of all 35 States/UTs	All Districts of all 36 States/UTs	All Districts of all 36 States/UTs	All Districts of all 36 States/UTs
Field Work	April, 10-Aug, 10	July, 11-Jan, 12	Oct, 12 - Mar, 13	Jan, 14 - July, 14	April, 15 - Dec, 15	Aug, 16 - Mar, 17
Sample Size	46,000	1.28 lakh	1.36 lakh	1.36 lakh	1.57 lakh	1.57 lakh
Reports Released in	Nov, 2010	July, 2012	Sep, 2013	Jan, 2015	Sept, 2016	Likely to be released by August, 2018

Survey/ Sector	Labour Force Indicators (in per cent) as per UPS		
	LFPR	WPR	UR
Second EUS (2011-12)	52.9	51	3.8
Third EUS (2012-13)	50.9	49	4.7
Fourth EUS (2013-14)	52.5	50	4.9
Fifth EUS (2015-16)	50.4	48	5.0

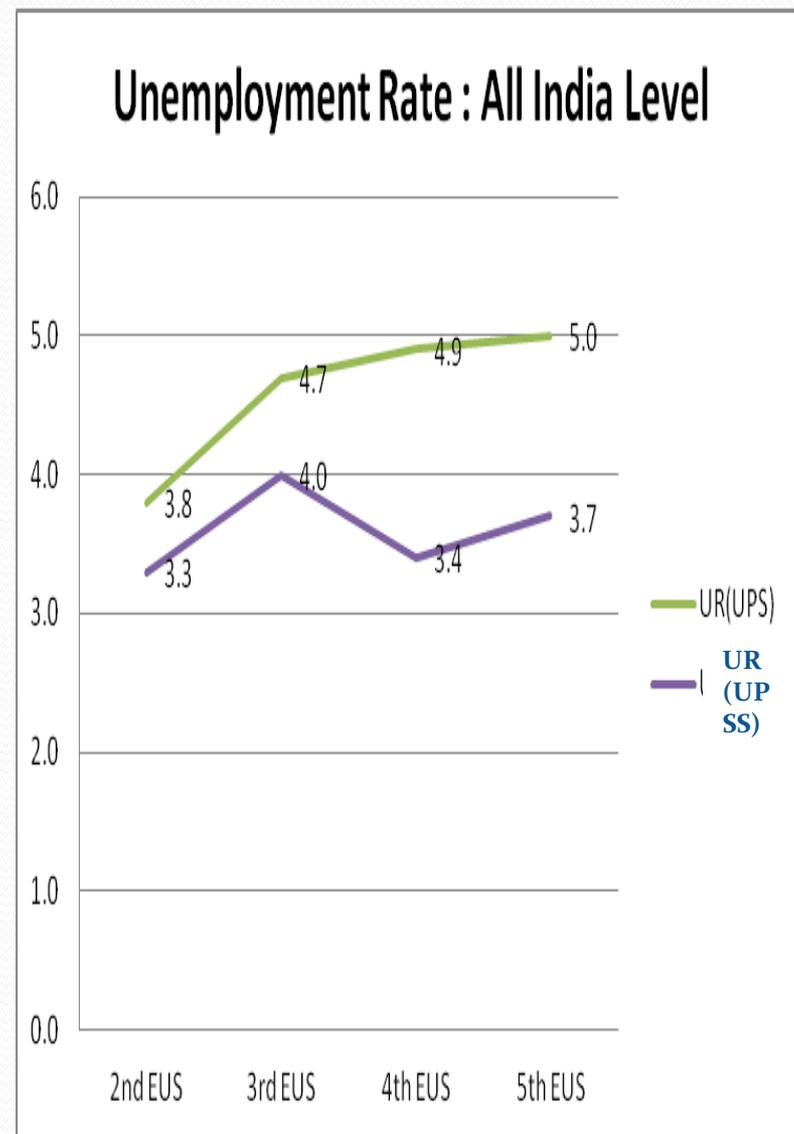
Unemployment Rate (UR)

Survey/ Sector	Unemployment Rate											
	RURAL				URBAN				RURAL + URBAN			
	M	F	T	P	M	F	T	P	M	F	T	P
Second EUS (2011-12)	2.7	5.6	-	3.4	3.4	12.5	-	5.0	2.9	6.9	-	3.8
Third EUS (2012-13)	4.0	5.8	-	4.4	4.2	12.8	-	5.7	4.0	7.2	-	4.7
Fourth EUS (2013-14)	4.2	6.4	-	4.7	3.9	12.4	-	5.5	4.1	7.7	-	4.9
Fifth EUS (2015-16)	4.2	7.8	2.1	5.1	3.3	12.1	10.3	4.9	4.0	8.7	4.3	5.0

M=Male, F=Female, T=Transgender, P=Person

Unemployment Rate (UPS & UPSS) : All India

- Unemployment Rate (UR) under Usual Principal Status approach under 5th Employment Unemployment Survey is 5.0 per cent
- Unemployment Rate (UR) under Usual Principal & Subsidiary Status approach under 5th Employment Unemployment Survey is 3.7 per cent
- Unemployment : Increasing Trend (AI) under UPS



Unemployment Rate (UPS) under 5th EUS : Top 5 States (High / Low UR)

➤ Unemployment Rate (UR) under Usual

Principal Status approach under 5th EUS

was lowest in Daman & Diu i.e. 0.3

followed by Gujarat (0.9)

➤ Unemployment Rate (UR) under UPS was

highest in Tripura i.e. 19.7 followed by

Sikkim (18.1)

States with Lowest UR (UPS) : 5th EUS		States with Highest UR (UPS) : 5th EUS	
Daman & Diu	0.3	Tripura	19.7
Gujarat	0.9	Sikkim	18.1
Karnataka	1.5	Lakshadweep	16.1
Chhattisgarh	1.9	Andaman Nicobar Islands	12.7
Maharashtra	2.1	Kerala	12.5



Quarterly Employment Survey (QES)

QES Genesis

- Labour Bureau has earlier conducted Quarterly Employment Surveys (QES) in some selected **Labour-Intensive** and **Export-Oriented** sectors to assess the effect of economic slowdown on employment in India since January, 2009.
- 28 such surveys had been conducted by Labour Bureau till December, 2015. The sample size for these surveys was limited to around 2000 units and 8 sectors in 11 selected states only.

Need for Revamping QES

Due to

- Immense utility of 28 rounds of QES, in **Labour-Intensive** and **Export-Oriented** sectors.

it was decided by the Ministry of Labour & Employment to conduct new series of QES on a large scale by enlarging the sample size and enhancing sector coverage under the survey so that employment situation for a sizeable segment of Non-Farm Industrial economy of India over successive quarters may be assessed.

Revamped QES

- An Expert Group under the chairmanship of Professor S.P. Mukherjee has been constituted for guiding Labour Bureau in respect of statistical technicalities of the survey. Expert Group in a series of meeting discussed the various issues in threadbare and finalize the sample size, sample design and survey methodology.
- First Round of QES was conducted with reference date of 01 Apr 2016.
- Sixth Economic Census was used for drawing up sampling frame.
- The sample size, at the beginning , for the survey was around 10,600 units which has been further increased to around 11,000.

Objective

- To measure relative change in employment situation over successive quarters in the selected segment of Indian Economy.

Scope & Coverage

QES is an establishment survey and provides relative change in employment in establishments employing 10 or more workers in 8 selected sectors viz.

	Manufacturing	(NIC-08 ; 10 to 33)
	Construction	(NIC-08 ; 41, 42 & 43)
	Trade	(NIC-08 ; 45,46 & 47)
	Transport	(NIC-08 ; 49 to 53)
	Accommodation & Restaurant	(NIC-08 ; 55 & 56)
	IT/BPO	(NIC-08 ; 62 & 63)
	Education	(NIC-08 ; 85)
	Health	(NIC-08 ; 86,87 & 88)

THESE 8 SELECTED SECTORS CONSTITUTE AROUND 81 PERCENT OF THE TOTAL EMPLOYMENT OF UNITS WITH 10 OR MORE WORKERS IN 6TH EC.

Scope & Coverage

- Since the frame of QES (New Series) has been drawn from 6th Economic Census, the coverage of QES excluded all the activities which were outside the purview of 6th EC .
 - Broad activities outside the purview of 6th EC
 - Public Administration, Defence , Crop Production etc.
- Further broad activities which were covered by 6th EC but excluded from the coverage of QES are:
 - Financial & Insurance activities, Agricultural activities other than Crop Production , other services not elsewhere classified e.t.c

Scope & Coverage...

- In each of 8 Sectors, units are further classified into six size classes based on the size of employment viz.

Size Class	No of Workers
1	: 10-39
2	: 40-99
3	: 100-499
4	: 500-999
5	: 1000-4999
6	: More than 4999

The geographical coverage of the Quarterly Employment Survey (QES) has been extended to the entire country.

Sampling Design and Estimation procedure

- Each of the eight sectors, within a state, is further grouped into six size classes based on the size of employment.
- Accordingly numbers of units are being selected proportionately (Proportional allocation) to the number of units in the population (frame) in the respective strata viz State by Sector by Size Class (State X Sector X Size-Class) by using Simple Random Sampling (Without Replacement).
- Allotment of minimum of 10 sample units, at a sector level in each state (i.e. State X Sector), was ensured, further ensuring the proportional representation in each size class.

Sampling Design and Estimation procedure.....

- Thus the stratum/segment for the present sample design is *State X Sector X Size Class*. Accordingly, units were selected based on proportional allocation using simple random sampling (without replacement).
- To generate an estimate of a particular employment characteristic , at each segment/cell (*State X Sector X Size Class*) the sample characteristic is inflated using a multiplier/weight at each segment/cell level and finally aggregated at all India sector level.

QES in figures

Sector wise number of units surveyed in 1stRound of QES

S. No.	Sector	Units in Frame	Sample Covered
1	Manufacturing	181404	5040
2	Construction	8816	414
3	Trade	52275	1524
4	Transport	12789	498
5	Accommodation & Restaurant	31110	1014
6	IT/ BPO	5040	315
7	Education	185527	1434
8	Health	30479	392
Total		5,07,440	10,631

QES in Figures

S. No.	Sector	Estimated Change in Employment in eight selected sectors (in lakhs) (Estimated Employment for Round 1)						
		Round 1 (As on 01 Apr 16)	Round 2 (01 Jul'16 over 01 Apr'16)	Round 3 (01 Oct'16 over 01 Jul'16)	Round 4 (01 Jan'17 over 01 Oct'16)	Round 5 (01 Apr'17 over 01 Jan'17)	Round 6 (01 Jul'17 over 01 Apr'17)	Round 7 (01 Oct'17 over 01 Jul'17)
1	Manufacturing	101.17	-0.12	0.24	0.83	1.02	-0.87	0.89
2	Construction	03.67	-0.23	-0.01	-0.01	0.02	0.10	-0.22
3	Trade	14.45	0.26	-0.07	0.07	0.29	0.07	0.14
4	Transport	05.80	0.17	0.00	0.01	0.03	-0.03	0.20
5	Accommodation & Restaurant	07.74	0.01	-0.08	0.00	0.03	0.05	0.02
6	IT/ BPO	10.36	-0.16	0.26	0.12	0.13	0.02	0.01
7	Education	49.98	0.51	-0.02	0.18	0.02	0.99	0.21
8	Health	12.05	0.33	0.00	0.02	0.31	0.31	0.11
	Total	205.22	0.77	0.32	1.22	1.85	0.64	1.36

QES: Old Series V/s New Series

	Old QES	Revamped QES
Sample Size	2000-2500 Units	10600 Units
Coverage	Export Oriented Labour Intensive Sectors more likely to be affected by the global economic slowdown	Sizeable Segment of Non-Farm Industrial economy
Sectors/Sub Sectors	Textiles Leather Metal Automobile Gems & Jewellery Handloom/ Powerloom Transport IT/BPO	Manufacturing Construction Accommodation & Restaurant Health Education Trade Transport IT/BPO
States/UT Coverage	11	All (36)
Resources	No additional Resource	Around 180 Contract persons

LIMITATIONS

- The Scope of present QES is limited only to all establishments having 10 or more persons as identified by the Sixth Economic Census (2013-14).
- As per the Sixth Economic Census (2013-14), 58.5 million establishments were found to be in operation employing 131.29 million persons. Out of 58.5 million establishments 1.4% establishments were in establishments employing 10 or more person. The list of all establishments, out of these 1.4% establishments , employing 10 or more worker, in eight major sectors in Sixth Economic Census (EC) was used as the sampling frame to draw a panel of around 11000 establishment for present QES survey.
- Further, the QES (New Series) does not capture the employment data from new units which emerged after the 6th EC. The Fieldwork for 6th Economic Census was conducted during January, 2013 to April, 2014.

Area Frame Survey (QES)

- To get a more realistic picture of Employment scenario in the country, The expert Group on QES felt a strong need to extend coverage of QES (which covers approx. 1.4% of establishment as per 6th EC) to the Establishments with less than 10 employments (remaining 98.6 % of establishments).
- Since there is no readily available sampling frame for Establishments with less than 10 employments , The Expert Group has recommended Area Frame Survey for estimation of employment in establishment with less than 10 workers in 7000 First Stage Units (3500 Villages & 3500 Urban Blocks)
- The total sample size of proposed survey would be around 126000-140000 establishment (7000 FSU X 18 to 20 Establishment per FSU)

Expansion of QES

- QES (New Series) does not capture the employment data from new units which emerged after the 6th EC. The Fieldwork for 6th Economic Census was conducted during January, 2013 to April, 2014.
- Since no alternative updated list (Frame) of establishment with 10 or more workers is readily available, the Expert Group was of the opinion to utilise sector specific available updated frame such as manufacturing and IT/BPO.
- Therefore the Expert Group has recommended to use the latest frame of Annual Survey of Industry (ASI) of CSO for the manufacturing sector along with finding the possibility of updating frame of IT/BPO with NASSCOM.
- Expert group has also felt a strong need for increasing the sample size of present QES from 11000 units, subject to resource availability.

Expansion of QES

- The Area Frame Survey, as proposed, along with QES will be providing independent & mutually exclusive estimates for total employment for the following three segments :
 - **Segment 1**: Establishments with 10 or more workers (covered under ongoing QES from a frame of establishments based on 6th economic census {EC} conducted during 2013-14).
 - **Segment 2**: Establishments with 10 or more workers not covered under ongoing QES either due to their emergence after the EC or they were inadvertently left out of 6th EC . It was felt that we may get information about such establishments incidentally through AFS.
 - **Segment 3**: Establishments with less than 10 workers (no frame of such establishments exists , although a frame of Villages and Urban Blocks is available).



Pradhan Mantri Mudra Yojna (PMMY) Survey

PMMY Survey

- The main objective of the Survey is the Estimation of Employment generation under Pradhan Mantri MUDRA Yojna (PMMY).
- PMMY survey is an establishment survey to collect the information on generation of employment in different sectors broadly categorized as Manufacturing, Services, Allied agriculture, Trading and any other sectors which have been assisted under the PMMY.
- At all India level 5000 branches of Public, Private Sector Banks and MFI , as First Stage Units, have been selected and about 1.25 Lakh beneficiaries, as Ultimate Stage Units would be covered (out of about 10 crore beneficiaries accounts under MUDRA).

PMMY Survey Design

- It was decided by Expert group that state wise estimates for Employment generation will be provided only for states having at least 100 number of account (25 States/UTs), which accounts for 99.3% of the Loan Sanctioned, under PMMY and remaining 11 States/UTs can be grouped under residual stratum , for generating all India estimates.
- Total Sample size (5000 bank branches) was allocated to various states in proportion of amount of Loan Sanctioned/Disbursed, Further within a state the sample was again allocated to various banks (Public including RRB, Private and MFI/NBFC's) in proportion to amount of Loan sanctioned within state.

Stratum 1- All Public Banks, (Including RRBs)

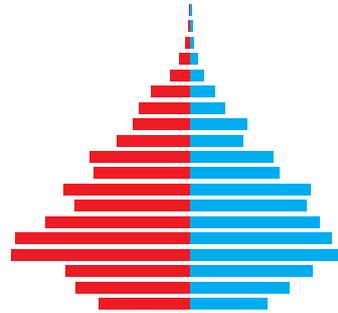
Stratum 2- All Private Banks,

Stratum 3- Remaining (MFI & Others).

PMMY Survey Design Contd....

- The number of beneficiaries to be surveyed from each selected bank/MFI branch is as follows:

Type of loan	Number of beneficiaries to be covered
Shishu (upto Rs 50k)	13
Kishor (Rs 50K to 5 lacs)	6
Tarun (Rs 5 lacs to 10 lacs)	6
Total	25



Consumer Pyramids Household Survey

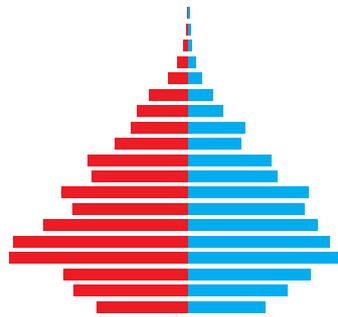
presentation at Workshop on

Challenges & Issues of Official Statistics

May 19, 2018



Centre for Monitoring Indian Economy Pvt Ltd.



An Overview

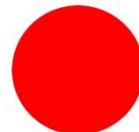
An overview (3)

Survey design & sample (4)

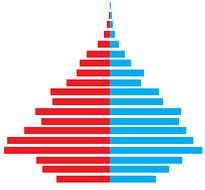
CPHS execution (5)

Comparisons with NSSO (3)

CPHS focus on fast frequency (7)

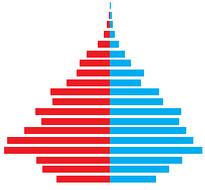


CMIE



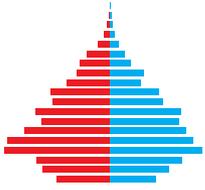
Consumer Pyramids Household Survey

- Longitudinal panel survey of 172,000 households.
- 3 Waves of the survey conducted every year.
- The Consumer Pyramids Household Survey (CPHS) never stops:
 - It is executed every day
 - Every household in panel surveyed every 16 weeks
- Sample size to increases @ ~1.5% households a year.



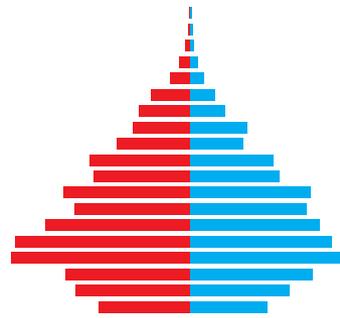
Geographical Spread: All India

- The CPHS is conducted all over the country, except in:
 - the following north eastern states - Arunachal Pradesh, Nagaland, Manipur, Mizoram and Sikkim. We cover Assam, Tripura and Meghalaya.
 - in Andaman & Nicobar Islands, Lakshadweep, Dadra & Nagar Haveli and Daman & Diu.
 - some villages in Jharkhand and Chhattisgarh that were part of sample were dropped because they were rendered inaccessible by extremists.
- The survey is conducted in Kashmir, not in Ladakh
- The survey will extend to Sikkim from September 2018.

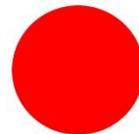


Data Captured – A Thin Slice of “All”

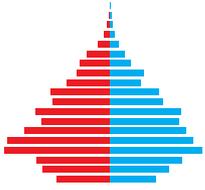
- 1. Demographic details of household members**
age, gender, education, education-discipline, occupation, state-of-origin, religion, caste, as of date of survey
- 2. Employment / Unemployment status**
member-wise employment / unemployment status for age 15+ members, as of date of survey
- 3. Consumer Sentiments**
household-wise responses to 5 consumer sentiments questions as in “Surveys of Consumers” conducted by University of Michigan.
- 4. Household Income**
monthly household-wise and member-wise sources of income – wages, pension, interest, dividends, profits, rent, transfers, value of production for self consumption, etc.
- 5. Household Expenses Details**
household-wise, month-wise expenses on ~100 heads – food, clothing, footwear, cosmetics, appliances, restaurants, rents, power, fuels, transport, communication, education, health, etc.
- 6. Household Amenities, Assets & Liabilities**
household-wise amenities like electricity, water, toilet, ownership of assets (house, refrigerator, AC, cooler, washing machine, TV, computer, car, two-wheeler, generator, tractor, cattle) borrowing as of date of survey



Survey Design & Sample



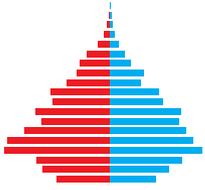
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Survey Design

Selection of Towns & Villages

- Multi-stage stratified survey design deployed to draw sample.
- The broadest level of strata for sampling purpose were 99 Homogeneous Regions (HRs), which are sets of neighbouring districts that have similar agro-climatic conditions, urbanisation levels and female literacy.
- Within each HR, two sub-strata were formed - a rural stratum comprising all villages in the HR; and an urban stratum comprising all towns in the HR.
- Since there is much variance in the size of towns, towns within a HR were stratified further on the basis of their size.
 1. Very large towns that had more than 200,000 households.
 2. Large towns that had between 60,000 and 200,000 households.
 3. Medium sized households that had between 20,000 and 60,000 households
 4. Those with less than 20,000 households were the small towns.
- One or more towns were randomly selected from each of these size-bins. A total of 326 towns were selected.
- Villages were selected from the rural HR sub-strata through simple random sampling.



Survey Design

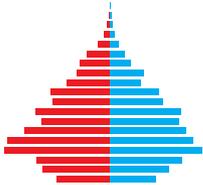
Selection of CEBs & Households

- From each sample town, 21 Census Enumeration Blocks (CEB) were randomly selected.
- Urban households were selected through systematic random sampling from each of the selected CEBs.
- 110,279 households were selected from 7,869 CEBs.
- Rural households were selected through systematic random sampling from each selected village.
- The rural sample comprises 62,086 households from 3,881 villages.
- Current panel of households first created in 2013 basis 2011 Census data.
- Sample expansion since then has focussed on increasing coverage at sub-district levels.

Sample Size & Spatial Distribution

May – August 2018

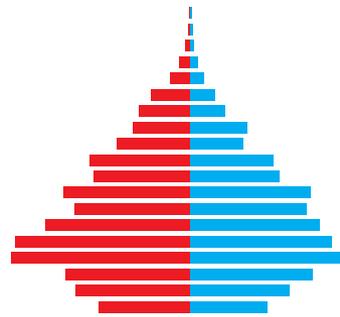
State	Urban Sample			Rural Sample		Total Sample
	Towns	CEBs	Households	Villages	Households	Households
Andhra Pradesh	15	354	5,024	191	3,056	8,080
Assam	3	77	999	36	576	1,575
Bihar	16	369	5,078	269	4,304	9,382
Chandigarh	1	37	456	-	-	456
Chhattisgarh	9	202	2,864	121	1,935	4,799
Delhi	3	81	880	31	495	1,375
Goa	2	41	648	26	416	1,064
Gujarat	18	430	5,658	213	3,408	9,066
Haryana	11	273	3,874	104	1,664	5,538
Himachal Pradesh	2	45	640	40	640	1,280
Jammu & Kashmir	4	81	1,228	85	1,360	2,588
Jharkhand	8	187	2,534	136	2,176	4,710
Karnataka	19	449	6,341	211	3,376	9,717
Kerala	10	228	3,362	89	1,424	4,786
Madhya Pradesh	17	382	5,232	224	3,584	8,816
Maharashtra	38	929	13,626	388	6,208	19,834
Meghalaya	1	21	336	44	704	1,040
Odisha	12	258	3,737	189	3,024	6,761
Puducherry	2	44	644	31	496	1,140
Punjab	12	314	4,472	143	2,288	6,760
Rajasthan	20	474	6,934	239	3,824	10,758
Tamil Nadu	20	531	7,494	204	3,264	10,758
Telangana	13	300	4,022	113	1,808	5,830
Tripura	2	49	728	29	464	1,192
Uttar Pradesh	43	1,076	15,237	477	7,631	22,868
Uttarakhand	4	85	1,242	50	800	2,042
West Bengal	23	552	6,989	198	3,161	10,150
India	328	7,869	110,279	3,881	62,086	172,365



Temporal Distribution of Sample Uniformly Spread over Time

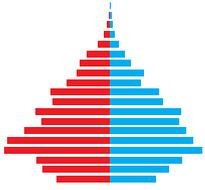
Month Slot	Week Slot	Urban Sample		Rural Sample		Total Sample	
		Nos	(%)	Nos	(%)	Nos	(%)
1	1	6,799	24.5	3,936	25.7	10,735	24.9
	2	7,074	25.5	3,872	25.3	10,946	25.4
	3	7,021	25.3	3,808	24.9	10,829	25.2
	4	6,858	24.7	3,696	24.1	10,554	24.5
Month 1	Weeks 1-4	27,752	25.2	15,312	24.7	43,064	25.0
2	5	6,632	24.5	3,760	24.7	10,392	24.6
	6	6,842	25.2	4,048	26.6	10,890	25.7
	7	6,898	25.4	3,647	24.0	10,545	24.9
	8	6,742	24.9	3,743	24.6	10,485	24.8
Month 2	Weeks 5-8	27,114	24.6	15,198	24.5	42,312	24.6
3	10	7,014	25.7	4,125	25.9	11,139	25.7
	11	6,966	25.5	3,919	24.6	10,885	25.2
	12	6,711	24.6	4,156	26.1	10,867	25.1
	9	6,632	24.3	3,744	23.5	10,376	24.0
Month 3	Weeks 10-9	27,323	24.8	15,944	25.7	43,267	25.1
4	13	6,881	24.5	3,888	24.9	10,769	24.6
	14	7,172	25.5	3,808	24.4	10,980	25.1
	15	7,288	26.0	3,968	25.4	11,256	25.7
	16	6,749	24.0	3,968	25.4	10,717	24.5
Month 4	Weeks 13-16	28,090	25.5	15,632	25.2	43,722	25.4
4 Months	16 Weeks	110,279	100	62,086	100	172,365	100

1 Week = 7 days or 8 days depending upon the month



CPHS Execution



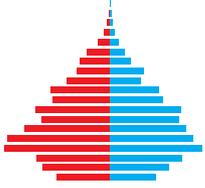


Execution

The Consumer Pyramids Household Survey is a longitudinal survey. Each Wave of this survey commences as soon as an earlier Wave is completed. This survey is therefore conducted everyday.

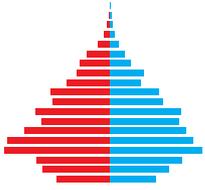
1. The entire sample of about 172,000 households is surveyed during a period of four months. There are three Waves of four months duration each in a year.
2. Each Wave of a year is called a Round.
3. The entire sample is divided into four equal monthly Slots. Each Monthly Slot consists of about 43,000 households and each Month's sample is divided into four weeks of 7 or 8 days each with about 10,500 households slotted per week.

	Monthly Slot1				Monthly Slot2				Monthly Slot3				Monthly Slot4			
	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16
Round1	January				February				March				April			
Round2	May				June				July				August			
Round3	September				October				November				December			
Weekly Sample	10,735	10,946	10,829	10,554	10,392	10,890	10,545	10,485	11,139	10,885	10,867	10,376	10,769	10,980	11,256	10,717
Monthly	43,064				42,312				43,267				43,722			



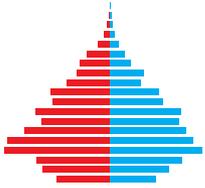
Survey Execution Team Size

	Team	Numbers
	Supervision during Execution	100
	Central Planning Team	5
	Regional Survey Managers & Deputy Survey Managers	17
	Filed Information Officers	74
	Data Guidance Team	4
	Field Team Members (Interviewers active on an average / day)	225-250
	Field Team members (Total trained interviewers available)	300
	Supervision post Execution	42
	Offline Real-time Validations Team	30
	Central Monitoring Team	6
	Audit & Para-data Analysis Team	6
	Total (excludes IT teams and senior general management)	367
	<i>Interviewer : Supervisor Ratio</i>	3:1
	<i>Interviewer : Total Team Ratio</i>	1.6:1
	<i>Households surveyed per interviewer per day revenue</i>	5.3
	<i>No part of the survey is sub-contracted</i>	



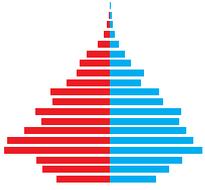
Execution & Real-time Validation

1. Data is collected on hand-held GPS enabled phone devices.
2. Data is uploaded from the device immediately after entries.
3. Uploaded data is immediately cross-checked centrally to ensure plausibility of the entries made by interviewers in the field.
 1. GPS location
 2. Internal consistency of record entered
 3. Consistency with past information
 4. Consistency with information in same neighbourhood
4. Findings of central team shared with local supervisors. Supervisors cross-check information on field in real-time.
5. Real-time cross-checking of data ensures better quality data collection and faster turnaround of results.
6. There is no post-hoc “cleaning” of data. The data is delivered for analysis in its most raw form, but with due real-time supervision and checks.



Steps in Conducting an Interview

1. Interviews are conducted by Field Team Members.
2. Field Team Members download empty electronic forms (on GPS-enabled smart mobile phone devices) allocated for the day and reach city or village to be surveyed on the planned day.
3. Survey execution at the household:
 - a. Identify respondent, the most articulate member of household.
 - b. Take GPS location and Start survey.
 - c. Conduct interview (takes 60-75 minutes).
 - d. End (or temporarily suspend) survey and take GPS location.
 - e. Upload data-populated electronic form.
 - f. Check Offline Realtime Validation responses on earlier household.
 - g. Respond to queries, resolve all problems and upload form.
 - h. Move to next household in allotted panel for next interview.



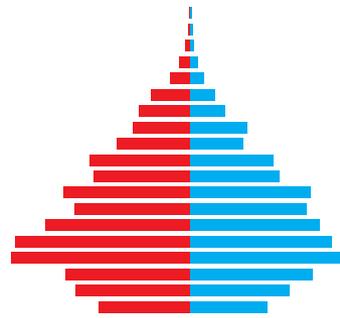
Deploying Para-data

Para-data is collected while interview is in progress

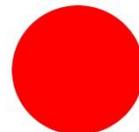
Processes being developed to

1. automatically provide feedback to interviewer on quality of data collected
2. provide feedback to supervisor during real-time validations
3. provide inputs to central team to assess quality of work done by individual FTM and corresponding supervisor
4. provide inputs to detect and analyze interviewer effects

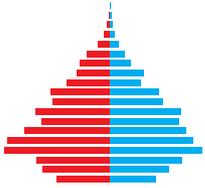
This is Work-in-Progress. Hope to commission this project by September 2018



CPHS
Employment/Unemployment
Comparisons
with NSSO



CMIE



Comparing CPHS with NSSO

	NSSO	CPHS
Rural households	59,700	62,086
Urban households	42,024	110,279
Total households	101,724	172,365
(Un)employment related questions	~100	1 + 10
Duration	12 months	4 months
Frequency of survey	About every 5 years	Every 4 months
Frequency of estimations	About every 5 years	Every week, month & 4 months
Timeliness of outputs	About 9 mths after survey	End-of-day

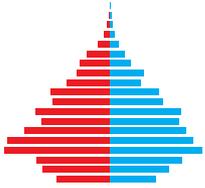
Four Statuses* in CPHS

1. Employed E
2. Unemployed, willing to work and actively looking for a job (UE)
3. Unemployed, willing to work and not looking for a job (MUE)
4. Unemployed, not willing to work and not looking for a job

*Status is as of date of survey or, one day before date of survey

Derivations

5. Labour Force, LF = (1+2)
6. Greater Labour Force, GLF= (1+2+3)
7. Unemployment Rate, UER = (2/5)
8. Greater Unemployed, GUE = (2+3)
9. Greater Unemployment Rate, GUER = (8/6)

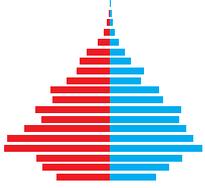


Employment & Unemployment Estimates

	Employed (million)					Unemployed (million)				
	NSSO		Labour Bureau		CPHS	NSSO		Labour Bureau		CPHS
	CDS	ps+ss	CDS	ps+ss		CDS	ps+ss	CDS	ps+ss	
2009-10	368.2	421.8		419.8		26.5	9.9		39.0	
2010-11										
2011-12	381.9	434.4		463.7		23.5	10.2		15.8	
2012-13				451.7					18.8	
2013-14				480.4					16.9	
2014-15										
2015-16				467.7					18.0	
2016-17					406.7					33.0
2017-18 ⁷					407.5					18.6

Three surveys

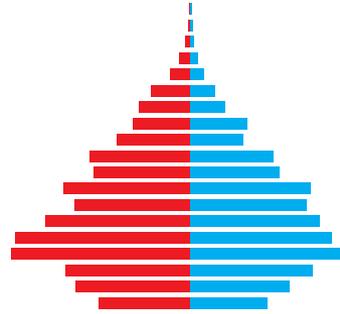
1. CMIE began employment / unemployment measures from Jan 2016
2. NSSO & Labour Bureau have similar methodologies
5. CPHS measures Current Daily Status for all individuals ≥ 15 years of age
6. NSSO numbers are based on Current Daily Activity Status (CDS) status for the age group 15-59 years. Usual Status (US, ps+ss) based estimates are higher, but not comparable to CPHS. US overstates employment.
7. **CDS is about 87% of US. CPHS estimate for 2016-17 is about 87% of LB's US for 2016-17.**
8. CPHS numbers for 2017-18 are based on data for the period April-December 2017.



Labour Participation & Unemployment Rates

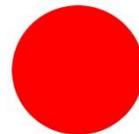
	Labour Participation Rate (LPR) (%)					Unemployment Rate (UER) (%)				
	NSSO		Labour Bureau		CPHS	NSSO		Labour Bureau		CPHS
	CDS	ps+ss	CDS	ps+ss		CDS	ps+ss	CDS	ps+ss	
2009-10	54.6	59.6		49.6		6.7	2.3		9.3	
2010-11										
2011-12	53.1	58.3	51.5	55.4		5.8	2.3	6.3	3.3	
2012-13			50.2	53.1				5.2	4.0	
2013-14				55.6					3.4	
2014-15										
2015-16				52.4					3.7	
2016-17					44.3					9.1
2017-18					41.6					5.2

1. CPHS estimates of labour participation rate is much lower than that of NSSO & LB.
2. CPHS estimates of unemployment rate is higher than that of NSSO & LB.

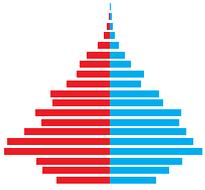


Focus on
fast frequency measures

Unemployment

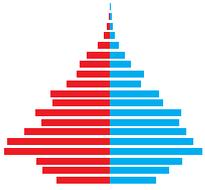


CMIE



The CPHS Proposition

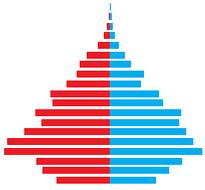
- NSSO & Labour Bureau do in-depth household surveys. We see no need to replicate their work.
- Nielsen & IMRB work on retail audits & brand shares. We have no plan to replicate their work.
- Consumer Pyramids Household Survey proposition:
 - Deliver fast-frequency population measures – weekly, monthly
 - Measure fast-frequency changes – panel
 - Enable natural experiments – impact of demonetisation
 - Provide sample & execution machinery to academia – Lok Surveys
- Census, NSSO, Labour Bureau are our benchmark. We hope to provide lead indicators.



Estimations Software

Estimations made using Thomas Lumley's "Survey" package in R.

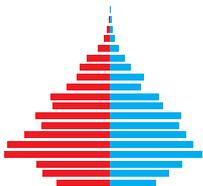
	Daily	Weekly	30-dma	Monthly	Waves
Number of Strata	2	2	49	49	370
Survey Design-Strata	Rural India & Urban India	Rural India & Urban India	State-wise rural & urban	State-wise rural & urban	HR-wise rural & town-size-wise urban
Sample Size (households)	1,450	10,250	40,000	43,000	172,000
Non-response	No adjustment	No adjustment	No adjustment	Adjusted (NR ~ 25%)	Adjusted (NR ~ 15%)



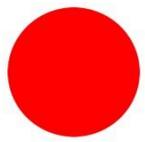
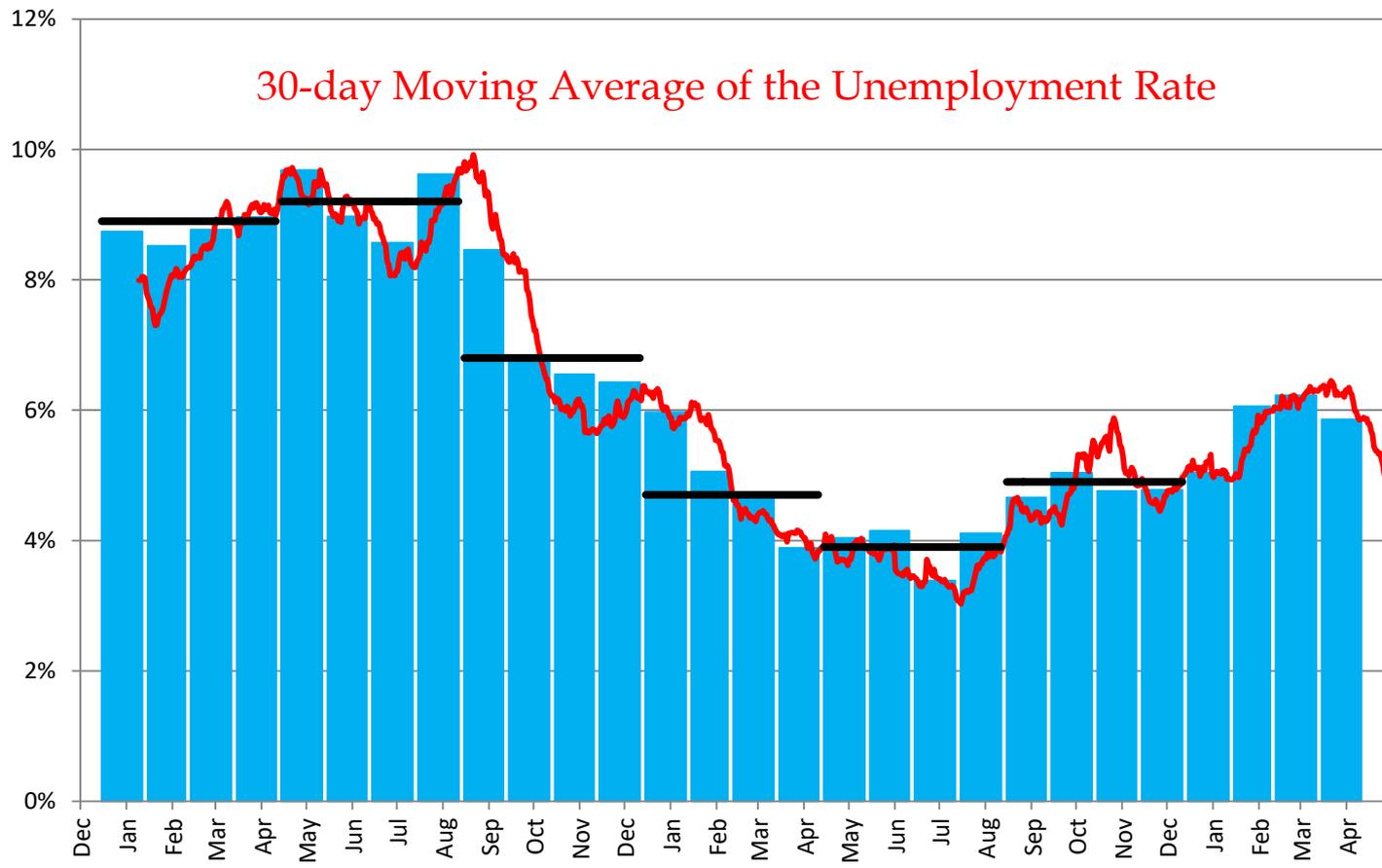
Weekly Sample Size & Responses

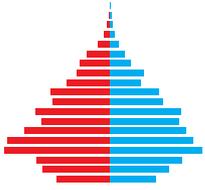
Waves	Urban		Rural		Total	
	Sample	Response	Sample	Response	Sample	Response
Wave 7	7,002	4,513	2,913	2,013	9,914	6,526
Wave 8	6,958	4,437	3,028	1,970	9,986	6,407
Wave 9	6,999	4,090	3,033	1,756	10,032	5,846
Wave 10	7,040	4,412	3,033	1,846	10,073	6,259
Wave 11	7,020	3,969	3,033	1,721	10,053	5,690
Wave 12	6,673	3,225	3,838	1,633	10,511	4,858
Wave 13	6,727	3,990	3,896	2,105	10,623	6,095
Wave 14	6,892		3,880		10,773	
Average	6,914	*4,090	3,332	*1,863	10,246	*5,954

* The average is for 7 Waves as the 14th Wave is currently underway and will complete by 31 August 2018.

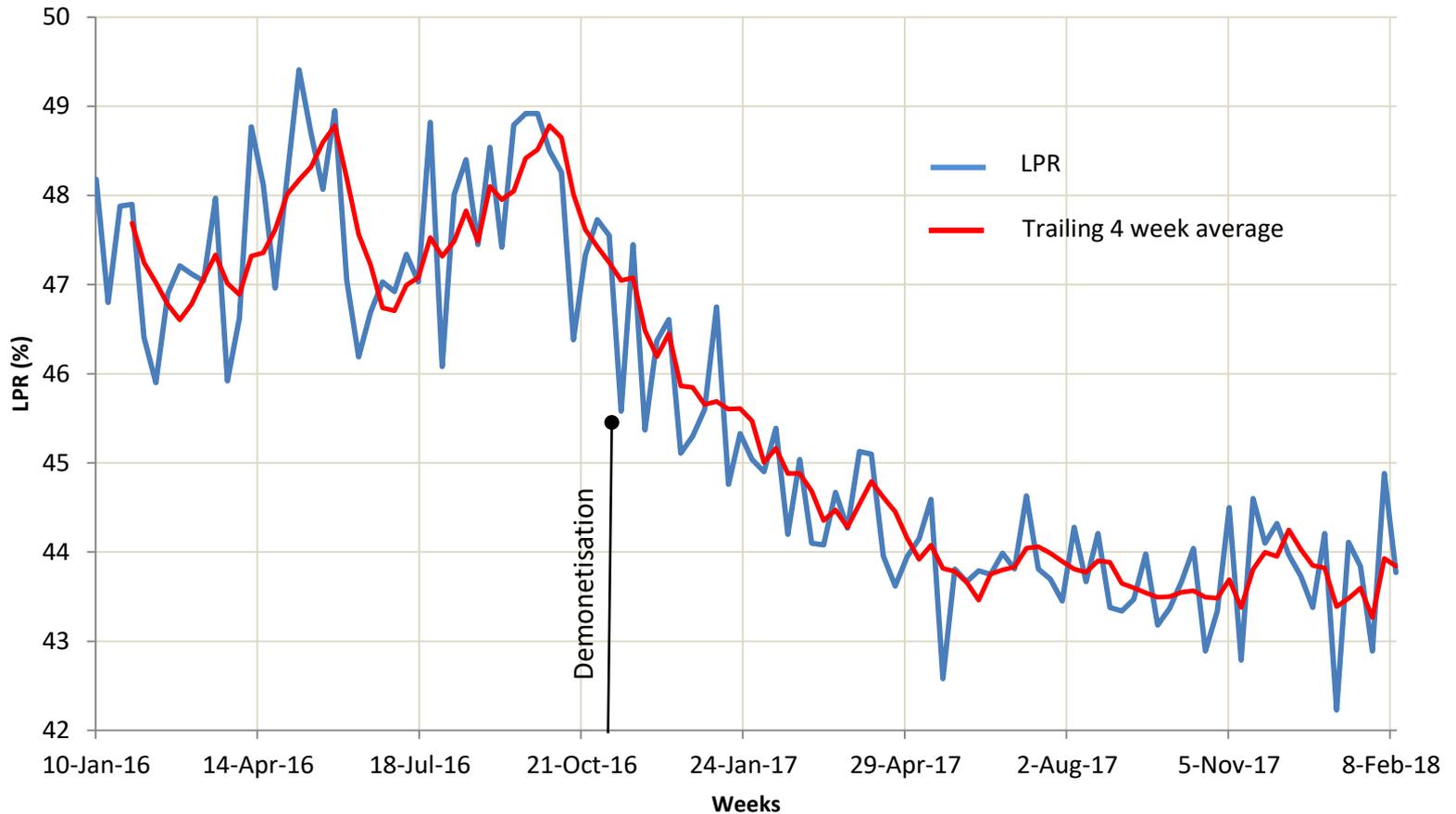


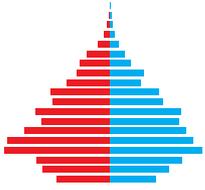
30-dma Foretells Monthly Estimates



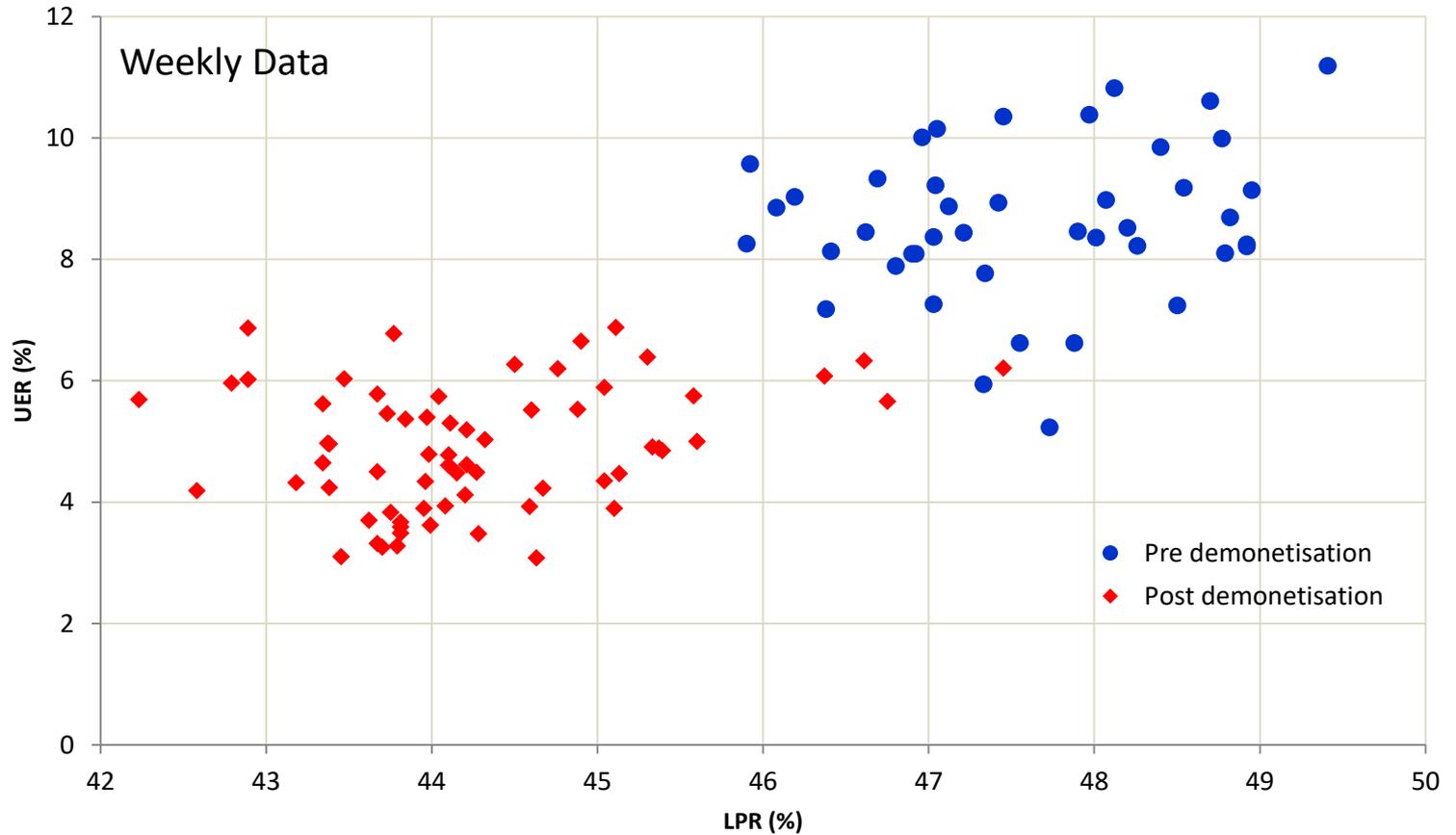


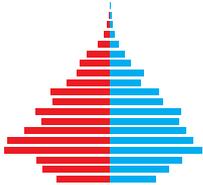
LPR's Relentless Fall post Demonetisation





LPR & UER Fall after Demonetisation





Who Suffered Demonetisation?

