

**Working Paper No-1**

**Measures of Labour Force  
Participation and Utilization**

**J. Krishnamurty  
G.Raveendran**



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January 2008**

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### Previous Reports of the National Commission for Enterprises in the Unorganised Sector

1. Social Security for Unorganised Workers, May 2006
2. National Policy on Urban Street Vendors, May 2006
3. Comprehensive Legislation for Minimum Conditions of Work and Social Security for Unorganised Workers, July 2007
4. Conditions of Work and Promotion of Livelihood in the Unorganised Sector, August 2007
5. Reports on Financing of Enterprises in the Unorganised Sector & Creation of a National Fund for the Unorganised Sector (NAFUS), November 2007

# Preface

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National Commission for Enterprises in the Unorganised Sector (NCEUS), set up by the Government in pursuance of its Common Minimum Programme (CMP) is inter-alia mandated to (i) review the existing arrangements for estimating employment and unemployment in the informal sector and (ii) suggest the elements of an employment strategy focusing on the informal sector. The measurements of labour force and unemployment presently in use by various agencies, particularly the Planning Commission, are however found to be not capturing the complex characteristics of employment being generated in the economy including different dimensions of quality of employment. Prof. J. Krishnamurty and Dr. G. Raveendran were, therefore, asked to review the methodology for the measurement of employment as suggested by the Dantwala Committee in their report submitted to the Government in 1970. The team reviewed all the existing literature on the subject and analysed the unit level data sets of Employment-Unemployment surveys undertaken by the National Sample Survey Organisation (NSSO) during the last three quinquennial rounds. This working paper is the result of such a review and analysis and the authors have suggested a new set of measures of labour force, work force, unemployment, part-time employment and under-employment. The authors believe that the adoption of these measures would provide the best use of available information for policy analysis including planning exercises. These measures have also been computed on the basis of the last three quinquennial rounds of Employment-Unemployment surveys and presented in the paper. It is being issued as a working paper in order to solicit comments and to further develop the ideas presented in the paper.

Arjun Sengupta  
Chairman  
National Commission for Enterprises in  
the Unorganised Sector

4 January 2008



# Abstract

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*The choice of the best measures of labour force, work force and unemployment has been the subject of intense debate in the formulation of employment strategies and preparation of plan documents. A new set of measures based on a concept of Modified Current Weekly Status (MCWS) are suggested in this paper which we believe would be better suited for many purposes than those currently in use. In addition new measures are also suggested for labour time utilisation and underemployment. These measures have been computed by using the data sets of the last three quinquennial rounds of surveys on employment-unemployment undertaken by the National Sample Survey Organisation (NSSO) and a comparison with the existing measures has been included in the paper. The principal aim of the paper is to suggest new ways of analyzing labour force data by retaining the identity of the individuals so as to relate the labour force behavior with other socio-economic characteristics.*



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The responsibility for the views expressed and also for any factual errors and omissions in the paper rests entirely with the authors.

J. Krishnamurty

G. Raveendran





# Abbreviations

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UPS	:	Usual Principal Status
UPSS	:	Usual Principal and Subsidiary Status
SS	:	Subsidiary Status
CWS	:	Current Weekly Status
CDS	:	Current Daily Status
NSS	:	National Sample Survey
NSSO	:	National Sample Survey Organisation
ILO	:	International Labour Organization
MCWS	:	Modified Current Weekly Status
WPR	:	Work Participation Rate
SUE	:	Severely Unemployed
PTWs	:	Part-time Workers

# 1

## Measures of Labour Force Participation and Utilisation

### 1. Introduction

There is a continuing debate in India among economists, planners and policy-makers on the best measure of labour force participation and utilization. This is despite the fact that the Committee of Experts on Unemployment Estimates, constituted by the Planning Commission in 1968 under the chairmanship of Prof. M.L. Dantwala, has clearly indicated that it would not be justified to aggregate labour force, employment and unemployment into single dimensional magnitudes in view of inherent socio-economic conditions prevailing in the country.

In this paper a new set of measures of labour force, employment and unemployment has been suggested which we believe would be better suited for many purposes than those currently in use. We also propose new measures of labour time utilization and underemployment.

### 2. The Existing Measures of Labour Force

The Labour Force Participation Rate (LFPR), obtained by dividing the number of persons in the labour force by total population, is an important parameter in employment projections and formulation of employment strategies. The crucial issue, however, is the basis, or the decision rule, on which a person is classified as belonging to the labour force. There are four different concepts used in India in this regard. These are:

Usual Principal Status (UPS)

Usual Principal and Subsidiary Status (UPSS)

Current Weekly Status (CWS), and

Current Daily Status (CDS).

#### 2.1 Usual Principal Status

For several purposes, we need to relate social and economic variables to the enduring characteristics of the population and labour force. The labour force, in this context, is typically measured through the usual principal activity status (UPS) which reflects the status of an individual over a reference period of one year. Thus a person is classified as belonging to labour force, if s/he had been either working or looking for work during longer part of the 365 days preceding the survey. In case the total period of being within the labour force is equal to the total period out of it, priority is given to labour force participation. Again, for a person already identified as belonging to the labour force, s/he would be labeled as employed or unemployed depending on which category accounted for more days. In the event of a tie, employed would get priority over unemployed. However, if a person has a very complex pattern of labour force and work participation, the UPS measure cannot fully reflect it.

The UPS measure excludes from the labour force all those who are employed and/or unemployed for a total of less than six months. Thus persons who work intermittently, either because of the

<sup>1</sup>The Report of the Committee of Experts on Unemployment Estimates submitted to the Planning Commission in 1970 states that "In our complex economy, the character of the labour force, employment and unemployment, is too heterogeneous to justify aggregation into single-dimensional magnitudes".

pattern of work in the household farm or enterprise or due to economic compulsions and other reasons, would not be included in the labour force unless their days at work and unemployment totalled over half the reference year.

## 2.2 Usual Principal and Subsidiary Status

The Usual Principal and Subsidiary Status (UPSS) concept was introduced to widen the UPS concept to include even those who were outside the labour force on the basis of the majority time criterion but had been employed during some part of the year on a usual basis. In the NSS 61st Round Survey, all those who were either un-employed or out of labour force but had worked for at least 30 days over the reference year were treated as subsidiary status workers. UPSS is thus a hybrid concept incorporating both the major time criterion and priority to work status.

The UPSS measure was used on the ground that it was stable and inclusive: it related to a picture emerging from a long reference period, and even persons working for 30 days or more, but not working for the major part of the year, were included. However, those outside the UPS labour force, seeking or available for work for more than 30 days during the preceding 365 days, were not included in the UPSS labour force.<sup>2</sup>

By including as workers those outside the UPS labour force but had worked for 30 days or more, the UPSS estimates of work participation (which included some of the UPS unemployed and outside the labour force) exceeded the corresponding UPS estimates. However, the number of unemployed got reduced and their share in the expanded UPSS labour force became much lower.

It is important to stress the difference between the UPS and UPSS measures as the latter has been used for employment projections in all the recent Plan exercises except the Tenth Plan document. The basic differences between UPS and UPSS measurements are the following:

- The enduring characteristic sought to be captured in UPS is how the person spends the major part of the year. The UPSS, on the other hand, seeks to place as many persons as possible under the category of employed by assigning priority to work

- While the notion of long term attachment to particular activity status may be a valid generalization, there may be a considerable number of persons for whom no single long-term activity status is applicable as they move between statuses over a long period of one year depending on a variety of factors, including cyclical patterns and random events. This possibility is eliminated from our purview when a statistical straight-jacket like UPS or UPSS is applied and a person has to select one and only one status (employed, unemployed, out of the labour force) as her/his enduring status.
- Usual status requires a recall over a whole year of what the person did. For those in regular employment this is easy to do, but for those who take whatever work opportunities they can find over the year or have prolonged spells out of the labour force, a very complex pattern has to be recalled in order to decide what their usual status is. In this respect, a short reference period of a week has advantages.

## 2.3 Current Weekly Status

The concept of Current Weekly Status (CWS) has been in use in the labour force surveys in India even before 1970, when the recommendations of the Dantwala Committee became available. It was primarily because the agencies like International Labour Organization (ILO) use estimates of employment and unemployment rates based on weekly reference period for international comparisons. Under CWS, a person is classified to be in labour force, if s/he has either worked or is seeking and/or available for work at least one hour during the reference period of one week preceding the date of survey.

The CWS participation rates also relate to persons and hence may be roughly compared with those obtained by using UPS and UPSS measurements. However, the reference periods are different and UPS, unlike UPSS and CWS, is based on majority time and does not accord priority to work and unemployment. The classification under CWS is based on the status of each person during the last seven days and priority is assigned to “working” over “not working but seeking or available for work” and to both “working” and “not working but seeking or available for work” over “neither working nor available

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<sup>2</sup> The 30 day rule was introduced in the 61st Round. In earlier Rounds, no such minimum cut off point was prescribed. For strict consistency, all those who were outside the labour force on the basis of principal status, but who were in the labour force on the basis of their subsidiary status, should have been included in the UPSS labour force. If the 30 day cut-off rule was applied it should have related to labour force participation, not only to work participation.

for work". The advantage of CWS is that it uses a shorter reference period of seven days and as such recall lapses are expected to be comparatively lower. Further, it facilitates easy classification and analysis by sub-rounds to identify seasonal patterns. The major disadvantage of CWS is that it classifies persons with very nominal work of even one hour during the reference week into work force and labour force. Similarly, a person is treated as unemployed only if s/he has been unemployed on all the days on which s/he has been in the labour force

## 2.4 Current Daily Status

The Dantwala Committee proposed the use of Current Daily Status (CDS) rates for studying intensity of work. These are computed on the basis of the information on employment and unemployment recorded for the 14 half days of the reference week. The employment statuses during the seven days are recorded in terms of half or full intensities. An hour or more but less than four hours is taken as half intensity and four hours or more is taken as full intensity.

An advantage of this approach was that it was based on more complete information; it embodied the time utilisation, and did not accord priority to labour force over outside the labour force or work over unemployment, except in marginal cases. A disadvantage was that it related to person-days, not persons. Hence it had to be used with some caution.

## 3. Labour Force Measures Used in Recent Plan Exercises

The Task Force on Employment Opportunities set up by the Planning Commission and chaired by Dr Montek Singh Ahluwalia, which reported in July 2001, examined estimates of employment and unemployment generated by the National Sample Survey, based on different concepts developed by the Dantwala Committee. All four measures, UPS, UPSS, CWS and CDS were reviewed and estimates based on all four measures featured in the analysis. It was stated that:

*the CDS measure of unemployment is widely agreed to be the one that most fully captures open unemployment in the country.*<sup>3</sup>

<sup>3</sup> See Government of India, Planning Commission: Report of the Task Force on Employment Opportunities, New Delhi, July 2001, pp. 14-15.

The projections of the labour force were, however, based on the UPSS concept, perhaps because it related to persons rather than person-day units.

The Planning Commission's Special Group on Targeting Ten Million Employment Opportunities Per Year over the Tenth Plan Period, chaired by Dr S P Gupta, which reported in May 2002, took a different view. It argued that:

*the method of estimation of employment and unemployment on the basis of the usual and subsidiary status (UPSS) used during the Ninth Plan formulation would not be of help to get any realistic estimate of the quantum of generating gainful employment in order to fulfill the Tenth Plan targets, especially given the promise for gainful nature of employment, as per the Group's terms of reference. This is because on the basis of UPSS calculation, the volume of unemployment shown is always under-estimated since it excludes a large number who are significantly under-employed or unemployed over a major part of the referred period.*<sup>4</sup>

It was therefore decided to switch over to the CDS. The rationale was as follows:

*Hence, we switched over to what is called the Current Daily Status (CDS), which is conveniently one of the other options provided by the National Sample Survey Organisation for measurement of employment and unemployment. If the gainfully employed are defined as those who are near fulltime employed, then the CDS definition on employment given by the NSSO will give more realistic estimate at least directionally. Most countries across the globe use the concept close to weekly status, which again is closer to that of CDS used in this report. Within India almost all other reports from alternate sources agree that the CDS concept of unemployment is the most realistic.*<sup>5</sup>

This approach was later adopted in the Tenth Plan (2002-2007) document for projecting labour force and employment generation. It was justified on the ground that (a) CDS was a better measure than the UPSS to capture unemployment and under-employment and (b) it took into account seasonal variations as the samples were surveyed uniformly over the year. A review of these developments brings out the following points.

<sup>4</sup> See Government of India, Planning Commission: Report of the Special Group on Targeting Ten Million Employment Opportunities Per Year over the Tenth Plan Period, New Delhi, July 2002, p. 12.

<sup>5</sup> Ibid, p.21.

First, the Special Group is right in stressing that the gainfully employed should be those who have a strong involvement in employment, i.e. that they should be “near fulltime employed.” It does not follow, however, as the Special Group claims, that the CDS definition on employment will give a more realistic estimate at least directionally, for it cannot yield an estimate of *persons* gainfully employed. Under CDS, the basic classificatory unit is a person-day and the status of the same person on all the seven days is recorded. It thus relates to a composite unit of person-day and not to persons or individuals. Aggregates of person-days cannot be readily related to characteristics of individuals who contribute to it.

Secondly, the UPSS-based projections may be questioned for using a concept that overstates employment and understates unemployment. Many persons included as workers under UPSS are not really gainfully employed for much of the time.

Thirdly, the argument of the Task Force that “the difference between the unemployment rates on the Current Weekly and that on the Usual Status would provide one measure of seasonal unemployment” is difficult to sustain. The two unemployment rates are based on different labour force denominators, and many reported as working on UPSS may be outside the labour force on CWS. Seasonality in labour force characteristics is better captured by variations in CDS rates over the four sub-rounds.

#### 4. Requirements of a Good Measure

From the preceding discussion we may attempt to highlight some of the requirements of a good measure.

- A good employment/unemployment measure should be able to depict the baseline situation in a realistic and consistent manner, identifying those individuals who have a substantial attachment to the labour force and who spend a good part of their time at work or in unemployment.
- In our predominantly rural, agrarian economy, it should enable us to identify patterns of seasonal change over the different parts of the year.
- It should provide a basis for projecting the growth of labour force, employment and unemployment over time and facilitate comparisons with expected employment generation in the economy.

#### 5. Modified Current Weekly Status (MCWS)

In both UPSS and CWS, the priority criterion results in overestimation of the labour force and work force. It is essentially because persons who normally remain outside the labour force (work force) most of the time would get included in the labour force (work force) if they spent just above 30 days in a year (UPSS) or one hour in a week (CWS) in an economic activity like gathering of uncultivated crops, collection of firewood, cleaning of household enterprise premises, etc. The UPSS and CWS as currently used, therefore, have only limited value in estimating trends in employment and unemployment and projecting labour force. This paper proposes a modified CWS (hereafter MCWS) based on major time criterion. This approach had been used many years ago by Prof. Pravin Visaria in an exercise involving re-tabulation of NSS data for some States.

Unlike CWS, the MCWS takes better account of the time disposition of each individual over the 14 half days. It follows a two step procedure. *First*, it assigns individuals to the labour force if the majority of their half-days were in the labour force. *Second*, within the labour force, it uses the majority time principle to classify individuals among the two activity statuses, employed and unemployed. Only in a few cases, where the majority time rule does not give a unique solution, is the criterion of priority for labour force and employment invoked.

Under MCWS, each surveyed individual is uniquely classified as within or outside the labour force, and again as employed or unemployed by consistently applying the majority time principle to the time disposition information relating to all the 14 half-days of the week. The labour force estimates based on MCWS includes only those who were in the labour force during major part of the week. A member of the MCWS labour force would have been working or unemployed or a combination of both *for at least 3.5 days in the reference week*.

In contrast to the CWS, under MCWS a person will not be classified as worker, if that person has worked only for half-a-day during the reference week. Any person classified as a member of the MCWS labour force can be further classified as a worker only if s/he has worked for at least two days in the reference week. This may be established in the following way. Consider individual, A, who has spent the minimum qualifying period of 3.5 days in the labour force.

- If A spent 2 or more days at work, this would be the majority of her/his labour force days and s/he would be classified as a worker.
- If A spent less than 2 days at work i.e. 1.5 days or less, A must have been unemployed for 2 days or more out of her/his 3.5 days in the labour force. A would then be classified as unemployed.

To generalize, if the number of days of any person in the labour force is 3.5 or more, the majority rule would ensure that if the person was classified as a worker s/he would have worked for 2 or more days and if the person was classified as unemployed, s/he would have been unemployed for 2 or more days.

In the above classification, we follow the analogy of the usual principal status and *first* classify according to whether or not in the labour force on the basis of majority time, and *then* apply the same majority time criterion to decide whether the person is employed or unemployed. This MCWS procedure has a definite advantage over the CWS as any person classified as employed (or unemployed) would have recorded a significant involvement (at least 2 days) in that activity and at least 3.5 days in the labour force. The concept thus enables us to focus on persons with a significant involvement in the labour force and in work or unemployment.

## 6. Comparison of Rates from the Different Measures

In this Section we examine labour force and unemployment rates derived from unit level data sets by different measures in use and compare them with rates obtained using the MCWS. Before making the comparison, it is important to note that the rates are obtained on very different bases. The UPS and UPSS relate to usual status with a reference period of one year, while the other rates relate to current status, relating to the reference week. The UPS, and MCWS embody the majority time criterion, while the UPSS and CWS embody the priority criterion, assigning priority to work over unemployment and unemployment over being outside the labour force. Unlike UPS, UPSS, CWS and MCWS which relate to persons, the CDS relates to person-days. The CWS and the MCWS apply two different principles, priority and majority time respectively, to the same set of labour-time disposition particulars.

Since different reports have used one or other of the earlier measures, it is useful to look at these results in relation to MCWS. One must not forget that the bases for the

different measures differ greatly and the reasons for these differences are complex. The labour force participation rates estimated by using the different measures listed above on the data sets relating to NSS 50th, 55th and 61st Round Surveys on Employment – Unemployment are given in Table 1 and the corresponding worker participation and unemployment rates are given in Tables 2 and 3 respectively.

### 6.1 Labour force participation rates

Considering the labour force participation rates reported in Table 1, all have a common denominator, viz. the population, although the CDS uses a variant, viz. total person days. The following generalizations may be made:

#### Usual status

$$UPSS > UPS \quad (i)$$

This is obvious since UPSS adds to the labour force those outside the UPS labour force with subsidiary work.

#### Current status

$$CWS > MCWS \quad (ii)$$

CWS results in a higher labour participation rate than MCWS. This is due to the inclusion in CWS of some persons who were not in the labour force for the majority of the week.

$$CWS > CDS \quad (iii)$$

The CWS labour force participation rates are higher than the CDS as the half-days outside the labour force of persons in the CWS labour force are ignored under CWS but included in CDS.

The relation between MCWS and CDS labour force participation rates cannot be predicted. The MCWS rate could exceed the CDS since it ignores half-days of outside the labour force reported by persons in the MCWS labour force; on the other hand, CDS could exceed MCWS as it includes half-days in the labour force of persons outside the MCWS labour force. Hence, the relation between MCWS and CDS depends on the relative magnitudes of these two factors.

Looking at Table 1, we find that for all India for 1993–94, 1999–2000 and 2004–05, for all segments (i.e. rural males, rural females, urban males and urban females) labour force participation rates under UPSS are consistently higher than under UPS. Again, CWS rates are higher than MCWS rates which, in turn are higher than CDS rates.

## 6.2 Work participation rates

The work participation rates estimated by using different concepts are given in Table 2.

### Usual status

$$\text{UPSS} > \text{UPS} \quad (\text{iv})$$

As one would expect, WPRs are higher under UPSS as compared to UPS as the former includes subsidiary work.

### Current status

$$\text{CWS} > \text{MCWS} \quad (\text{v})$$

As in the case of labour force participation rates, the CWS work participation rates, based on priority for employment, are consistently higher than MCWS rates, based on majority time.

$$\text{CWS} > \text{CDS} \quad (\text{vi})$$

The CWS rates are higher than those under CDS, as persons with minimal days of employed would be classified as employed under CWS and no account would be taken of their unemployed days.

The relation between MCWS and CDS WPRs is, in theory, unclear. The MCWS, in its estimation, ignores the non-work time of MCWS workers. Against this, the work time of MCWS non-workers is also ignored by MCWS. In practice, it would appear that the former factor outweighs the latter, and MCWS WPRs generally exceed CDS WPRs.

As Table 2 shows, for all persons in 2004-05, the UPSS based WPR is the highest at 420 per thousand of population and the CDS based WPR is the lowest at 350. The UPS and CWS based WPRs are 380 and 389 respectively, while that based on MCWS is 368.

## 6.3 Unemployment rates

Turning to comparisons of unemployment rates (which are proportions to the labour force) it is important to note that, unlike the labour force participation rates which are proportions of the population, differences in unemployment rates could be due to the numerator and/or the denominator.

### Usual status

$$\text{UPS} > \text{UPSS} \quad (\text{vii})$$

Under UPSS, the priority for work over unemployment results in unemployment being smaller than in UPS.

Further, the UPSS labour force is larger than the UPS labour force as some persons outside the UPS labour force are included in the UPSS labour force. Hence, the UPS unemployment rate, with a larger numerator and a smaller denominator, will be higher than the corresponding UPSS rate.

### Current status

$$\text{MCWS} > \text{CWS} \quad (\text{viii})$$

MCWS unemployed would be greater than the corresponding number for CWS as persons in the MCWS labour force who were unemployed for the major part of the week, but had also done some work, would be classified as unemployed; but such persons would have been included among the employed under CWS. The labour force, as we have seen in (ii) above, would be larger under CWS. Hence, with a larger numerator and a smaller denominator the MCWS unemployment rate would be higher compared to the CWS rate.

$$\text{CWS} < \text{CDS} \quad (\text{ix})$$

As CWS, unlike CDS, assigns priority to employment over unemployment a smaller number of unemployed would be obtained under CWS than under CDS. We already know that CWS would result in a larger labour force than CDS. Hence the unemployment rate under CDS (with more unemployed and less in the labour force) would be more than under CWS.

MCWS unemployment would be larger than CWS unemployment, since the former is based on majority time and does not assign priority to work over unemployment. But, as we have already shown, labour force participation rates under MCWS may be higher, equal or less than the corresponding CDS rates. Hence no conclusion may be drawn on comparing MCWS and CDS unemployment rates.

Looking at Table 2, we find that CDS rates are the highest, followed in descending order by MCWS, CWS, UPS, and UPSS. In the case of urban females, UPS and CWS rates are rather close and in 2004-05, it appears that the UPS rates slightly exceeded the CWS rate. However, in the preceding discussion we made no predictions regarding the relationship between usual and current status rates as their bases are very different.



## 7. Advantages of the MCWS Approach to Labour Force Measurement

The MCWS participation and unemployment rates, which relate to persons by majority time, are better aggregates of current daily status information. They are based on the actual status of the person during the last seven days and not based on a long recall memory of the informant as in the case of UPS and UPSS. They do not classify a person into one of the categories of employed, unemployed and out of labour force on an a priori basis but do so only after ascertaining the daily status on each of the last seven days. Thus the classification errors are significantly reduced. The unemployment rates estimated by using MCWS are a better reflection of the situation than those based on CWS as the former is on the basis of major time disposition within the labour force.

Since MCWS estimates relate to persons, they can be used to project the size and composition of the labour force. They can also be used to examine labour force characteristics, using cross classifications based on individual and household characteristics.

While the different approaches and the resulting estimates are useful in illuminating different characteristics of labour force participation and utilization, we believe that the analysis should be built around the MCWS estimates, drawing in, as required, results based on the other approaches and estimates. This would provide the best use of the available detailed information for policy analysis including planning exercises.

In a sense the time disposition module of the NSSO makes it possible to apply a host of alternative definitions of labour force, employment and unemployment resulting in a family of estimates. The task of the analyst is to select those among these estimates that are best suited to specific purposes. We illustrate this point in the next section by considering, in more detail, different ways of identifying and measuring underemployment and unemployment.

## 8. Measures of Non-utilization of Labour Time

Examination of the time disposition of persons over the reference week indicates that for many individuals time is divided between employment, unemployment and being

outside the labour force. There are several useful ways in which this information could be summarized.

### 8.1 Severe Unemployment

We could identify as “severely unemployed” (SUE) persons reporting unemployment for 3.5 days or more, i.e. half or more days of the week. Whatever they may have done for the rest of the week, these are people who have been in the labour market and have clearly not done well. Their characteristics warrant further analysis. The SUE group is not identical to the MCWS unemployed, but a slightly different sub-set of the MCWS labour force. This is because persons who worked 3.5 days and were unemployed on 3.5 days would be classified as MCWS workers, but, for our present purpose, they would be classified as SUE, i.e. unemployed on 3.5 days. To obtain incidence rates, the number of persons unemployed for 3.5 or more days could be divided by either the number in the CWS or in the MCWS labour force, as SUE persons would be members of the labour force under both concepts.

In Table 4 we present the estimated number of persons with severe unemployment, i.e. those who report 3.5 or more days of unemployment in the week. We also look at rates of severe unemployment in relation to the MCWS labour force. Severe unemployment rates appear to have been rising over the period from 1993-94 to 2004-05. For all persons, the rate rises from 5.44% to 6.89%, the absolute number increasing from 19 to 30 million over the period. Roughly two-thirds are male and about 70% are in rural areas.

### 8.2 Part-time Workers

A completely different approach would be to identify persons who worked for 0.5 to 3 days in the week. These are part-time workers (PTWs): they may be interested in additional work or they may not; some may report availability on non-working days while others may not. Also some may not report availability as they have been discouraged by their past labour market experiences. The incidence of part-time work is best measured in relation to the CWS work force, for not all part-time workers would be categorized as workers under the MCWS approach, but all of them would be included in the CWS work force, given its priority for work.

As Table 5 shows, persons working 0.5 to 3 days during the week, account for a not insignificant part of the CWS work force. In 2004-05, PTWs accounted for 5.35% of the total CWS work force. The percentages are higher for rural areas and among females. Among rural females, for instance, around 10% of the CWS work force comprised of PTWs. Between the 50<sup>th</sup> Round (1993-94) and the 61<sup>st</sup> Round (2004-05), PTWs appear to have increased both in absolute and in relative terms.

It might be argued that only those PTWs who express an interest in undertaking additional work should be considered when formulating employment policies. In practice, some may report non-availability for additional work on account of discouragement resulting from past efforts to find work or due to the weak link with the labour market, especially among non-wage earners. Hence, estimates of the size and characteristics of PTWs should be analyzed irrespective of their declared intentions regarding availability for additional work.

### 8.3 Underemployment

In the past, persons employed but interested in additional work were described as underemployed. Before 1972-73, the NSS results provided current status data on hours worked and hours available. It was possible to identify those who worked for a relatively short time (typically 28 hours or less per week) and were seeking and/or available for work. The latter were described as underemployed and this practice continues in several other Asian countries. This approach is, however, no longer feasible in India as time use is now done on a person-day basis, in terms of half days rather than clock time.

To estimate underemployment, we therefore propose a new measure. We take the ratio to the workforce of those who have worked for 3 days or less but more than 0.5 days in the *week and who were unemployed for 0.5 days or more as per CWS*. This will have the effect of excluding those who did not report any availability for additional work. The measure of underemployment used here is similar to the earlier measure based on the number of persons working 28 hours or less and available for additional work.

As Table 6 shows, the rate of underemployment for all persons rises from 1.7% of the CWS work force in 1993-94 and 1999-2000 to 2.3% in 2004-05. With the exception of urban females, the rates appear to be increasing over time for the other segments of the work force. This phenomenon may be more clearly seen by looking at the percentages of PTWs who report unemployed days. It is markedly higher among rural males and urban males (64% and 75% respectively in 2004-05) compared to rural and urban females (24% and 18% respectively). Again, there is a tendency for the percentages to rise over time, except for urban females. For all persons the percentage rises from 34 in 1993-94 to 43 in 2004-05. While these results may reflect increasing underemployment, it may also capture the process of growing labour market orientation over time, whereby more and more PTWs report time outside the work force as being unemployment rather than outside the labour force.

## 9. Conclusion

The principal aim of this paper is to suggest new ways of analyzing labour force data. An important principle adopted is to retain the identity of the individual in the analysis as other characteristics of the individual can then be related to her/his labour force behaviour. The use of the majority time current weekly status measure is recommended as it fulfils this requirement, and implies a more substantial degree of involvement in the labour force and, within the labour force, in employment or unemployment. This measure should be used also for labour force projections, instead of the UPSS and CDS measures presently in use.

Three types of underutilization of labour time are identified for use in analysis and policy. All relate to persons. These are the *severely unemployed*, persons who are unemployed for 3.5 days or more in the week; the *part-time workers*, persons who work 0.5 to 3 days in the week, and the *underemployed*, persons who are part-time workers reporting 0.5 or more days of unemployment. While the employment needs of these three groups of persons are likely to be different, we need to look at their other characteristics before formulating policy responses. This lies outside the scope of the present paper.

Table.1: Labour Force Participation Rates under Different Concepts

Per Thousand Participation Rates						
Category	Year	UPS	UPSS	CWS	MCWS	CDS
Rural Males	1993-94	549	561	547	539	534
	1999-00	533	540	531	522	515
	2004-05	546	555	545	537	531
Rural Females	1993-94	237	330	276	254	232
	1999-00	235	302	263	240	220
	2004-05	249	333	287	265	237
Rural Persons	1993-94	398	449	415	401	387
	1999-00	387	423	400	384	370
	2004-05	401	446	418	403	387
Urban Males	1993-94	538	543	538	535	532
	1999-00	539	542	539	535	528
	2004-05	566	570	566	564	561
Urban Females	1993-94	132	165	152	143	132
	1999-00	126	147	138	129	123
	2004-05	148	178	168	159	150
Urban Persons	1993-94	345	363	355	349	343
	1999-00	342	354	347	341	334
	2004-05	366	382	375	370	364
All Males	1993-94	546	556	555	538	533
	1999-00	535	540	533	525	518
	2004-05	551	559	550	544	539
All Females	1993-94	211	290	245	227	208
	1999-00	208	263	231	212	196
	2004-05	224	294	257	238	215
All Persons	1993-94	384	423	400	388	376
	1999-00	376	406	386	373	361
	2004-05	392	430	407	395	381

Source: NSSO 50th, 55th and 61st Round Survey on Employment-Unemployment. Computed.

Table.2: Work Participation Rates Using Different Concepts

Per Thousand Participation Rates						
Category	Year	UPS	UPSS	CWS	MCWS	CDS
Rural Males	1993-94	538	553	531	513	504
	1999-00	522	531	510	491	478
	2004-05	535	546	524	503	488
Rural Females	1993-94	234	328	267	242	219
	1999-00	231	299	253	227	204
	2004-05	242	327	275	247	216
Rural Persons	1993-94	390	444	403	381	366
	1999-00	380	417	384	362	344
	2004-05	391	439	402	377	355
Urban Males	1993-94	513	521	511	502	496
	1999-00	513	518	509	500	490

Per Thousand Participation Rates						
Category	Year	UPS	UPSS	CWS	MCWS	CDS
Urban Females	2004-05	541	549	537	527	519
	1993-94	121	155	139	129	120
	1999-00	117	139	128	118	111
Urban Persons	2004-05	135	166	152	142	133
	1993-94	327	347	334	325	317
	1999-00	324	337	327	318	309
All Males	2004-05	346	365	353	343	334
	1993-94	532	545	526	511	502
	1999-00	520	527	510	493	481
All Females	2004-05	536	547	527	509	496
	1993-94	206	286	236	214	195
	1999-00	203	259	222	200	181
All Persons	2004-05	215	287	244	221	195
	1993-94	375	420	386	367	354
	1999-00	365	397	370	350	335
	2004-05	380	420	389	368	350

Source: NSSO 50th, 55th and 61st Round Survey on Employment-Unemployment. Computed.

**Table.3: Unemployment Rates Using Different Concepts**

Per Thousand Participation Rates						
Category	Year	UPS	UPSS	CWS	MCWS	CDS
Rural Males	1993-94	2	1.4	3	4.8	5.6
	1999-00	2.1	1.7	3.9	5.9	7.2
	2004-05	2.2	1.6	3.8	6.4	8
Rural Females	1993-94	1.4	0.8	3	4.9	5.6
	1999-00	1.5	1	3.7	5.6	7
	2004-05	3.1	1.8	4.2	6.8	8.7
Rural Persons	1993-94	1.8	1.2	3	4.8	5.6
	1999-00	1.9	1.5	3.8	5.8	7.1
	2004-05	2.5	1.7	3.9	6.5	8.2
Urban Males	1993-94	4.5	4.1	5.2	6.1	6.7
	1999-00	4.8	4.5	5.6	6.5	7.3
	2004-05	4.4	3.8	5.2	6.6	7.5
Urban Females	1993-94	8.2	6.2	8.4	10	10.5
	1999-00	7.1	5.7	7.3	8.6	9.4
	2004-05	9.1	6.9	9	10.5	11.6
Urban Persons	1993-94	5.2	4.5	5.8	6.8	7.4
	1999-00	5.2	4.8	5.9	6.9	7.7
	2004-05	5.3	4.5	6	7.4	8.3
All Males	1993-94	2.6	2.1	3.5	5.1	5.9
	1999-00	2.8	2.4	4.4	6.1	7.2
	2004-05	2.7	2.2	4.2	6.4	7.8
All Females	1993-94	2.4	1.5	3.8	5.7	6.3
	1999-00	2.3	1.7	4.2	6	7.4
	2004-05	4.1	2.6	5	7.4	9.2
All Persons	1993-94	2.6	1.9	3.6	5.3	6
	1999-00	2.7	2.2	4.3	6.1	7.3
	2004-05	3.1	2.3	4.4	6.7	8.2

Source: NSSO 50th, 55th and 61st Round Survey on Employment-Unemployment. Computed.

**Table 4: Persons (in millions) reporting at least 3.5 days of unemployment in a week.**

Segment/ Year	1993-94	1999-2000	2004-05
Rural Males	9.26 [5.05]	11.75 [6.07]	14.12 [6.56]
Rural Females	3.94 [4.86]	4.69 [5.61]	6.95 [6.92]
Rural Persons	13.19 [4.99]	16.44 [5.93]	21.07 [6.67]
Urban Males	4.09 [6.16]	5.22 [6.56]	6.26 [6.74]
Urban Females	1.60 [10.05]	1.53 [8.66]	2.43 [10.57]
Urban Persons	5.68 [6.90]	6.76 [6.96]	8.69 [7.50]
All Males	13.34 [5.35]	16.97 [6.21]	20.38 [6.61]
All Females	5.53 [5.70]	6.23 [6.15]	9.38 [7.60]
All Persons	18.87 [5.44]	23.70 [6.20]	29.75 [6.89]

[Percentages of unemployed for at least 3.5 days to the MCWS labour force are given in brackets]

Source: NSSO 50<sup>th</sup>, 55<sup>th</sup> and 61<sup>st</sup> Round Survey on Employment-Unemployment. Computed.

**Table 5: Percentage of CWS Workers with work for 0.5 to 3.0 days in a Week**

Segment / Year	1993-94	1999-2000	2004-05
Rural Males	3.31	3.80	4.18
Rural Females	9.80	10.51	10.32
Rural Persons	5.40	5.93	6.22
Urban Males	1.72	1.76	1.96
Urban Females	7.53	7.45	6.68
Urban Persons	2.86	2.82	2.90
All Males	2.90	3.22	3.53
All Females	9.45	10.01	9.68
All Persons	4.82	5.15	5.35

Source: NSSO 50<sup>th</sup>, 55<sup>th</sup> and 61<sup>st</sup> Round Survey on Employment-Unemployment. Computed.

**Table 6: Percentages of CWS Workers with work for 0.5 to 3.0 days in a week and reporting 0.5 or more days of unemployment**

Segment/ Year	1993-94	1999-2000	2004-05
Rural Males	1.89 [57.0]	2.07 [54.4]	2.69 [64.4]
Rural Females	1.73 [17.7]	1.76 [16.7]	2.44 [23.6]
Rural Persons	1.84 [34.1]	1.97 [33.2]	2.61 [42.0]
Urban Males	0.95 [55.0]	0.94 [53.4]	1.49 [75.3]
Urban Females	1.36 [18.1]	1.19 [16.2]	1.23 [18.4]
Urban Persons	1.03 [36.0]	0.99 [35.1]	1.44 [49.7]
All Males	1.64 [56.6]	1.75 [54.3]	2.34 [66.3]
All Females	1.67 [17.7]	1.67 [16.7]	2.23 [24.1]
All Persons	1.65 [34.2]	1.72 [33.4]	2.30 [43.0]

[Figures in brackets are percentages of CWS Workers who worked for 0.5 to 3.0 days in a week and reported 0.5 or more days of unemployment to CWS Workers.]

Source: NSSO 50<sup>th</sup>, 55<sup>th</sup> and 61<sup>st</sup> Round Survey on Employment-Unemployment. Computed.



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