

## Chapter Four

### ESTIMATES OF WORKER RATE AND STRUCTURE OF WORKING FORCE IN INDIAN STATES

#### I. Introduction :

Labour is generally found to be the most important factor of production at a given point of time in most of the economies. An accurate and precise measurement of its growth in each of the State economies over the relevant period of time, therefore, assumes great significance especially when our interest is to study the inter-state economic growth differentials. The task, however, becomes quite difficult from the very beginning especially in a typically under-developed country like India where any effort at identifying and measuring the economically active population itself involves insurmountable conceptual problems.\*<sup>1</sup> The problems are further complicated when we try to compare the levels of

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\*1 For a detailed discussion of the major problems involved in any attempt to identify and measure the economically active population in underdeveloped countries, see V.N. Kothari : Level and Structure of Employment in a Developing Economy, unpublished Ph.D. Thesis submitted to the Bombay University in 1961; Ch.II. See also, W.E.Moore : "The exportability of the 'Labour Force' Concept", American Sociological Review, Vol.18, No.1, Feb., 1963.

working force in different States of India by applying a uniform concept because, as we have already noted earlier, the levels of development differ substantially among different States of India indicating all the consequent differences in the predominant forms of economic organization. One may argue here that these differences are not likely to be significant in the sense of affecting the comparability of the point estimate of the levels of working force in different states inasmuch as all these States are integral parts of a single nation. Broad structural similarity and integrity of Socio-Cultural set-up and environment would ensure to a large extent some comparability in identification and measurement of economically active population in different States of India.

Moreover, our primary interest is to compare the levels of working force in different States at two different points of time and examine the inter-state variations in the growth and structure of working force rather than those in the absolute level of working force in different States as such. And in this connection, one may argue that, "Since the limitations associated with a given concept would be reflected more or less equally in the corresponding estimates of the size of working force during different years, it is likely that the resulting estimate of the growth of working force

between two different years is a comparatively reliable estimate."<sup>\*2</sup> In other words, if we apply a uniform concept consistently in different States at two distant points of time, the analysis of the growth and the growth differential of working force would be least sensitive to the choice of that particular concept from a set of broadly similar alternative concepts.<sup>\*3</sup>

However, the analysis of the growth of working force is rendered meaningless and comparability over the period seriously impaired if the definition or the concept of working force itself goes on changing year after year. Secondly, the analysis of the differential of working force is all the more disturbed if at one point of time the definition of a worker is uniformly applied to all States and at another point of time the definition is not applied uniformly to all States. Unfortunately, the concepts and definitions themselves have undergone significant changes between the 1961 census and the 1971 census of India.<sup>\*4</sup> Moreover, it is perhaps

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\*2 Cf. Bakul H. Dholakia: The Sources of Economic Growth in India, (Baroda: Good Companions, 1974); p.78.

\*3 Cf. E.P. Denison: Why Growth Rates Differ: Postwar Experience in Nine Western Countries, (Washington: The Brookings Institution, 1967); p.45.

\*4 The fact that the definition of a "worker" has undergone a significant change between the 1961 Census and the 1971 Census has been explicitly stated by the Census Commissioner himself, while putting forward the provisional results of the 1971

only in the 1961 Census that the concept and definition seem to have been applied and implemented with a reasonable degree of uniformity in all States.\*<sup>5</sup> In the light of this, it becomes necessary therefore to examine in detail the problem of comparability between 1961 and 1971 census economic data and derive a set of comparable and consistent estimates of working force for the two bench-mark years (viz., 1960-61 and 1970-71) for each State.

The next two sections of this Chapter have accordingly been devoted to somewhat detailed discussion of the concepts and comparability of the 1961 census and 1971 census statistics on working force. The fourth section, then, describes the specific method followed in the present study to adjust the worker rates and the working force so as to make the

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census. See, Census of India 1971, Series I. India, Paper 1 of 1971 - Supplement, Provisional Population Totals, (Delhi, 1971); p.29.

- \*5 It may be noted here that the decennial population Census especially the one conducted in 1961, remains even now the only major source of data on working force in India inasmuch as it provides comprehensive and fairly reliable information on total working force cross-classified by sex, broad age-groups, rural-urban residence, broad industrial categories and, of course, regions.

For a brief discussion of various other sources of data on working force, see Bakul H. Dholakia, op.cit., p.79. See also, Report of the Committee of Experts on Unemployment Estimates Planning Commission, Government of India (1970); Ch.IV.

bench-mark figures for 1961 and 1971 broadly comparable and consistent with each other. In the fifth section the comparable and consistent estimates of the broad sectoral distribution of working forces are derived for the bench-mark years 1961 and 1971. Finally, in the sixth and last section of the Chapter, the growth of working force by sectors during the period 1960-61 to 1970-71 is presented for each of the fifteen States under consideration.

## II. Definition of "Worker" in 1961 and 1971 Census :

The obvious point that we may note regarding the problem of comparability of the 1961 census data with the 1971 census data on the working force, at the very outset, is that the definition of a "worker" has undergone significant changes between the two censuses. The major difference in the definitions of a "worker" between the two censuses lies on the following points: (a) In the 1961 census, some regular work of more than one hour a day throughout the greater part of the working season would qualify a person to be treated as a "worker" in the case of seasonal activities; while in the 1971 census, there was a change of reference period from 'last working season' to 'last year'. Moreover, unlike the 1961 census, in the 1971 census, there is no condition regarding

the minimum amount of work necessary for a person to qualify as a "worker". (b) In the 1961 census, a person was returned as a "worker", if he/she was employed on any of the fifteen days preceding the day of enumeration in the case of regular employment in any trade, profession, services, business or commerce. In the 1971 census, there was a change in the corresponding reference period from a fortnight to a week.

(c) The most important difference between the 1961 census and the 1971 Census regarding the definition of a "worker" is their treatment of the persons whose main activity is not economic in nature, nonetheless they spend some time in the economic activities, too; (e.g.) some of the women, students, youngsters etc. The 1961 census regarded them as "workers" while the 1971 census included them among non-workers. However, they can be separated from the other non-workers on the basis of their secondary activity in 1971.

As it is expected, because of the above mentioned differences in the definition of the "worker" and because of the change in the ordering of economic questions in the two census slips, many authors have come to the conclusion that the 1971 census data and the 1961 census data on the working force are not strictly comparable.\*<sup>6</sup> This becomes obvious if we look at

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\*<sup>6</sup> A list of the main studies, which have come to the unique conclusion that the 1971 Census data on working force are not comparable to the corresponding 1961 Census data, would

Table 4.1

## Trends in the Sex-specific Worker Rates in Indian States, 1911-1971

(Figures in percent)

States	Males				Females				Persons			
	1911	1961	1971	1971	1911	1961	1971	1971	1911	1961	1971	1971
	2	3	4	5	6	7	8	9	10	11	12	13
1. Andhra	62.52	62.22	58.21	41.62	41.32	24.16	52.06	51.86	41.39			
2. Assam*	61.90	54.10	48.88	38.11	30.91	5.45	50.47	43.27	28.35			
3. Bihar	62.50	55.60	52.16	34.72	27.12	8.88	48.30	41.40	31.04			
4. Gujarat	58.57	53.47	51.24	29.99	27.89	10.26	44.67	41.07	31.45			
5. Haryana	NA	52.17	47.27	NA	21.51	2.41	NA	37.92	26.44			
6. Karnataka	54.88	58.38	54.40	25.32	32.02	14.20	40.18	45.48	34.74			
7. Kerala	53.60	47.20	45.00	28.01	19.71	13.49	40.71	33.31	29.12			
8. M.P.	64.71	60.21	53.74	47.89	43.99	18.65	56.30	52.30	36.72			
9. Maharashtra	62.49	57.09	52.09	39.80	36.10	19.70	51.31	47.91	36.46			
10. Orissa	60.55	60.75	55.32	30.38	26.58	6.81	45.04	43.66	31.22			
11. Punjab	NA	53.01	52.82	NA	5.50	1.18	NA	31.13	28.88			
12. Rajasthan	63.54	58.14	52.09	45.39	35.89	8.34	54.95	47.55	31.24			
13. Tamil Nadu	60.64	59.74	56.02	36.48	31.26	15.09	48.27	45.57	35.78			
14. U.P.	65.19	58.19	52.24	33.34	18.14	6.71	49.92	39.12	30.94			
15. West Bengal	62.88	53.98	48.83	18.83	9.43	4.43	41.66	33.16	27.91			
16. Old Punjab**	60.10	52.90	-	11.90	14.20	-	38.60	35.00	-			

\* Includes Meghalaya but excludes Nagaland.

\*\* Includes the reorganised States of Haryana and Punjab, and also the union territory of Chandigarh.

Source: (a) Census of India 1961, Paper No. 1 of 1967.

(b) Census of India 1971, Series-I - India, Miscellaneous Studies Paper 1 of 1974, Report on Resurvey on Economic Questions - Some Results: Table 5.

the sex-wise worker rates in 1971 in relation to those in 1961.

Table 4.1 indicates the trends in the sex-specific WFR observed in different States during the period 1911-1971. Even a cursory look at Table 4.1 shows clearly that there is a sharp decline in the WFR in all the categories in each State, the fall being more pronounced in the category of females than that in the category of males. When we compare the change in WFR observed during the decade 1961-71 with the corresponding long-term trend observed during the period 1911-1961, we find that the WFR revealed by the 1971 census deviate significantly

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include, for instance, (a) J. Krishnamurty : "Working Force in 1971 Census - Some Exercises on Provisional Results", Economic and Political Weekly, Vol.II, No.3, January 15, 1971. (b) J. Krishnamurty : "Working Force in 1971 Census - Unilluminating 'Final' Results," Economic and Political Weekly, Vol.VIII, Special Number, August, 1973, p.1511. (c) J.P.Ambannavar : "Comparability of 1971 and 1961 Census Economic Data", The Indian Journal of Labour Economics, Vol.16, July-Oct.1973. (d) Bakul H. Dholakia : The Sources of Economic Growth in India, op.cit., Ch.III. (e) Bakul H. Dholakia : "Estimates of the Working Force in Gujarat - An Analysis of the 1971 Census Data", The M.S.University Journal, Vol.23, No.2, July-Sept.1974. (f) Ravindra H. Dholakia: "District Worker Rates in Gujarat - A Factor Analysis", Journal of the Gujarat Research Society, Vol.37, No.3, July 1975.

It is important to point out at this stage, that, as O.D. Duncan argues, a change in Census definition may sometimes be inevitable "because the 'things' being measured are changing qualitatively and structurally, as well as quantitatively... It is clear, therefore, that 'non-comparability is not merely a technical problem, and that in spite of any technical virtuosity in reconciling discrepant definitions, strictly comparable data are also data which carry a bias of temporal perspective". See O.D. Duncan: "Population Redistribution And Economic Growth: A Review", in Economic Development and Cultural Change, Vol.7, Oct. 1958.



from the broad trend observed between the years 1911 and 1961 in the case of almost every State. We may therefore conclude that the change in concept of a "worker" in the 1971 census had powerful depressing effects on the WFRs in each State in both the categories of males and females.\*7

The question naturally arises at this stage as to which one of the above-mentioned points of difference in the definition of a "worker" between the 1961 and the 1971 Censuses accounted most for the non-comparability of the data on working force. By and large the experts on the subject have expressed the opinion that the first two points of difference mentioned above are of little practical significance; and it is the third one which is the most important contributory factor towards the non-comparability of the two censuses on working force. If that is really so, then one may expect that as soon as the final results on the secondary activity of the non-workers are available, the problem of comparability would be resolved. But such expectations may be entirely misplaced because one cannot rule out the possibility that in order "to simplify their task the enumerators chose in many cases to ignore the secondary activity which, if recorded, would

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\*7 It may be noted in this connection that J.P. Ambannavar (op.cit.) also arrives at a similar conclusion after conducting the rank-correlation analysis of the worker rates.

involve making many more entries on the Individual Slip.\*<sup>8</sup>

Unfortunately, the fears expressed by many observers regarding the possible under reporting of secondary workers have more or less been confirmed by the provisional estimate of persons with non-work as main activity and productive work as secondary activity, now available in Table B-VII of paper Number 3 of 1972. The total number of persons reporting 'work' as their secondary activity is so small that the addition of these workers to the reported working force does not significantly alter primary labour participation rates.

Thus, there is a need to adjust the 1971 census figures on the working force before any meaningful comparison is made between the results of the 1961 census and the 1971 census. This need was timely recognised and "in order to preserve comparability between the two censuses, ....., it was decided to resort to a sample survey to find an answer."\*<sup>9</sup> In the next Section, we discuss the results of this particular resurvey.

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\*8. J. Krishnamurty : "Working Force in 1971 Census - Some Exercises on Provisional Results", op.cit.

\*9. Census of India 1971, Series 1 - India, Miscellaneous Studies, Paper 1 of 1974 : Report on Resurvey of Economic Questions - Some Results.

It may be mentioned here that this publication will be hereafter referred to as 'the Resurvey'.

### III. The Resurvey and the Problem of Comparability :

The main objective of the resurvey according to what has been explicitly stated in the document itself, was primarily "to find an adjustment factor employing which the 1961 and 1971 census participation rates can be made comparable over time and independent of any effect of the difference in the concepts employed in the two censuses".\*10 Moreover, it is also possible on the basis of the data presented in the Resurvey to separate the effects of pure definitional changes on the one hand and other Socio-economic-cultural-demographic factors taken together on the other hand, which have contributed in lowering the WFRs between 1961 and 1971. It is this exercise which is obviously more relevant from our point of view. Since the Resurvey gives the adjusted WFRs for 1971 which are supposed to be comparable to the corresponding WFRs in 1961, the difference in the 1961 WFRs and the 1971 adjusted WFRs may, according to the Resurvey, be ascribed entirely to the operation of the Socio-economic-cultural-demographic factors during the decade. The difference between the reported 1971 census WFRs and the 1971 adjusted WFRs may be regarded as the net contribution of the definitional changes between

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\*10 Ibid,

Table 4.2

Contribution of Definitional Changes in Reducing the Sex-Specific WPR Between the 1961 Census and the 1971 Census

States	Males				Females				Persons			
	WPR - WPR 1961 1971 (in %age points)	WPR - WPR 1971A 1971 (in %age points)	Per centage contri- bution of Defi- nitional changes (in per- cent)	WPR - WPR 1961 1971 (in %age points)	WPR - WPR 1971A 1971 (in %age points)	Per centage contri- bution of Defi- nitional changes (in per- cent)	WPR - WPR 1961 1971 (in %age points)	WPR - WPR 1971A 1971 (in %age points)	Per centage contri- bution of Defi- nitional changes (in per- cent)	WPR - WPR 1961 1971 (in %age points)	WPR - WPR 1971A 1971 (in %age points)	Change (in per cent)
1	2	3	4	5	6	7	8	9	10			
1. Andhra	4.01	-0.11	N.O.	17.16	5.09	29.66	10.47	2.45	23.40			
2. Assam	5.22	0.45	8.62	25.46	8.11	31.85	14.92	4.07	27.28			
3. Bihar	3.44	-1.41	N.C.	18.24	4.20	23.03	10.36	1.33	12.84			
4. Gujarat	2.23	0.10	4.48	17.63	6.85	38.85	9.62	3.36	34.93			
5. Haryana	4.90	0.63	12.86	19.10	5.49	28.74	11.48	2.89	25.17			
6. Karnataka	3.98	1.48	35.18	17.82	4.99	28.00	10.74	3.16	29.42			
7. Kerala	2.20	1.25	56.82	6.22	2.44	39.23	4.19	1.85	44.15			
8. M.P.	6.47	0.37	5.72	25.34	4.21	16.61	15.58	2.23	14.31			
9. Maharashtra	5.00	-0.02	N.O.	18.40	2.61	14.18	11.45	1.26	11.00			
10. Orissa	5.43	-0.54	N.C.	19.77	4.35	22.90	12.44	1.89	15.19			
11. Punjab	0.19	-1.24	N.C.	4.32	1.16	26.85	2.25	-0.14	N.O.			
12. Rajasthan	6.05	1.32	21.82	27.55	8.98	32.60	16.31	4.96	30.41			
13. Tamil Nadu	3.72	0.51	13.71	16.19	3.34	20.63	9.79	1.91	19.51			
14. U.P.	5.95	4.98	83.70	11.43	7.87	68.85	8.18	6.60	80.68			
15. W. Bengal	5.15	0.29	5.63	5.00	-0.50	N.C.	5.25	-0.08	N.O.			

(N.C. refers to Negative Contribution)

Source: Census of India 1971, Series-I - India, Miscellaneous Studies, Paper 1 of 1974, Report on Resurvey on Economic Questions - Some Results: Table 5.

the two censuses. This exercise of isolating the net contribution of the definitional changes is done in Table 4.2.

Looking to the overall worker rates for persons, we find that between 1961 and 1971 Censuses, the WPRs have declined by different absolute amounts ranging all the way from 2.25 percentage points in Punjab to as high as 16.31 percentage points in Rajasthan. The fall is significant in almost each State. The relative contribution of the definitional changes in this fall is also different for different States. In the case of U.P., for instance, definitional changes account for almost 81% of the observed fall in WPRs, while in the case of West Bengal and Punjab, the definitional changes actually made negative contribution implying that the change in the definition of a "worker" in 1971 census somehow tended to overestimate, rather than underestimate, the total number of workers in these two States. This is just incredible. The 1971 census definition of a "worker" has already been accepted to be more restrictive as compared to the liberal definition given by the 1961 Census. It is therefore very difficult to imagine a case where a person who qualifies as a "worker" according to the 1971 census definition, does not qualify as the same according to the 1961 Census definition. Even if we

concede for a while that this is possible and proceed to throw a more detailed look at the figures given in Table 4.2 above, we would come across several other aspects which indicate basic inconsistency in the results of the Resurvey. For instance, in five States, viz., Andhra Pradesh, Bihar, Maharashtra, Orissa and Punjab, according to the Resurvey, the 1971 Census overestimated the Male Workers as compared to the 1961 Census; and only in one State viz., West Bengal, according to the Resurvey, the 1971 Census overestimated the Female Workers as compared to the 1961 Census. It is this finding which throws serious doubts on the results of the Resurvey, because even if we grant the possibility of a person qualifying as a "worker" according to the 1971 Census definition and not qualifying as the same according to the 1961 Census definition, it is very difficult to understand why only Male Workers are overestimated in the above-mentioned five States and only Female Workers are overestimated in West Bengal. In fact, figures in Table 4.2 bring out clearly that in the case of all those five States where the Male workers are reported to be over-estimated by the 1971 Census in relation to the 1961 Census, the contribution of the definitional changes in lowering the WFRs among females between the two Censuses is not absolutely insignificant.

The second important feature which by itself casts serious doubts on the results of the Resurvey is the one relating to the extent of the contribution of definitional changes in explaining the actual decline observed in WPRs between the 1961 census and the 1971 Census. In U.P. almost 84% of the observed decline in the Male WPR is explained by definitional changes, while in Gujarat only 4% and in Madhya Pradesh only 6% of the observed decline in the Male WPR is explained by the definitional changes. Similarly, in the case of Female WPR, in U.P. about 69% and in M.P. only 17% of the decline is explained by definitional changes. Inasmuch as the existing differences in the nature and structure of the economies of U.P. and M.P. are not extremely wide, the above results reflect either the inadequacy of the sampling design of the Resurvey or the basic operational failure of the Survey itself to estimate the net effect of definitional changes on the observed WPR.

The third reason why we may doubt the results of the Resurvey becomes obvious once we separate the effects of the broad categories of influences on the overall worker rates by States. To do this, we shall assume the additive model of WPRs of the type which has actually been considered by the

Resurvey for the purpose of isolating the contribution of definitional changes. First of all, we isolate the effects of changes in the age-sex-area composition of the population of each State between 1961 and 1971 on the overall WPR of that State. This can be done by assuming that the age-sex-area-specific WPR in each State has remained the same between the 1961 Census and the 1971 Census. Thus, by applying these age-sex-area specific WPRs to the corresponding population category of each State in 1971, we get the age-sex-area specific workers in 1971 which may ultimately be added up and then divided by total population of the State to arrive at the overall WPR. The overall WPR so derived would indicate the effect of changes in the age-sex-area composition of the population in the State between 1961 and 1971. However, there is some problem in doing this. The 1961 Census classifies workers by area, sex and only four broad age-groups viz., 0-14, 15-34, 35-59 and 60+ besides the category of Age not stated (i.e. ANS);<sup>\*11</sup> while the 1971 census gives population and workers by area, sex and eight broad age-groups viz., 0-14, 15-19, 20-24, 25-29, 30-39, 40-49, 50-59 and 60+ besides the category of ANS.<sup>\*12</sup> To ensure the inter-census uniformity of

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\*11 Cf. Census of India 1961, Vol.I, India, Part II-B(1) - General Economic Tables.

\*12 Cf. Census of India 1971, Series 1 - India, Paper 3 of 1972 - Economic Characteristics of Population.



age-groups, we are therefore required to derive the estimates of area-sex-specific WPRs for the age groups 15-29 and 30-59 for the bench-mark year 1961. For this purpose we can assume that the area-sex-specific WPR observed for the age-group 35-59 in each State is also applicable to the corresponding population in the age-group 30-34. Similarly, by lumping the categories of 60+ and ANS, we have arrived at the area-sex specific WPR for these two categories taken together. The area-sex specific WPR for the age-group of 0-14 have been derived directly. Having derived the set of the area-sex-age specific WPRs for the bench-mark year 1961, we can derive the required population in the relevant age-groups from the 1971 census data by clubbing together some of the more detailed age-groups distinguished by the 1971 census to arrive at the corresponding population base for the year 1971. Then, by applying the above-mentioned methodology, we can derive the overall WPR for each State for the bench-mark year 1970-71, which as already indicated above captures the effects of changes in age-sex-area composition of the population.

Appendix Table 4A.1 presents the estimated area-sex specific workers when the 1961 age-specific WPRs are applied to the corresponding population categories of the 1971 census.

Appendix Table 4A.2 gives the sex-area-specific WPRs in 1971

based on the assumption of constant age-sex-area-specific WFRs between 1961 and 1971.

Thus, now we emerge with four different series of overall WFRs for all the States, viz., the 1961 Census series of overall WFR, the 1971 Census series of overall WFR, the 1971 adjusted series of overall WFR as obtained from the Resurvey, and the estimated 1971 series of overall WFR which captures the effects of changes in the age-sex-area composition of population between 1961 and 1971. On the basis of these four series we can isolate the contribution of pure definitional changes, changes in the age-sex-area composition of population and the changes in other socio-economic-cultural factors in the actual decline in the overall WFR, revealed by the reported census data, between the bench-mark years 1961 and 1971. Table 4.3 shows the contribution of these factors in the observed decline in the overall WFR for each State between the two Census years. The Table shows that only in Kerala and Bihar, the demographic factors have changed favourably; in all other States the contribution of the demographic factors is positive in reducing the overall WFR between 1961 and 1971. Moreover, the Table clearly reveals that the socio-economic-cultural factors taken together turns out to be the single most important factor, except in U.P.; in explaining the total

Table 4.3

**Contribution of Different Factors in the Observed Fall in the Overall Worker Population Ratio Between the 1961 Census and the 1971 Census**  
(Figures in Percentage points)

States	Total Observed Fall		Contribution of Demographic Factors		Contribution of Definitional Changes		Contribution of Socio-Cultural factors	
	WPR - 1961	WPR - 1971	WPR - 1961	WPR - 1971E	WPR - 1971A	WPR - 1971	WPR - 1971E	WPR - 1971A
1	2		3		4		5	
1. Andhra	10.47		1.01		2.45		7.01	
2. Assam	14.92		1.82		4.07		9.03	
3. Bihar	10.36		-0.06		1.33		9.09	
4. Gujarat	9.62		0.62		3.36		5.64	
5. Haryana	11.48		0.16		2.89		8.43	
6. Karnataka	10.74		0.65		3.16		6.93	
7. Kerala	4.19		-1.09		1.65		3.43	
8. M.P.	15.58		2.57		2.23		10.78	
9. Maharashtra	11.45		1.30		1.26		8.89	
10. Orissa	12.44		1.97		1.69		8.58	
11. Punjab	2.25		0.29		-0.14		2.10	
12. Rajasthan	16.31		1.42		4.96		9.93	
13. Tamil Nadu	9.79		0.57		1.91		7.31	
14. U.P.	8.18		0.60		6.60		0.98	
15. West Bengal	5.25		1.27		-0.08		4.06	

**Note :** WPR<sub>1971E</sub> stands for the WPR in 1971 derived on the basis of the assumption of constant age-sex-area specific WPRs between the 1961 census and the 1971 census. WPR<sub>1971A</sub> stands for the adjusted WPR in 1971 given by the Resurvey.

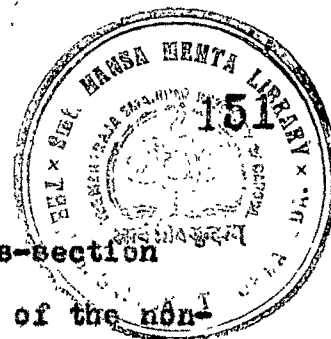
**Source :** see the text.

observed fall in WPR between the 1961 census and the 1971 census, if we accept the results of the Resurvey. The more interesting thing to observe from the Table 4.3 is that the States like Assam, Bihar, M.P. and Rajasthan have experienced a sharp decline of about 9 percentage points or more in the overall WPR only on account of changes in the socio-economic and cultural factors. On the other hand, in the States like Kerala, Punjab, Uttar Pradesh and West Bengal, the changes in the socio-economic and cultural factors have hardly contributed even 4 percentage points to the observed decline in the overall WPR. This looks quite implausible particularly when we consider the conclusions of various studies on the subject.\*<sup>13</sup>

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\*13 See, for instance,

- a. J.N.Sinha: The Indian Working Force: Its Growth and Composition, Monograph No.11, Census of India 1961.
- b. Kamala Nath: "Female Work Participation and Economic Development - A Regional Analysis", in Economic and Political Weekly, May 23, 1970, p.846.
- c. Ravindra H. Dholakia : "District Worker Rates in Gujarat - A Factor Analysis", op.cit.
- d. Bakul H.Dholakia and Ravindra H. Dholakia : "Worker Rate Differentials Among States", Economic Times, Vol.15, January 3, 1976.
- e. Bakul H. Dholakia and Sudha B. Dholakia : "Factors Influencing the Inter-State Differentials in Female Participation Rate", Vishleshan, Vol.II, No.3, Sept.1976.
- f. Sudha B. Dholakia : "Determinants of the Inter-District Disparity in Labour Participation Rates in Gujarat", Journal of The Gujarat Research Society, Vol.38, No.3, July 1976.



Of course, all these studies relate to the cross-section analysis at a point of time, largely on account of the non-availability and inadequacy of the data required for conducting the time series analysis. However, these studies taken separately cover both the years under consideration, i.e., 1961 and 1971; and it is significant to find that the major conclusions of such studies remain more or less the same for both the years (taken separately). The broad conclusions of all these studies have been that the economic factors in general and productivity and employment pattern in particular are the most important factors in explaining the variations in the WPRs among females; and the variations in the WPRs among females are largely responsible for the corresponding variations in the overall WPR. Now, it is obvious that neither the productivity nor the employment pattern has changed so drastically, in any of the Indian States during the sixties, as to bring about a steep decline in overall WPR of the magnitude revealed by the last column of Table 4.3.

In the light of all this, the results of the Table 4.3 appear to be quite misleading and of doubtful validity. This only implies that something went seriously wrong with the Resurvey.

Let us now briefly see some of the probable reasons which might have led the Resurvey to yield <sup>wrong</sup> results. Reading the explanatory notes on the need, methodology and other relevant details about the Resurvey, one may immediately raise the following objections and argue that each one of them might have, in practice, affected the results of the Resurvey adversely :-

(1) The period of the Resurvey varied widely among States ranging all the way from December 1971 (Assam, Bihar and Gujarat) to June - July 1972 (West Bengal). As the Registrar General & Census Commissioner has himself put it: "It would have been appropriate to do the field work in March 1972 so as to reproduce the Census field conditions as closely as possible. But we had to conduct the Survey at different times in various States from December 1971 to April 1972. However, in West Bengal and Jammu & Kashmir the survey extended upto July & June 1972."

(2) The length of time taken to conduct the Survey was also different in different States ranging from only about a fortnight in Assam and Bihar to as long as four months in West Bengal.\*<sup>14</sup> This has all the probability of affecting the

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\*14 Cf. The Resurvey, op.cit., Table 1.

cross-section comparability of the results because in the 1971 census, reference period for the case of regular employment in trade, services etc. was about a week and in the 1961 Census, the same was about a fortnight.

(3) The methodology followed in the survey was based on an inter-penetrating sampling design "in which houses were selected instead of individuals and the 1971 or 1961 census questions were canvassed among individuals in alternate houses selected according to the design..."<sup>\*15</sup> Thus, the respondents were not the same for both the sets of questions. Hence, precise effect of change in questions cannot be measured. The whole procedure followed in the Resurvey is based on the assumption that two different sets of respondents to whom the two different sets of questions were asked were identical in all relevant respects. This is all the more questionable because two different sets of respondents were selected out of the same block which was a fairly small areal unit, and there too, the principle of alternate selection was followed.

(4) The agricultural years 1970-71 (relevant for the 1971 census) and 1971-72 (relevant for the Resurvey) were not comparable in general and moreover, the degree of their incomparability varied from State to State. Inasmuch as the

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\*15 The Resurvey, op.cit., p.1

the relative degree of success on the agricultural front and the general economic conditions prevailing in a particular year are likely to affect the point estimate of the total working force, this factor would have its impact on the results of the Resurvey.

(5) Such studies should not be based on samples because for such studies, however random sample one may select, one cannot be sure about the complete unbiasedness of the sample. The population base in such studies is so diverse and stratified with respect to various characteristics that unless all these strata are taken into account, the bias with respect to the neglected characteristics is bound to enter into the sample. Inasmuch as the socio-economic-cultural and demographic attributes of the selected sample differ from the corresponding attributes of the population as a whole, the results derived on the basis of the sample will differ from the results based on the study of entire population. This argument applies with a much greater force to the case of the inter-state comparability of the estimates based on such a sample.

The above discussion leads to an inevitable conclusion that even the results of the Resurvey need to be adjusted at least in some categories of some States before any meaningful



comparison of the census data on the working force relating to the bench-mark years 1960-61 and 1970-71 can be made. It is clear that in some states, in some categories, the Resurvey obviously went wrong in the sense that in spite of the 1971 census definition of a "worker" being more restrictive in nature as compared to the 1961 census definition, the Resurvey adjusted the WPR in a downward direction.\*<sup>16</sup> If we want to readjust the workers and the WPRs in 1971 from the 1971 census publication, only, we can use the reported workers in the 1971 census for those categories where the adjusted workers given in the Resurvey happen to be less than the corresponding 1971 census reported workers and for the remaining categories and States, we can use the adjusted workers and the WPRs given by the Resurvey. Such Readjusted workers and WPRs derived by combining the 1971 census and the Resurvey are presented below in Appendix Table 4A.3. Henceforth this set of workers and WPRs will be referred to as the Readjusted workers and Readjusted WPRs. However, for reasons discussed in detail

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\*16 The States in each category where the adjusted workers reported by the Resurvey are found to be lying below the reported workers in the 1971 Census are listed below in a tabular form:

<u>Category</u>	<u>States</u>
a. Rural Males	Andhra Pradesh, Bihar, Maharashtra, Orissa, Punjab.
b. Rural Females	West Bengal.
c. Urban Males	Bihar, Gujarat, Maharashtra, Orissa, Punjab, West Bengal.
d. Urban Females	Punjab.

in the present and the preceding Sections, we have our own reservations in accepting even the Readjusted WFRs for all categories and all States. In the next section, therefore, we can make an attempt to modify these Readjusted WFRs wherever necessary.

#### IV. Estimates of Comparable Worker Rate in 1970-71 :

Let us now turn to the method by which we can derive a consistent set of estimates of the working force for the year 1971 comparable to the one given by the 1961 census. There could be several methods by which one can derive the comparable estimates of working force for the year 1971. However, all these various possible methods can be classified into the following three broad categories of methods of adjusting the working force estimates :

(a) The Sex-Ratio Method : The crudest variant of this method assumes that the sex-ratio among workers, i.e., the number of female workers per thousand male workers, remains the same between the two census years, say 1961 and 1971. On the basis of this assumption, we can readily derive the estimate of total working force for the year 1971 comparable to that of 1961. The relative merits of this method are that it is easy to operate and that it is capable of generating

comparable industrial composition of the working force if the assumption of constant sex-ratio among workers is applied to each of the industrial categories. The relative demerits of this method are that it assumes constant sex-ratio among workers between the two census years, ~~and that it assumes constant sex-ratio among workers between the two census years,~~ and that it assumes absolute comparability of the count of male workers between two censuses, although the definition of a "worker" has undergone a significant change. Some economists have therefore, gone to the extent of completely ignoring the estimates of female working force and, instead, preferred to treat the growth and composition of the male workers as equivalent to the growth and composition of the working force as a whole.\*17

A more sophisticated variant of this method relates the sex-ratio among workers to the sex-ratio in the population by age and area.\*18

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\*17 This method has been used by Dr. V.S. Vyas to estimate the extent of structural change in Gujarat's agriculture. See, V.S. Vyas : "Structural Change in Agriculture and Small Farm Sector", Vishleshan, Vol.I, No.4, December, 1975.

\*18 For further details regarding this method, see Ravindra H. Dholakia : "Rural-Urban Income Inequalities - A Suggested Model and its Application to Gujarat", presented at the Seventh Gujarat Economic Conference held at Valsad in November 1975 (mimeo.)

This method is capable of generating the industrial composition of workers also, without assuming constant sex-ratio among workers. However, this variant of the method also has to assume that the male workers are comparable between two censuses in spite of the obvious definitional changes. This is a very serious limitation of this method since, as we have already seen earlier, the count of male workers has also been affected adversely by the definitional changes. The only difference is that male workers have been affected to a lower extent as compared to the female workers. But then it remains a difference of degree and not of kind.

(b) Age-Structure Method : There are several variants of this method. The crudest one assumes that the growth of working force is exactly equal to the growth of population between the two censuses which amounts to assuming a constant overall WPR. A more sophisticated variant of the method assumes age-sex-area-specific WPR to be constant between the two censuses. The advantage of this method is that it takes into account all the demographic influences on WPR, viz., the changes in the area composition of the population; changes in the sex-ratio of the population and changes in the age-structure of the population between the two years. The demerit of this method is that it totally ignores the socio-economic

and cultural influences on the WPR. The most sophisticated variant of this method also takes into account changes in WPR due only to changes in the enrollments in schools and colleges.\*<sup>19</sup> However, even this method still ignores the other socio-economic and cultural influences on WPR. If the economy is in the early stages of development, the Age-Structure Method tends to overestimate the growth of working force, because in the process of development, the socio-economic and cultural influences have a depressing effect on the WPR especially in the initial stages.

(c) Historical Trend Method : This method consists in fitting a suitable time trend in the overall or category-wise WPR on the basis of the past observations and then estimating the required value of WPR by feeding the corresponding value of the variable 'time' in the estimated trend equation. This is by far the most sophisticated method of estimating the comparable working force because the Historical Trend Method takes into account almost all the possible influences on the WPR.

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\*<sup>19</sup> This method has been used by Dr. B.H. Dholakia for estimating the working force at the All India level for the period 1960-61 to 1968-69; and also in the case of Gujarat for the year 1971. See, Bakul H. Dholakia: The Sources of Economic Growth in India, op.cit. Chapter III. See also, Bakul H. Dholakia: "Estimates of the Working Force in Gujarat - An Analysis of the 1971 Census, Data", op.cit.

The greatest limitation of this method, however, is that it requires a sufficiently large number of comparable and consistent observations on the working force at different points of time; and the major difficulty with the Indian Census is that hardly any two consecutive censuses are comparable so far as the data on working force are concerned. Fortunately, the 1911 census and the 1961 census could be regarded as at least broadly comparable, because the concept of a "worker" underlying 1911 Census is much similar to the one underlying the 1961 Census. It should be noted here that the 1921 Census also had a similar concept of a "worker". However, the year 1921 was exceptionally abnormal in character. There were serious draught conditions wide-spread in a majority of Indian States with the result that the death rate increased steeply. Thus, though the concept of a "worker" was similar in 1921 census as in 1961 census, the data on working force given by the two censuses may not be regarded as broadly comparable. One may therefore fit a rough and ready trend in WPR on the basis of the 1911 and 1961 census data by assuming that these two observations of WPR lie on a straight line with respect to time; and then use the same for estimating the value of WPR for the required year. A more sophisticated method in this case could be to relate the WPR with some other variable, say,

population (on which more information is presumably available); and then by assuming that the trends in the two variables are correlated, we can derive the estimate of the WFR for the required year.\*20

Having reviewed briefly the different methods that can be devised to estimate comparable working force for a specified year with respect to any given base year, let us try to evolve a method of adjusting the working force in each State relating to the bench-mark year 1971 in order to make it comparable to that in the year 1961. It is quite plausible to assume that the net influence of the conceptual differences on the reported WFR was nil so far as the 1911 census and the 1961 census data are concerned. Given this assumption, we can readily ascribe the entire change in the WFR to the simultaneous operation of the various demographic and socio-economic-cultural factors during the period 1911-61. This is a fairly long period of about fifty years during which there have been significant changes in the socio-economic-cultural

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\*20 Dr. B.H. Dholakia has derived comparable estimates of the working force in India for the Census year 1951 on the basis a slightly different variant of the historical trend method. He has applied the trend method to estimate primarily the sex-sector-specific WFR. For details, see Bakul H. Dholakia : The Sources of Economic Growth in India, op.cit. Chapter III.

and political set up in almost every State of India; and it is quite likely that almost each of these factors had some role to play in bringing about the observed fall in the WPR between 1911 to 1961. Now, even if we grant that there have been significant changes in the socio-economic-cultural set up during the decade 1961 to 1971, it would still not be a bad guess to assume that the extent to which WPR might have fallen between 1961 and 1971, could not have been greater than the one observed between 1911 and 1961. In other words, if we assume that WPR has fallen at the most by the same extent between 1961 and 1971 as between 1911 and 1961, we get the lower limit for the value of WPR in 1971. This exercise can be carried out separately for males and females; and in the light of the non-availability of conclusive evidence for alternative assumptions if we assume that for each sex, the extent of net influence of the socio-economic-cultural factors on the WPR remains the same for the urban residence as well as for the rural residence, we can isolate the effects of changes in the sex-area composition of population on the observed WPR during the period 1961-1971.\*<sup>21</sup> Thus, we can arrive at the

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\*21 Unfortunately, the age-composition of the comparable state-wise population for the year 1911 is not available. It is therefore not possible for us to isolate the net effect of changes in the age-composition between 1911 and 1961 on the observed fall in WPR during the period 1911-1961. Hence, the lower limit that we have set for sex-area-specific WPR for the year 1971 is likely to have a downward bias (i.e. the actual lower limit



lower limits of the WPRs by four broad categories, viz., Rural Males; Rural Females, Urban Males and Urban Females. Now, in the light of these lower limits of WPR by categories, we can compare the Readjusted WPRs for each State.\*<sup>22</sup> We reject the Readjusted WPR in the category where the Readjusted 1971 WPR falls below the lower limit;\*<sup>23</sup> and we accept for the remaining categories the Readjusted WPR given in the Appendix Table 4A.3 below.\*<sup>24</sup> One thing needs to be noted here, that not for

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is most likely to be higher than the one indicated by the figures that we have derived), inasmuch as the probable changes in the age-composition are likely to have exercised a depressing effect on WPR between 1911 and 1961, making thereby the observed change in WPR between 1911 and 1961 an over-estimate of the net effect of socio-economic-cultural factors during the period 1911-1961.

- \*<sup>22</sup> For deriving the lower limits of WPR in the case of reorganised states of Punjab and Haryana, we have assumed that the extent of net influence of the socio-economic-cultural factors on WPR in Punjab and Haryana taken separately is the same as that indicated by the corresponding figures for old Punjab.
- \*<sup>23</sup> The States in each category where the Readjusted WPR is found to be lying below the lower limit that we have derived are listed below in a tabular form :

<u>Category</u>	<u>States</u>
a. Rural Males	Madhya Pradesh and Maharashtra.
b. Rural Females	Assam, Bihar, Gujarat, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, West Bengal.
c. Urban Males	Madhya Pradesh
d. Urban Females	Assam, Bihar, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu.

- \*<sup>24</sup> The States in each category where the Readjusted WPR has been found to be acceptable are listed below in a tabular form :

<u>Category</u>	<u>States</u>
a. Rural Males	Assam, Bihar, Gujarat, Haryana, Kerala, Punjab, Rajasthan, Uttar Pradesh, West Bengal.

Table 4.4

Estimates of Sex-Specific Worker Rates by Rural-Urban  
Residence for the year 1971

(Figures in per cent)

States	Rural Areas		Urban Areas	
	Males	Females	Males	Females
1	2	3	4	5
1. Andhra	63.35	45.26	52.56	18.70
2. Assam	49.13	26.43	51.28	8.05
3. Bihar	52.73	22.25	47.48	8.11
4. Gujarat	53.28	31.76	47.29	8.76
5. Haryana	48.22	24.74	46.41	5.91
6. Karnateka	59.68	36.32	52.15	15.04
7. Kerala	46.53	16.65	44.61	12.15
8. M.P.	57.29	44.64	48.79	13.32
9. Maharashtra	53.05	44.74	51.06	12.88
10. Orissa	58.58	23.96	53.54	11.48
11. Punjab	53.75	5.93	49.88	4.14
12. Rajasthan	55.16	32.28	45.40	8.03
13. Tamil Nadu	61.88	31.82	53.59	12.82
14. U.P.	58.38	15.70	53.82	7.37
15. W.Bengal	48.90	5.31	49.80	4.64

Source : see the text.

all States and for all categories the WFR fell significantly between 1911 and 1961. For all those categories where the WFR either increased or fell by less than one percentage point between 1911 and 1961, we can assume that the socio-economic-cultural factors are neutral if not favourable between 1961 and 1971 so that the only source of change in the WFR is the change in the age composition in the relevant category between 1961 and 1971. For these categories, we accept the estimate of WFR in 1971 based on the assumption of constant age-specific WFR between 1961 and 1971.\*<sup>25</sup> Thus, we emerge with our estimates of the area-sex specific WFRs for each State for the bench-mark year 1971. These estimates are presented in Table 4.4. By applying the set of estimated WFRs to the corresponding population categories in each State, we have obtained the comparable and consistent set of estimates of the working force by sex and rural-urban residence in each State for the bench-mark year 1971. The estimates of total working force classified by sex and rural-urban residence, so derived, are given in Table 4.5.

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b. Rural Females	Kerala, Uttar Pradesh.
c. Urban Males	Assam, Bihar, Gujarat, Haryana, Kerala, Maharashtra, Punjab, Rajasthan, U.P., W. Bengal.
d. Urban Females	Gujarat, Kerala, U.P., W. Bengal.

\*<sup>25</sup> The States in each category where this procedure is followed are listed below in a tabular form :

<u>Category</u>	<u>States</u>
a. Rural Males	Andhra Pradesh, Karnataka, Orissa, Tamil Nadu.
b. Rural Females	Andhra Pradesh, Haryana, Karnataka, Punjab.
c. Urban Males	Andhra Pradesh, Karnataka, Orissa, Tamil Nadu.
d. Urban Females	Andhra Pradesh, Haryana, Karnataka, Punjab.

Table 4.5

Estimates of Workers by Sex and Rural-Urban Residence  
for the year 1971

(Figures in '000)

States	Rural Areas		Urban Areas		All Areas
	Males	Females	Males	Females	Persons
1	2	3	4	5	6
1. Andhra	11212	7876	2266	765	22119
2. Assam	3718	1831	430	51	6030
3. Bihar	13567	5560	1480	204	20811
4. Gujarat	5245	2972	1873	310	10400
5. Haryana	2131	951	444	48	3574
6. Karnataka	6714	3969	1941	511	13135
7. Kerala	4119	1504	778	210	6611
8. M.P.	10211	7609	1772	420	20012
9. Maharashtra	9274	7704	4408	912	22298
10. Orissa	5882	2410	535	97	8924
11. Punjab	2974	285	865	61	4185
12. Rajasthan	6101	3280	1100	170	10651
13. Tamil Nadu	8935	4549	3424	779	17687
14. U.P.	23479	5612	3661	412	33164
15. W.Bengal	8397	859	3119	218	12593

Source : see the text.

Table 4.6

The Extent of Underestimation of the Readjusted Workers in 1970-71

(Figures in per cent)

States	Degree of Underestimation* of Workers in 1970-71				
	Rural Areas		Urban Areas		Total persons
	Males	Females	Males	Females	
1	2	3	4	5	6
1. Andhra	4.91	26.83	4.94	31.63	13.64
2. Assam	-	46.16	-	26.46	14.26
3. Bihar	-	37.79	-	32.35	10.41
4. Gujarat	-	36.17	-	-	10.34
5. Haryana	-	65.83	-	8.33	17.63
6. Karnataka	2.84	39.48	5.67	32.09	15.47
7. Kerala	-	-	-	-	-
8. M.P.	3.03	43.19	3.72	29.76	18.92
9. Maharashtra	0.85	37.47	-	33.99	14.69
10. Orissa	4.76	52.57	5.42	23.71	17.92
11. Punjab	-	62.11	-	34.43	4.76
12. Rajasthan	-	39.05	-	25.29	12.43
13. Tamil Nadu	4.36	33.68	5.70	5.26	12.20
14. U.P.	-	-	-	-	-
15. West Bengal	-	13.85	-	-	0.94

\* Degree of underestimation is given by

$$\frac{\text{Our estimated workers} - \text{the Readjusted workers}}{\text{Our estimated workers}} \times 100$$

Source : Table 4.5 and Appendix Table 4A.3 of the present Chapter.

It will be an interesting exercise to compare our estimated workers by broad categories with the corresponding Readjusted workers in 1970-71. Table 4.6 below presents the extent of underestimation of the Readjusted workers compared to our estimated workers. One important thing which becomes very clear from our method of estimation is that our estimated workers in each category can only be greater than or equal to the Readjusted workers in that category. Thus, overestimation of the Readjusted workers in any category is simply ruled out because, for the reasons stated in the preceding two sections of the present Chapter, we all along treat the Readjusted workers as the lower limit for our estimation purpose. It is for this reason that we do not have any change in sign in the Table 4.6 in any category. Moreover, in the case of Rural Males and Urban Males, only in five States there seems to be some underestimation of workers, and there too, the degree of underestimation is not appreciably different between the rural areas and urban areas, nor can it be regarded as fairly significant.

However, the degree of underestimation in the case of female workers in rural areas and urban areas is quite significant. In the case of Rural Females, Kerala and U.P. do not

register any underestimation; while, in the rest of the States, there is substantial underestimation of workers. On the other hand, in the case of Urban Females, Gujarat, Haryana, Kerala, Tamil Nadu, U.P. and W. Bengal can be regarded as the States where the underestimation of workers is either absent or mild. Barring the case of Andhra Pradesh, the degree of underestimation of rural female workers is greater than that in urban female workers.

In the case of total workers, Kerala and U.P. do not have any underestimation of workers; Punjab and W. Bengal have relatively very low degree of underestimation; while the rest of the States show a significant degree of underestimation.

Before we go over to the next section, let us compare the overall worker rate implicit in our estimates with the ones given by the Readjusted workers and the Resurvey in the light of the reported worker rates in the 1961 and 1971 Censuses. Table 4.7 gives all these overall worker rates for the fifteen Indian States. It is obvious from the table that the overall worker rate has fallen between 1960-61 and 1970-71 in each of the States, though the extent of decline differs from State to State. The largest fall of about 6.2 percentage points in the overall worker rate is registered by Rajasthan whereas the

Table 4.7Worker Rates in the Indian States for the year 1960-61 & 1970-71

(Figures in per cent)

States	Year 1960-61 Reported	Year 1970-71			
		Reported	Adjusted	Readjusted	Estimated
1	2	3	4	5	6
1. Andhra	51.86	41.39	43.84	43.91	50.84
2. Assam	43.27	29.35	32.42	32.42	37.76
3. Bihar	41.40	31.04	32.37	33.08	36.93
4. Gujarat	41.07	31.45	34.81	34.93	38.95
5. Haryana	37.92	26.44	29.33	29.33	35.61
6. Karnataka	45.48	34.74	37.90	37.90	44.83
7. Kerala	33.31	29.12	30.97	30.97	30.97
8. M.P.	52.30	36.72	38.95	38.95	48.04
9. Maharashtra	47.91	36.46	37.72	37.73	44.23
10. Orissa	43.66	31.22	33.11	33.38	40.67
11. Punjab	31.13	28.88	28.74	29.41	30.86
12. Rajasthan	47.55	31.24	36.20	36.20	41.34
13. Tamil Nadu	45.57	35.78	37.69	37.69	42.93
14. U.P.	39.12	30.94	37.54	37.54	37.54
15. West Bengal	33.16	27.91	27.83	28.15	28.42

Source : (i) For Columns 2 to 4, the Resurvey  
(ii) For column 5, Appendix Table 4A.3 below.  
(iii) For Column 6, Table 4.5 above.



smallest decline of the order of about 0.25 percentage point is registered by Punjab. The other important thing to note from Table 4.7 is that there exists significant diversion between the adjusted worker rate given by the Resurvey and our estimated worker rate in most of the States. Only in Kerala and Uttar Pradesh, the two turn out to be identical; for all other States, the estimated worker rate turns out to be quite greater than the adjusted worker rate given by the Resurvey. This only implies that the Resurvey has seriously underestimated the extent of the influence of the definitional changes on the worker rates, while it has seriously overestimated the influences of the socio-economic-cultural factors on the overall worker rates in most of the Indian States.

V. Industrial Structure of the Working Force,  
1960-61 and 1970-71 :

In this section, our primary task is to prepare a set of comparable and consistent estimates of the structure of working force in the fifteen Indian States for the two bench-mark years 1960-61 and 1970-71. For this purpose, the 1961 census, the 1971 census and the Resurvey are the basic sources of data. Table B-I of the 1961 census classified the

workers in the following nine broad industrial categories :

- I. Cultivators
- II. Agricultural labourers
- III. Mining, Quarrying, Livestock, Forestry & Fishing,  
Hunting Plantations, Orchards and Allied Activities.
- IV. Household Industry
- V. Manufacturing
- VI. Construction
- VII. Trade and Commerce
- VIII. Transport, Storage and Communication
- IX. Other Services.

Table B-I Part A of the 1971 Census also classified workers into nine broad industrial categories which are listed below :

- I. Cultivators
- II. Agricultural labourers
- III. Livestock, Forestry, Fishing, Hunting & Plantations,  
Orchard, and Allied Activities.
- IV. Mining & Quarrying
- V. Manufacturing, Processing, Servicing and Repairs
  - a. Household Industry
  - b. Other than Household Industry

- VI. Construction
- VII. Trade and Commerce
- VIII. Transport, Storage and Communications
- IX. Other Services.

Table 10 of the Resurvey classified workers by the following three broad industrial categories :

1. Cultivators
2. Agricultural labourers
3. Other workers.

It should be noted that the first two industrial categories in each one of the three sources have remained the same. The Resurvey lumps all other industrial categories into the 'other workers', whereas the two censuses<sup>s</sup> give data according to fairly detailed industrial categories. In spite of the broad similarity in the classificatory systems of the two censuses, they differ~~y~~ significantly as far as the treatment of household industry is concerned. "In 1971, category III of 1961, 'Mining, Quarrying, Livestock, Forestry & Fishing, Hunting & Plantations, Orchards and Allied Activities' was replaced by (a) category III 'Livestock, Forestry, Fishing, Hunting & Plantations, Orchards and Allied Activities' including Household establishments and (b) category IV,

'Mining and Quarrying' including Household establishments.

The remaining workers in household establishments included<sup>26</sup> in category IV 'Household Industry' were in 1971 included under category V 'Manufacturing, Processing, Servicing and Repairs' of which they formed part (a) 'household industry'.<sup>\*25</sup> (emphasis added). Thus, the 1961 census included in its category IV 'Household Industry', a part of the industrial categories III and IV of the 1971 census. In other words, the 1961 census overestimated the workers in the industrial category 'Household Industry' as compared to the 1971 census by also including in it those workers who are primarily engaged in 'Livestock, Forestry, Fishing, Hunting & Plantations, Orchards and Allied Activities' and 'Mining and Quarrying'. Secondly, unlike B-I part A Table of the 1971 census, B-I Table of the 1961 Census did not give workers in 'Mining and Quarrying' separately. However, Table B-IV part C of the 1961 census provides detailed information on the occupational divisions which, in turn, "makes it possible to suitably adjust the 1961 figures for all ages without recourse to approximation."<sup>\*27</sup> The occupational divisions given by the 1961 census are further sub-classified into two parts:

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\*26 Cf. J. Krishnamurthy: "Working Force in 1971 census: Un-illuminating 'Final' Results", op.cit.

\*27 Ibid.

Household establishments and Non-household establishments. The Non-household establishments under division 0 along with the non-household establishments under division 1 made the industrial category III of the 1961 census, whereas, according to 1971 census scheme of classification, total workers under division 0 would form the industrial category III of the 1971 census and total workers under division 1 would form the industrial category IV of the 1971 census. On the other hand, the workers in household establishments under division 0, 1 and 2-3 made the industrial category of Household Industry in the 1961 census, whereas, according to the 1971 census classificatory scheme, the workers in household establishments under divisions 2-3 only would make the industrial category of Household industry of the 1971 census. By making these adjustments in the 1961 census classificatory system, we can make it comparable to the 1971 census classification.

At this stage, it is important to note that our primary interest lies in the broad three sector classification of workers, the three sectors being the primary sector, which includes agriculture and allied activities, forestry and fishing; the secondary sector, which includes mining & quarrying large-scale manufacturing ~~and~~ <sup>&</sup> small-scale manufacturing, construction and electricity, gas & water supply; and the

tertiary sector, which includes trade & transport, banking & insurance, public administration and other services. It is possible <sup>to</sup> clearly distinguish these three sectors from one another in the 1971 census classificatory system of workers. The aggregation of the first three industrial categories of the 1971 census corresponds exactly to our concept of the primary sector; the aggregation of the industrial categories IV to VI of the 1971 census clearly defines the secondary sector; and the aggregation of the industrial categories VII to IX as given in the 1971 census fully covers the tertiary sector for our purpose. Obviously, the classificatory system of the B-I Table of the 1961 census does not allow for a clear-cut demarcation between the primary sector and secondary sector. However, as indicated above, we can make the necessary adjustments in the 1961 census classification to make it comparable to the 1971 census classification, which, in turn, can be used to derive the three-fold sectoral composition of the total working force in the year 1960-61. Table 4.8 presents the broad sectoral composition of the working force in 1960-61.

The table clearly reveals that only in four States, viz., Kerala, Punjab, Tamil Nadu and West Bengal, the share of primary sector in total employment in 1960-61 was less than

Table 4.8

## Sectoral Composition of Working Force in 1960-61

States	Distribution of Workers (Figures in '000)				Percentage Distribution of Workers			
	Primary sector		Tertiary sector		Primary sector		Tertiary sector	
	2	3	4	5	6	7	8	9
1. Andhra	13681	2214	2768	18663	73.31	11.86	14.83	100.00
2. Assam	4023	429	685	5137	78.31	8.35	13.34	100.00
3. Bihar	15318	1706	2210	19234	79.64	8.87	11.49	100.00
4. Gujarat	6099	959	1417	8475	71.96	11.32	16.72	100.00
5. Haryana	2122	238	518	2878	73.73	8.27	18.00	100.00
6. Karnataka	8036	1189	1502	10727	74.91	11.08	14.01	100.00
7. Kerala	2627	1104	1898	5629	46.67	19.61	33.72	100.00
8. M.P.	13872	1397	1660	16929	81.94	8.25	9.81	100.00
9. Maharashtra	13691	2338	2920	18949	72.25	12.34	15.41	100.00
10. Orissa	5835	601	1225	7661	76.16	7.85	15.99	100.00
11. Punjab	2026	622	818	3466	58.45	17.95	23.60	100.00
12. Rajasthan	7849	650	1085	9584	81.90	6.78	11.32	100.00
13. Tamil Nadu	9743	2239	3369	15351	63.47	14.59	21.94	100.00
14. U.P.	22193	2486	4172	28851	76.92	8.62	14.46	100.00
15. W. Bengal	6694	2072	2814	11580	57.81	17.89	24.30	100.00
Total	133809	20244	29061	183114	73.07	11.06	15.87	100.00

Source : Census of India 1961.

65%. In all other States the share of primary sector in total employment was greater than 70% in 1960-61; in Madhya Pradesh and Rajasthan, it was greater than even 80%. On the other hand, the share of secondary sector in the total employment did not exceed 20% in any of the Indian States in 1960-61. Actually, in as many as seven States, viz., Assam, Bihar, Haryana, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh, the share of secondary sector in total employment was less than even 10% in 1960-61. Madhya Pradesh did not have even 10% of total workers in the tertiary sector also. In the remaining States the share of tertiary sector in total employment was greater than 10% in 1960-61. In Kerala, tertiary sector accounted for more than 30% of employment in 1960-61.

After having derived the sectoral composition of the working force in 1960-61, the major problem which still remains is to estimate the sectoral composition of the estimated workers in 1970-71. Inasmuch as the underlying concept of a worker has significantly altered between the 1961 and the 1971 censuses, it may not sound illogical to expect that the overall composition of working force revealed by the two censuses may also not be comparable. This becomes quite clear, if we go into the closer details. As pointed out



earlier, Table 4.6 above reveals that the degree of under-estimation of workers is higher for females in general and rural females in particular. Insofar as the rural females are mostly employed in agriculture and allied activities, this would imply that out of those workers, who would have been included in the working force in 1970-71 had the 1961 census definition of a worker been adopted, relatively more workers would belong to the primary sector which, in turn, leads the overall share of the primary sector as actually reported by the 1971 census to rise when the additional workers are also taken into account to restore comparability in the overall count of workers in the two censuses. Moreover, a change in the definition of a 'worker' itself may lead to a serious under-enumeration of workers in the household sector. The Resurvey in its efforts to restore comparability between the 1961 and the 1971 census data on working force, has also attempted the broad sectoral composition of working force on comparable grounds. The Resurvey, however, distinguishes only three broad categories of workers, viz., cultivators, agricultural labourers and other workers. The first two categories of workers classified by the Resurvey form a major part of the primary sector. For the remaining part of the primary sector, secondary sector and tertiary sector we can assume - and the

assumption is fairly plausible - that the percentage distribution of the other workers of the Resurvey is the same as that of the 1971 census other workers. This exercise can be carried out by each one of the four categories classified above in the previous sections which, in turn, would enable us to arrive at the broad sectoral composition of the Readjusted workers<sup>\*28</sup> by each one of the four categories. The broad sectoral composition of the Readjusted workers classified by sex and rural-urban residence is presented below in the Table 4.9.

From the Table 4.9, it can be readily observed that for different categories of workers the sectoral composition differs substantially. Even within a given area, the sectoral composition significantly differs between the male workers and the female workers. In rural areas, barring the case of Punjab, the share of primary sector in the total employment in the category of males is less than that in the category of females. In urban areas also, except the cases of Punjab and West Bengal, the share of primary sector in total employment in the category of males is significantly less than that in the category of females. The Table 4.9 also shows significant variations in the distribution of workers between the

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\*28 For the definition of the Readjusted workers, see the concluding parts of the third section of the present Chapter. For those categories where the reported 1971 Census WPRs are accepted, the 1971 Census composition of the working force is applied.

Table 4.9(a)

## Sectoral Composition of the Sex-Specific Headadjusted Workers in Rural Areas in 1971

States	Males				Females					
	Primary sector		Secondary sector	Tertiary sector	Total	Primary sector		Secondary sector	Tertiary sector	Total
	2	3	4	5	6	7	8	9		
1. Andhra	80.34	9.32	10.34	100.00	85.74	7.03	7.23	100.00		
2. Assam	84.13	3.36	12.51	100.00	92.19	3.28	4.53	100.00		
3. Bihar	88.75	4.70	6.55	100.00	96.01	2.46	1.53	100.00		
4. Gujarat	83.36	7.42	9.22	100.00	90.88	4.71	4.41	100.00		
5. Haryana	79.92	7.88	12.20	100.00	91.06	4.84	4.10	100.00		
6. Karnataka	85.00	6.82	8.18	100.00	88.49	6.48	5.03	100.00		
7. Kerala	59.16	16.24	24.60	100.00	66.02	19.62	14.36	100.00		
8. M.P.	89.75	4.86	5.39	100.00	94.07	4.13	1.80	100.00		
9. Maharashtra	83.93	7.33	8.74	100.00	94.95	3.34	1.71	100.00		
10. Orissa	85.91	5.17	8.92	100.00	87.22	7.05	5.73	100.00		
11. Punjab	80.93	8.07	11.90	100.00	56.14	15.09	28.77	100.00		
12. Rajasthan	86.54	5.39	8.07	100.00	92.41	3.99	3.60	100.00		
13. Tamil Nadu	79.90	9.27	10.83	100.00	89.89	5.67	4.44	100.00		
14. U.P.	86.98	5.15	7.87	100.00	91.46	4.49	4.05	100.00		
15. W. Bengal	81.34	8.12	10.54	100.00	83.93	8.38	7.69	100.00		

Table 4.9(b)

## Sectoral Composition of the Sex-Specific Readjusted Workers in Urban Areas in 1971

States	Males			Females			Total	
	Primary sector	Secondary sector	Tertiary sector	Primary sector	Secondary sector	Tertiary sector		
	2	3	4	6	7	8		
1				5			9	
1. Andhra	13.37	29.04	57.59	100.00	31.63	28.63	39.74	100.00
2. Assam	8.84	21.16	70.00	100.00	23.53	11.76	64.71	100.00
3. Bihar	19.19	33.38	47.43	100.00	51.96	18.14	29.90	100.00
4. Gujarat	10.41	38.12	51.47	100.00	21.29	26.13	52.58	100.00
5. Haryana	10.81	28.60	60.59	100.00	29.17	12.50	58.33	100.00
6. Karnataka	16.54	32.15	51.31	100.00	39.92	27.20	32.88	100.00
7. Kerala	17.61	25.71	56.68	100.00	19.05	24.76	56.19	100.00
8. M.P.	12.30	32.28	55.42	100.00	25.48	28.10	46.42	100.00
9. Maharashtra	8.94	39.34	51.72	100.00	22.70	27.74	49.56	100.00
10. Orissa	17.38	22.80	59.82	100.00	22.68	18.56	58.76	100.00
11. Punjab	11.10	30.87	58.03	100.00	1.64	13.11	85.25	100.00
12. Rajasthan	14.27	26.82	58.91	100.00	26.47	25.29	48.24	100.00
13. Tamil Nadu	12.85	34.29	52.86	100.00	36.38	27.60	34.02	100.00
14. U.P.	9.20	29.23	61.57	100.00	11.17	23.54	65.29	100.00
15. V. Bengal	5.29	38.95	55.76	100.00	3.67	19.72	76.61	100.00

Source: see the text.

secondary and tertiary sectors for the four categories of workers.

Moreover, Table 4.9 forms the basis for deriving the estimates of the overall sectoral composition of the estimated workers in 1970-71 which is comparable and consistent with the 1960-61 sectoral composition presented above in Table 4.8. For those categories of workers where the Readjusted workers are accepted without modification to be included in the final estimates of the working force in 1970-71, it is but natural to accept the implicit sectoral composition also. For those categories of workers where the Readjusted workers have to be revised in the upward direction for preparing the final estimates of the comparable working force, we can distribute the additional workers among the three sectors in the same proportion as observed for the respective category of the Readjusted workers. This would amount to assuming that the sectoral composition of the area-sex-specific Readjusted workers also applied to our estimates of the area-sex-specific workers which are comparable to the 1960-61 working force. The sectoral distribution of the area-sex specific estimated workers in 1970-71 so derived is presented below in Appendix Table 4A.4.

This, however, does not mean that we have assumed the same overall sectoral composition of workers as given in the 1971 Census or the Resurvey or the Readjusted workers. Inasmuch as the area-sex composition of our estimated workers differ from that of the Readjusted workers, the overall sectoral composition of workers is most likely to be different in the two cases eventhough, for each category of workers separately, we might have assumed the same sectoral composition. This is because the overall sectoral composition of workers is a weighted average of the category-wise sectoral composition, the weights being the category-composition of the total workers. Now, even when we assume the same category-wise sectoral composition of workers, in so far as the category-composition of the total workers differs for the estimated and the Readjusted workers, the overall sectoral composition of the estimated workers will be different from the one of the Readjusted workers. That the category-composition of the total workers differs significantly between the Readjusted workers and our estimated workers is clearly brought out by Table 4.10. Only in Kerala and Uttar Pradesh, the category-composition of the Readjusted workers turns out to be exactly the same as the one of our estimated workers. For all other States, the category composition of the two sets of workers clearly

Table 4.10

## Category-wise Composition of the Readjusted Workers and Our Estimated Workers in 1970-71

States	Percentage Distribution of Readjusted Workers in 1971						Percentage Distribution of Our Estimated Workers in 1971					
	Rural Areas		Urban Areas		Total	Rural Areas		Urban Areas		Total		
	Males	Females	Males	Females		Males	Females	Males	Females			
	1	2	3	4	5	6	7	8	9	10	11	
1. Andhra	55.82	30.17	11.28	2.73	100.00	50.69	35.61	10.24	3.46	100.00		
2. Assam	72.19	19.09	8.02	0.70	100.00	61.66	30.36	7.13	0.85	100.00		
3. Bihar	72.77	18.55	7.94	0.74	100.00	65.19	26.72	7.11	0.98	100.00		
4. Gujarat	56.25	20.34	20.09	3.32	100.00	50.43	28.58	18.01	2.98	100.00		
5. Haryana	72.38	11.04	15.08	1.50	100.00	59.63	26.61	12.42	1.34	100.00		
6. Karnataka	58.75	21.63	16.49	3.13	100.00	51.11	30.22	14.78	3.69	100.00		
7. Kerala	62.31	22.75	11.77	3.17	100.00	62.31	22.75	11.77	13.17	100.00		
8. M.P.	61.03	26.64	10.51	1.82	100.00	51.02	38.02	8.86	2.10	100.00		
9. Maharashtra	48.34	25.32	23.17	3.17	100.00	41.59	34.55	19.77	4.09	100.00		
10. Orissa	76.48	15.60	6.91	1.01	100.00	65.91	27.01	6.00	1.08	100.00		
11. Punjab	74.61	2.71	21.68	1.00	100.00	71.06	6.81	20.67	1.46	100.00		
12. Rajasthan	65.41	21.43	11.79	1.37	100.00	57.28	30.80	10.33	1.59	100.00		
13. Tamil Nadu	55.03	19.43	20.79	4.75	100.00	50.52	25.72	19.36	4.40	100.00		
14. U.P.	70.80	16.92	11.04	1.24	100.00	70.80	16.92	11.04	1.24	100.00		
15. W.Bengal	67.32	5.93	25.00	1.75	100.00	66.68	6.82	24.77	1.73	100.00		

Source: Table 4.5 above and Appendix Table 4A.3 below

differs. It is interesting to note that in all these States proportion of rural female workers in total workers is higher and the proportion of rural male workers in the total workers is lower for our estimated workers compared to the Readjusted workers. This implies that out of the total additional workers over the Readjusted workers, a majority of the workers were added in the category of rural females. This implication along with an observation from the Table 4.9 above that the category of rural females has the maximum share of primary sector among all other categories in most of the States, ensures that due consideration has been given to the fact that the workers in the primary sector are likely to have been underenumerated relatively to a greater extent.

Now it is just a matter of summing up the relevant columns from the Appendix Table 4A.4 below to arrive at the overall sectoral composition of our estimated workers for the year 1970-71. Table 4.11 presents the overall sectoral break-up of our estimated workers in 1970-71 with its percentage distribution. From the table, it can be readily seen that in Kerala, Punjab and West Bengal the share of primary sector in total employment is less than 65%, while barring Tamil-Nadu, in all other States, the share of primary sector in total employment exceeds 70%. In Assam, Bihar, Madhya Pradesh



Table 4.11

## Sectoral Composition of the Estimated Working Force in 1970-71

States	Distribution of workers (figs. in '000)			Percentage Distribution of workers				
	Primary sector	Secondary sector	Tertiary sector	Total	Primary sector	Secondary sector	Tertiary sector	Total
1	2	3	4	5	6	7	8	9
1. Andhra	16306	2476	3337	22119	73.72	11.19	15.09	100.00
2. Assam	4866	282	882	6030	80.70	4.68	14.62	100.00
3. Bihar	17769	1306	1736	20811	85.38	6.28	8.34	100.00
4. Gujarat	7334	1324	1742	10400	70.52	12.73	16.75	100.00
5. Haryana	2631	347	596	3574	73.61	9.71	16.68	100.00
6. Karnataka	9744	1478	1913	13135	74.18	11.25	14.57	100.00
7. Kerala	3607	1216	1788	6611	54.56	18.39	27.05	100.00
8. M.P.	16647	1500	1865	20012	83.19	7.50	9.31	100.00
9. Maharashtra	15700	2924	3674	22298	70.41	13.11	16.48	100.00
10. Orissa	7270	614	1040	8924	81.47	6.88	11.65	100.00
11. Punjab	2637	558	990	4185	63.01	13.33	23.66	100.00
12. Rajasthan	8513	798	1340	10651	79.93	7.49	12.58	100.00
13. Tamil Nadu	11967	2475	3245	17687	67.66	13.99	18.35	100.00
14. U.P.	25938	2628	4598	33164	78.21	7.92	13.87	100.00
15. West Bengal	7724	2012	2857	12593	61.34	15.98	22.68	100.00
Total	158653	21938	31603	212194	74.77	10.34	14.89	100.00

Source: Appendix Table 4A.4 below.

and Orissa it is actually greater than even 80%. On the other hand, except Kerala and West Bengal, no other State has a share of secondary sector in total employment greater than 15%. In Assam, Bihar, Haryana, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh the share of secondary sector in the total employment is less than even 10%.

Comparing the results of the Table 4.11 with those of the Table 4.8 above, we find that the changes in the structure of the working force between 1960-61 and 1970-71 were of different nature in different States. In five states, viz., Gujarat, Haryana, Karnataka, Maharashtra and Rajasthan the share of primary sector in the total employment has fallen between 1960-61 and 1970-71. However, Karnataka can be regarded as having a more or less constant structure of working force between 1960-61 and 1970-71. In Haryana, the structural shifts are largely confined to the secondary and tertiary sectors; the former having improved in its importance and the latter having reduced in its importance. In all other States, the share of the primary sector in the total employment has gone up significantly.\*<sup>29</sup> Only in Andhra Pradesh, one may find

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\*<sup>29</sup> This phenomenon is in sharp contrast with the celebrated sector hypothesis of Colin Clark which he propounds in The Conditions of Economic Progress (London: MacMillan, 1957). However, he, himself, points out that "a failure of this proportion to fall can generally be attributed to some temporary, or occasionally more permanent, economic difficulty." (p.497). See also P.T. Bauer and E.S. Yamey: "Economic Progress and Occupational Distribution", in Economic Journal, Vol.61, December, 1951.

relative constancy of the employment structure between 1960-61 and 1970-71. This phenomenon is of great concern and calls forth immediate attention of the planners. The cause for this phenomenon can be the increasing population pressure on land and the capacity of the primary sector to absorb readily the additional workers. At any rate, unless the present tendency of the structural changes in most of the Indian States is immediately arrested, it could prove to be a major retarding factor in the growth of the State economies.

#### VI. Growth of Working Force Between 1960-61 and 1970-71 :

Before we conclude this Chapter, let us examine the growth of working force in the Indian States between 1960-61 and 1970-71. Table 4.12 presents the growth of working force by broad sectors in the fifteen Indian States between 1960-61 and 1970-71. From the table, it is clear that the overall growth of working force is ranging from only about 6% in Bihar to more than 24% in Haryana during 1960-61 to 1970-71. The only other State where the growth of total working force is less than 10% is West Bengal. On the other hand, in as many as three more States, viz., Gujarat, Karnataka and Punjab, the growth of total working force is greater than 20%.

Table 4.12

## Growth of Working Force in Indian States between 1960-61 and 1970-71

(Figures in Per cent)

States	Decennial Rate of Growth in			Average Annual Compound Rate of Growth in				
	Primary sector	Secondary sector	Tertiary sector	Primary sector	Secondary sector	Tertiary sector		
1	2	3	4	5	6	7	8	9
1. Andhra	19.19	11.83	20.56	16.52	1.77	1.12	1.83	1.77
2. Assam	20.95	-34.27	28.76	17.38	1.92	-4.11	2.55	1.61
3. Bihar	16.00	-23.45	-21.45	8.20	1.49	-2.64	-2.39	0.79
4. Gujarat	20.25	38.06	22.94	22.71	1.86	3.27	2.08	2.06
5. Haryana	23.99	45.80	15.06	24.18	2.17	3.84	1.41	2.18
6. Karnataka	21.25	24.31	27.36	22.45	1.94	2.19	2.44	2.04
7. Kerala	37.30	10.14	-5.80	17.45	3.22	0.97	-0.60	1.62
8. M.P.	20.00	7.37	12.35	18.21	1.84	0.71	1.17	1.68
9. Maharashtra	14.67	25.06	25.82	17.67	1.37	2.26	2.32	1.64
10. Orissa	24.59	2.16	-15.10	16.49	2.22	0.21	-1.62	1.53
11. Punjab	30.16	-10.29	21.03	20.74	2.67	-1.08	1.92	1.90
12. Rajasthan	8.46	22.77	23.50	11.13	0.81	2.07	2.13	1.06
13. Tamil Nadu	22.83	10.54	-3.68	15.22	2.07	1.00	-0.36	1.42
14. U.P.	16.87	5.71	10.21	14.95	1.57	0.55	0.97	1.40
15. West Bengal	15.39	-2.90	1.53	8.75	1.44	-0.29	0.15	0.84

Source : Table 4.8 and Table 4.11 above.

In the case of the primary sector, the growth of workers between 1960-61 and 1970-71 varies all the way from about 8½% in Rajasthan to 37% in Kerala. In as many as nine States, viz., Assam, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Orissa, Punjab and Tamil Nadu, the growth of workers in the primary sector is greater than 20% during 1960-61 to 1970-71. Only in five States, viz., Gujarat, Haryana, Karnataka, Maharashtra and Rajasthan, the growth of workers in the primary sector is less than that in the total workers during the sixties. In the rest of the States, the growth of workers in the primary sector is greater than that in the total workers. Actually, in Bihar, Kerala and West Bengal, the growth of workers in the primary sector is almost twice that of the total workers.

In the case of the secondary sector the growth of workers turns out to be negative in Assam, Bihar, Punjab and West Bengal; while in Bihar, Kerala, Orissa and Tamil Nadu the growth of workers in the tertiary sector turns out to be negative. On the other hand, in the same five States, where the growth of workers in the primary sector turns out to be less than that in the total workers, the growth of workers in the secondary sector turns out to be greater than <sup>that in</sup> the total workers. However, in the case of tertiary sector, in seven States, viz., Andhra Pradesh, Assam, Gujarat, Karnataka, Maharashtra, Punjab and Rajasthan, the growth of workers exceeds that of the total workers during the sixties.

Appendix  
Table 4A.1

Sex-Area-Specific Workers in 1971 by Applying 1961 Age-Specific

<u>WPR</u>		(Figures in '000)			
States	<u>Rural Areas</u>		<u>Urban Areas</u>		<u>All Areas Persons</u>
	<u>Males</u>	<u>Females</u>	<u>Males</u>	<u>Females</u>	
1	2	3	4	5	6
1. Andhra	11213	7877	2266	765	22120
2. Assam	3946	2171	448	64	6629
3. Bihar	14414	7083	1605	261	23363
4. Gujarat	5379	3162	1929	329	10799
5. Haryana	2328	951	463	48	3790
6. Jammu & Kashmir	1140	495	233	23	1891
7. Karnataka	6713	3969	1941	511	13135
8. Kerala	4353	1939	821	230	7344
9. M.P.	10525	7904	1842	444	20714
10. Maharashtra	9984	7866	4692	957	23499
11. Orissa	5882	2627	535	105	9149
12. Punjab	2949	285	884	61	4180
13. Rajasthan	6452	4063	1160	211	11886
14. Tamil Nadu	8935	5269	3424	910	18538
15. U.P.	23247	7008	3478	295	34028
16. W.Bengal	8870	1636	3378	246	14130

Source: See the text, section IV.

Appendix Table 4A.2Sex-Area-Specific WPR in 1971 by Applying Age-Specific WPR of 1961

(Figures in Per cent)

States	Rural Areas		Urban Areas		All Areas Persons
	Males	Females	Males	Females	
1	2	3	4	5	6
1. Andhra	63.35	45.26	52.56	18.70	50.85
2. Assam	52.14	31.33	53.43	10.12	41.51
3. Bihar	56.02	28.34	51.48	10.37	41.46
4. Gujarat	54.65	33.78	48.70	9.31	40.45
5. Haryana	52.66	24.74	48.40	5.91	37.76
6. J & K	57.10	28.08	50.55	5.86	40.97
7. Karnataka	59.68	36.32	52.15	15.04	44.83
8. Kerala	49.18	21.48	47.30	13.31	34.40
9. M.P.	59.05	46.37	50.70	14.08	49.73
10. Maharashtra	57.11	45.68	54.34	13.53	46.61
11. Orissa	58.58	26.12	53.54	12.41	41.69
12. Punjab	53.30	5.93	51.02	4.14	30.84
13. Rajasthan	58.34	39.99	47.85	9.94	46.13
14. Tamil Nadu	61.88	36.86	53.59	14.98	45.00
15. U.P.	57.81	19.61	51.13	5.28	38.52
16. West Bengal	51.65	10.12	53.94	5.22	31.89

Source: See the text, section IV.

Appendix Table 4A.3

Readjusted Workers And The Worker Rates in 1971

States	Readjusted Workers in 1971 (Figures in '000)						Readjusted Worker Rates in 1971 (In Per cent)					
	Rural Areas			Urban Areas			Rural Areas			Urban Areas		
	Males Females			Males Females			Males Females			Males Females		
	1	2	3	4	5	6	7	8	9	10	11	12
1. Andhra	10662	5763	2154	523	19102	60.24	33.12	49.96	12.78	43.91	32.42	33.08
2. Assam*	3501	926	389	34	4850	49.13	14.23	51.28	5.92	32.42	34.93	29.33
3. Bihar	13567	3459	1430	138	18644	52.73	13.84	47.48	5.50	33.08	37.90	30.97
4. Gujarat	5245	1897	1873	310	9325	53.28	20.27	47.29	8.76	34.93	29.33	37.90
5. Haryana	2131	325	444	44	2944	48.22	8.45	46.41	5.34	29.33	37.90	30.97
6. Karnataka	6523	2402	1831	347	11103	57.99	21.98	49.18	10.22	37.90	30.97	38.95
7. Kerala	4119	1504	778	210	6611	46.53	16.65	44.81	12.15	30.97	38.95	37.73
8. M.P.	9902	4323	1706	295	16226	55.55	25.36	46.98	9.34	38.95	37.73	33.38
9. Maharashtra	9195	4817	4408	602	19022	52.59	27.93	51.06	8.51	37.73	33.38	29.41
10. Orissa	5602	1143	506	74	7325	55.79	11.36	50.63	8.80	33.38	29.41	36.20
11. Punjab	2974	108	664	40	3986	53.75	2.25	49.88	2.67	29.41	36.20	37.69
12. Rajasthan	6101	1999	1100	127	9327	55.16	19.67	45.40	6.01	36.20	37.69	37.54
13. Tamil Nadu	8545	3017	3229	738	15529	59.18	21.10	50.54	12.14	37.69	37.54	28.15
14. U.P.	23479	5612	3661	412	33164	58.38	15.70	53.82	7.37	37.54	28.15	
15. W. Bengal	8397	740	3119	218	12474	48.90	4.58	49.80	4.64	28.15		

\* excluding Meghalaya.

Source: The Resurvey.



Appendix Table 4A.4(a)

Sectoral Distribution of Estimated Workers in Rural Areas in 1970-71

(Figures in '000)

States	Males				Females			
	Primary sector	Secondary sector	Tertiary sector	Total	Primary sector	Secondary sector	Tertiary sector	Total
1	2	3	4	5	6	7	8	9
1. Andhra	9008	1045	1159	11212	6753	554	569	7876
2. Assam	3128	125	465	3718	1658	60	83	1831
3. Bihar	12041	638	886	13567	5338	137	85	5560
4. Gujarat	4372	389	484	5245	2701	140	131	2972
5. Haryana	1703	168	260	2131	866	46	39	951
6. Karnataka	5707	458	549	6714	3512	257	200	3969
7. Kerala	2437	669	1013	4119	993	295	216	1504
8. M.P.	9164	496	551	10211	7158	314	137	7609
9. Maharashtra	7784	680	810	9274	7315	257	132	7704
10. Orissa	5053	304	525	5882	2102	170	138	2410
11. Punjab	2380	240	354	2974	160	43	82	285
12. Rajasthan	5280	329	492	6101	3031	131	118	3280
13. Tamil Nadu	7139	828	968	8935	4089	258	202	4549
14. U.P.	20422	1209	1848	23479	5133	252	227	5612
15. W. Bengal	6830	682	865	8397	721	72	66	859

Appendix Table 4A.4(b)

Sectoral Distribution of the Estimated Workers in Urban Areas in 1970-71

(Figures in '000)

States	Males					Females				
	Primary		Secondary		Total	Primary		Secondary		Total
	1	2	3	4		5	6	7	8	
1. Andhra		303	656	1305	2266		242	219	304	765
2. Assam		38	91	301	430		12	6	33	51
3. Bihar		284	494	702	1480		106	37	61	204
4. Gujarat		195	714	964	1873		66	61	163	310
5. Haryana		48	127	269	444		14	6	28	48
6. Karnataka		321	624	996	1941		204	139	168	511
7. Kerala		137	250	441	778		40	52	118	210
8. M.P.		218	572	982	1772		107	118	195	420
9. Maharashtra		394	1734	2280	4408		207	253	452	912
10. Orissa		93	122	320	535		22	18	57	97
11. Punjab		96	267	502	665		1	8	52	61
12. Rajasthan		157	295	648	1100		45	43	82	170
13. Tamil Nadu		440	1174	1810	3424		299	215	265	779
14. U.P.		337	1070	2254	3661		46	97	269	412
15. We. Bengal		165	1215	1739	3119		8	43	167	218

Source: Table 4.5 and Table 4.9 above.