

Estimating Workforce using Time Use Survey Data- Indian Experience

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Introduction

In the usual labour force survey conducted in different countries, the respondents are categorized as workers if they were engaged in economic activities during a specified reference period. The burden of identifying the activities of the respondents to be economic or non-economic generally lies either with the respondents or investigators. In many of the developing countries, including India, Investigators generally do not get enough time for detailed probing. Due to this some of the respondents, who are generally not in the regular employment, report themselves to be not engaged in economic activities. This problem is specifically relevant in the case of women in the developing countries who generally report themselves to be engaged in household activities only whereas they also participate in the activities relating to agriculture and animal husbandry which are economic activities. Because of these problems, the work participation rate of women is found to be quite low as compared to men.

2 Advantage of Time Use Survey

In the time use survey, respondents of certain ages in the selected household are asked to enumerate all the activities performed by them along with the time spent on these activities during the specified reference period. These activities can be grouped into economic and non-economic activities in the Central office. Therefore, the burden of identifying the activities to be economic or non-economic does not fall either on respondents or on interviewers. By generating special tables from the time use survey data, work force estimate comparable to that available from usual labour force survey can be prepared.

3 Details of Data Used in the Paper

(a): Time Use Survey

A pilot Time Use Survey (TUS) was conducted in India covering about 18600 households spread over six selected States, namely Haryana, Madhya Pradesh, Gujarat, Orissa, Tamil Nadu and Meghalaya. To take care of the seasonal variation in the activity patterns, fieldwork of the survey was undertaken during July 1998 to June 1999. In the TUS, detailed information were obtained on the time spent by an individual during the last 24 hours on different activities during a reference period of one week. To capture the variation in activity pattern time use data were collected for three types of days namely normal day, weekly variant and abnormal day. Using the appropriate estimation methodology, time spent on various activities during one-week reference period has been obtained. Sampling design was so prepared that all segments of the population viz, rural/urban, poor/non-poor, male/females, etc. were representatively covered.

By definition all the activities included in the SNA categories are economic activities and are covered in the production boundary defined by 1993 SNA. Therefore, the number of persons reporting time spent on SNA activities can be treated as worker/ employed. The advantage of this approach is that burden of identifying the economic activity is neither on respondent nor on the investigator. Therefore, the estimates of work force likely to be available from Time Use Survey is likely to be more representative than that of the usual labour force survey. The Extended- SNA activities basically relate to the household maintenance, care of the children and other family members and personal services involved in the household production. These services are presently

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The activity classification was developed in such a way that different activities can be grouped in one of the following three types of activities

- i. System of National Accounts (SNA) Activities
- ii. Extended-SNA Activities
- iii. Non-SNA Activities

not covered in the production boundary of the 1993 SNA. Non-SNA activities are basically for the self-maintenance and development.

(b) National Sample Survey Organisation

The National Sample Survey Organisation, in its Employment and Unemployment Surveys, conducted quinquennially, attempt to classify the individuals in various activity categories on the basis of activities pursued by them during certain specified reference period. Three types of reference periods namely (i). One Year (ii). One Week (iii). Each day of the Week has been used.

For classification of persons according to current weekly status approach, they are assigned a unique activity status with reference to a period of 7 days preceding the date of survey. This is easily done in case of persons having only one status during the reference week. But for the persons pursuing more than one activity, a priority- cum- major time rule is applied to obtain a unique activity status. Under the priority rule, the status of working gets priority over the status of not working but seeking/ available for work. Within the broad category of working and not working, the detailed activity category is assigned by major time spent criterion. Using this procedure in the current weekly status, a person is considered working or employed if the person was engaged for at least one hour on any one day of the previous week in any economic activity. A person who has not worked for even one hour on any one day of the week but had been seeking or had been available for work at any time for at least one-hour during the week was considered seeking/ available for work. Other was considered 'not available for work' or 'out of labour force'.

The employment-unemployment data pertaining to 50th Round (1993-94) has been used in this paper.

4. Problems with the Existing Definition

For defining a person as working/ employed, the current definition requires an individual to be engaged in economic activity. The basic responsibility of identifying the engagement of individual in economic activity lies either with the respondent themselves or with the investigator. Due to heavy workload generally it is not possible for the investigator to do the detailed probing. Because of these generally problems are faced in identifying the activity status of women. In addition to their household activities they are also generally involved in many agricultural activities which are economic activities. However the women generally identify themselves with the household activities and ignore their economic activity. Because of this the work participation rate of women may be under estimated in Censuses and surveys.

5. Comparability of Time Use Survey Data with NSSO data

The reference period of one week has been adopted in both Time Use Survey and NSSO survey. In the Time Use Survey, the engagement of persons in SNA activities for less than one hour has been also recorded. Further information has been collected for three types of days i.e. Normal, Weekly Variant and Abnormal. However, the results show that Normal day accounted for more than 6.5 days of the 7 days of the week. In the Time Use Survey information was collected for any one day of the normal days. Therefore, to make the estimates of work force comparable from Time Use Survey and NSSO survey we have to find out the number of individuals engaged in SNA activities for one hour or more on any day of the reference week.

6. Use of Time Use Survey for Estimation of Work Force Participation Rate

Keeping in view the objective of comparability of work force estimates from Time Use Survey and NSSO survey, the work force estimates from Time Use Survey can be generated by finding out the number of persons engaged in SNA activities spending one hour or more either on any single SNA activity or two or more activities taken together.

7. Results

Using the above approach, workforce estimates were generated for Haryana, Madhya Pradesh, Gujarat, Orissa, Tamil Nadu and Meghalaya using Time Use Survey data. It was found that in all the six States most of the people reported as spending time in SNA activities, spent one

hour or more in just one SNA activities. Therefore, even if we ignore combining time on two activities, there will not be much loss. It was also found that Work Participation Rates (WPR) for women was quite close to that for men except for Gujarat, Tamil Nadu and Madhya Pradesh. In these three States difference between male/female participation rate was more than 10 percentage points where as in other states it was less than 5 percentage point.

A comparison of WPR from Time Use Survey (TUS) with that from Population Census, 1991 and 50th Round (1993-94) of NSSO is give in Table 1. It may be seen that WPR for males and females were higher in TUS as compared to Census, 1991 and NSSO 1993-94. The difference is much higher in case of females. The female WPR in TUS was more than 3 times of the WPR in NSSO in Haryana, more than 2 times in Orissa. In other four states also the WPR for females from TUS is much more than that from the NSSO. This clearly shows that TUS approach captures the WPR particularly for women, in a much better way than Census and NSSO. The main reason for such difference, as explained before, is the difficulty in identifying the economic activities by investigators and respondents. Though it is not explored, high WPR in Time Use Survey, to some extent, may be due to reporting of higher time by illiterate persons in SNA activities.

Table 1. Comparison of Work Force Participation Rates From Different Sources

State	Census, 1991*			NSSO, 1993-94**			TUS, 1998-99		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
Haryana	48.50	10.80	31.00	45.60	18.80	33.10	57.30	56.16	56.79
Madhya Pradesh	52.30	32.70	42.80	52.51	27.17	40.42	60.47	49.43	55.28
Gujarat	53.60	26.00	40.20	54.60	26.39	41.10	60.02	44.17	52.50
Orissa	53.80	20.80	37.50	52.88	20.48	36.86	59.88	55.47	57.67
Tamil Nadu	56.40	29.90	43.30	56.63	34.20	45.38	66.10	50.25	58.18
Meghalaya	50.10	34.90	42.70	59.05	42.88	51.17	56.22	52.45	54.34
Combined States/ All India	51.60	22.30	37.50	52.59	23.41	38.53	61.32	50.32	56.01

* Usual Status approach including main and marginal workers

** Current Weekly Status approach including Principal and Subsidiary Workers

Table 2. Percentage distribution of workers in Time Use Survey and NSSO by Industrial Categories

State	Industrial Category	NSSO, 1993-94			TUS, 1998-99		
		Male	Female	Person	Male	Female	Person
Haryana	Primary	48.05	78.13	57.43	54.00	82.48	66.70
	Secondary	17.79	8.40	14.86	16.00	13.20	14.50
	Tertiary	34.00	13.55	27.72	30.00	4.32	18.70
Madhya Pradesh	Primary	71.71	79.89	74.24	65.25	80.00	71.00
	Secondary	9.07	8.13	8.80	9.35	10.00	10.00
	Tertiary	19.09	11.99	16.86	25.40	10.00	19.00
Gujarat	Primary	48.93	66.87	54.85	44.00	78.00	58.00
	Secondary	24.47	12.29	20.91	16.00	10.00	13.00
	Tertiary	26.56	20.78	24.21	40.00	12.00	29.00
Orissa	Primary	71.02	78.68	73.41	66.50	91.00	78.00
	Secondary	10.25	10.74	10.44	11.50	4.00	8.00
	Tertiary	18.60	10.65	16.21	22.00	5.00	14.00
Tamil Nadu	Primary	45.42	59.25	50.93	48.40	71.00	58.00
	Secondary	23.77	22.73	23.16	17.10	12.00	15.00
	Tertiary	30.90	17.93	25.97	34.50	17.00	27.00
Meghalaya	Primary	68.02	74.80	70.99	57.00	76.00	66.00
	Secondary	5.33	2.88	4.35	13.00	6.00	10.00
	Tertiary	26.47	22.30	24.63	30.00	18.00	24.00
Combined States/ All India	Primary	58.22	70.85	62.17	56.00	79.00	66.00
	Secondary	15.92	13.35	15.07	14.00	10.00	12.00
	Tertiary	25.83	16.06	22.73	30.00	11.00	22.00

To find out the sectors which accounts for the difference in the WPR in two sources, distribution of workers in primary, secondary and tertiary sectors in NSSO, 1993-94 and TUS are presented in Table 2. It may be seen from this Table that proportion of workers, both males and females, are found to be higher in Primary sector in TUS as compared to NSSO, 1993-94 in all the states. It may be because of the fact that females, who report themselves to be out of Labour force, are generally engaged in agriculture and related activities. Proportion of workers was also found to be higher for females in secondary sectors in TUS as compared to NSSO in Haryana, Madhya Pradesh and Meghalaya.

It, therefore, appears that TUS approach may result into much higher WPR in primary sector, particularly for females, as compared to usual labour force approach followed in NSSO surveys.

REFERENCES

National Sample Survey Organisation (1996): Employment- Un- Employment Survey, 50th Round, 1993-94, Report No. 409, Ministry of Statistics and Programme Implementation, Govt. of India, New Delhi

Central Statistical Organisation (2000): Report of the Time Use Survey, Ministry of Statistics and Programme Implementation, Govt. of India, New Delhi

United Nations (1993): Inter-Secretariat Working Group on National Accounts, 1993 System of National Accounts, New York

Beneria Lourdes (1992): Accounting for Women's Work: The Progress of two Decades, World development, Vol. 20, No. 11, pp 1547-1560

Visaria Pravin (1998): Workforce and Employment in India, 1961-1994: International Seminar on Income and Wealth organised by Indian Association for the Research in National Income and Wealth at New Delhi during 16-20 November, 2000.

RESUME

Estimating the Workforce Participation Rate (WPR) accurately is very important because it is a very crucial indicator for the developmental planning of a country. By using the data from Time Use Survey (TUS) conducted by the Central Statistical Organisation (CSO) and usual labour force survey conducted by the National Sample Survey Organisation (NSSO) in India, it has been shown in this paper that TUS captures the WPR, particularly of Women, much more accurately as compared to the labour force survey of NSSO. This may be mainly due to the fact that in the usual labour force survey, the burden of identification of an individual being engaged in the economic activities lies either with the respondents or the investigators. Because of the heavy work load, requisite amount of probing is not done by the investigators which results for lower WPR, particularly for women, who report themselves only as housewives inspite of participating in the economic activity. In the TUS, respondents have to only enumerate the activities performed by them and the time spent on those activities. It is clearly shown in the paper that TUS may be a better survey instrument than the usual labour force survey to capture the WPR, particularly of women in the developing countries.