

## CHAPTER XV WORKING FORCE

15.1. The term working force refers to the number of persons engaged wholly or partly in production of goods and services. Data on working force are basically required for estimation of domestic product originating from the unorganised sub-sectors of manufacturing, transport, trade and other services. For estimating the number of workers in the unorganised sub-sectors a complete distribution of all workers by detailed industrial classes has to be worked out.

15.2. Also, since no current data on employment, even on a partial coverage, exist to measure the annual rate of change (except in services like education, medical & health) for annual estimates of working force (particularly for the different unorganised industrial sectors) there is no choice but to rely on the census data at two points of time to obtain the intercensal growth rates. This makes the question of comparability of census data collected at different points of time quite important.

15.3. In 1951, the data on workers were collected on the basis of gainful employment approach classifying a person as (i) self supporting (ii) earning dependent and (iii) non-earning dependent. In 1961 and 1971, the data on workers were collected adopting the labour force approach *i.e.*, classifying a person according to his status as worker or non-worker on the basis of his participation in economic activity during a specified reference period. The reference period for seasonal workers employed in agriculture and household industries was last working season in 1961 and last one year in 1971. The reference period for other workers in regular employment was reduced from a fortnight in 1961 to a week in 1971. Apart from the change in the reference periods other changes introduced were: (i) in 1961 there was a simple dichotomous classification for a person to return himself/herself as a worker or as a non-worker whereas in 1971 a person was to be classified in either of the two categories according as the type of the main activity that the person returns himself/herself as engaged in mostly, (ii) in 1971 there were fifteen questions in comparison to only seven questions in

1961 preceding the question on economic activity. As a result many persons who were workers only marginally might have been counted as 'workers' in 1961 and as 'non-workers' in 1971. During the 1961 census, data on the secondary activity (or work) of the persons were not collected while in 1971, data on 'secondary' work were collected in respect of both 'workers' and 'non-workers'.

15.4. To determine the possible extent of the effect on the results of differences in 1971 and 1961 census concepts the Registrar General of India conducted a sample survey over the period December, 1971 to July 1972 when both the sets of census questions were canvassed. Two interpenetrating sub-samples of households in rural and urban areas on 18 States including the Union Territory of Delhi were drawn independently. The 1971 economic questions were canvassed in one sample and the 1961 questions in the other. In the model of estimation, the 1971 sample participation rate was taken to be equal to the 1961 sample participation rate with three additive components *viz.*, (i) the effect due to conceptual difference (ii) the effect due to temporal changes and (iii) the effect of sampling error. As the sample enquiries were conducted under almost similar conditions and the two sub-samples were completely independent in all respects, the net effect of temporal change and the interaction between the conceptual and the temporal effects were assumed to be negligible. The sampling error of the interpenetrating sub-samples are also likely to be of the same order. Thus, an estimate of the effect of conceptual difference between 1971 and 1961 census participation rates would be given by the difference in the two sample participation rates. These results for male and female workers in rural and urban areas—by three categories of main activity *viz.*, Cultivators (C), Agricultural Labourers (AL) and Other Workers (OW) are published in the *Census of India 1971, Report on Resurvey on Economic Questions—Some Results—Paper I* (Registrar General of India, 1974).

15.5. For arriving at the comparable estimates of number of workers under each category the Survey Report suggests an additive

method of adjustment. These figures of adjustment (to be added or subtracted) are to be determined for each category of workers using a fixed proportion of the total population equal to the difference between the two sample participation rates. The use of this method of adjustment leads to two different rates of change in the participation rates of workers according to the two concepts adopted. To overcome this problem the ratio method has been used in the present exercise. This ensures that the rate of change in the participation rates remains the same irrespective of the concept used. In other words, the actual figures of 1961 census for each category of workers are multiplied by the ratio of actual 1971 figure and adjusted figure (according to 1961 census) to obtain the corresponding estimates of 1961 according to 1971 concept. These ratios are worked out separately for the three categories of main activity (C, AL, OW) sub-classified further by sex separately for rural and urban areas.

15.6. Assuming that the estimated effect of conceptual difference in the participation rate for each of the three categories of main activity is fairly stable and is uniform in the different industry-groups falling within each main activity, the revised estimates of workers at the industry level by sex separately for rural and urban areas for 1961 are worked out adopting the 1971 Population Census concept. The classification at the industry level adopted for the purpose is NIC-1970 at three digit level. Since for 1961 Population Census Standard Industrial Classification—1960 (SIC-1960) DGET was used, the 1961 actual figures of workers are first reclassified into NIC-1970 and then adjusted for 1971 Population Census concept. Industrial groups of NIC 1970 and the correspondence thereof with the SIC-1960 are given in Appendix 15.1. The comparable estimates of the number of workers in 1961 and 1971 (according to 1971 Population Census concept) are then regrouped into 13 industrial categories and sub-categories adopted for domestic product by industry of origin (Appendix 15.2). The comparable estimates of workers by these broad categories are presented for 1961 and 1971 in Table 15.1.

15.7. The growth rates between the comparable estimates of 1961 and 1971 for male workers in the industry group, separately for urban and rural areas, are made use of for estimating 1970-71 (mid year) figures and for projecting the 1971 census working force to obtain the corresponding estimates for the subsequent period. The estimated number of workers in different sectors are given in table 15.2.

#### Reliability, Objectivity and Current Status of Data

15.8. No current data on total employment are at present available. The information on persons employed collected in various rounds of the NSS have also not been found satisfactory

for estimating the size and rate of growth of working force. This is mainly because such surveys are not carried out at regular intervals and the results are affected between rounds due to differing reference periods, and changes in the concept of employment adopted in different rounds.

15.9. The other source of current data viz., Employment Market Information (DGET) have partial coverage because of the exclusion of self employed and establishments in the private sector employing less than 10 workers, enterprises in defence and unorganised sectors. The Population Census results used in the absence of any other information also suffer from limitations arising out of changes in concepts. The estimates of working force presented in the chapter are therefore used for measurement of domestic product only for such of the sub-sectors where no other alternative source of information of physical output are available.

TABLE 15.1 : DISTRIBUTION OF WORKERS \* BY INDUSTRIES—1961 AND 1971  
(000)

industry	workers as on	
	1-3-61	1-4-71
(1)	(2)	(3)
1. agriculture . . . . .	1,18,286	1,29,161
1.1. cultivators . . . . .	84,601	78,177
1.2. agricultural labourers . . . . .	27,918	47,489
1.3. other agricultural & allied activities . . . . .	5,767	3,495
2. forestry & logging . . . . .	268	143
3. fishing . . . . .	544	586
4. mining & quarrying . . . . .	849	923
5. manufacturing . . . . .	15,775	16,907
5.1 registered . . . . .	3,667	5,045
5.2 unregistered . . . . .	12,108	11,862
6. construction . . . . .	2,439	2,447
7. electricity, gas & water supply. . . . .	249	535
8. transport, storage & communication . . . . .	2,917	4,401
8.1 railways . . . . .	974	1,167
8.2 transport by other means . . . . .	1,643	2,737
8.3 storage . . . . .	27	41
8.4 communication . . . . .	273	456
9. trade, hotels & restaurants . . . . .	7,750	9,028
10. banking & insurance . . . . .	257	56
11. real estate & business services . . . . .	138	307
12. public administration & defence . . . . .	3,288	5,023
13. other services . . . . .	12,778	10,351
total . . . . .	1,65,538	1,80,373

\* Figures do not include workers in respect of Sikk

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TABLE 15.2 : DISTRIBUTION OF WORKERS \* BY INDUSTRIES, 1970-71

industry	workers as on 1-10-70 ('000)
(1)	(2)
1. agriculture . . . . .	1,27,368
1.1 cultivators . . . . .	77,972
1.2 agricultural labourers . . . . .	46,025
1.3 other agricultural and allied activities . . . . .	3,571
2. forestry and logging . . . . .	147
3. fishing . . . . .	583
4. mining and quarrying . . . . .	915
5. manufacturing . . . . .	16,834
5.1 registered . . . . .	5,045
5.2 unregistered . . . . .	11,789

Table 15.2 : Contd.

(1)	(2)
6. construction . . . . .	2,444
7. electricity, gas and water supply . . . . .	514
8. transport, storage and communication . . . . .	4,306
8.1 railways . . . . .	1,159
8.2 transport by other means . . . . .	2,661
8.3 storage . . . . .	41
8.4 communication . . . . .	445
9. trade, hotels and restaurants . . . . .	8,942
10. banking and insurance . . . . .	539
11. real estate and business services . . . . .	294
12. public administration and defence . . . . .	4,874
13. other services . . . . .	10,298
total workers . . . . .	1,78,258

\* Figures do not include workers in respect of Sikkim.

APPENDIX 15.1 : COMPOSITION OF INDUSTRIAL SECTORS OF DOMESTIC PRODUCT CLASSIFIED BY THREE DIGIT GROUPS OF NIC-1970 AND SIC-1960

sl. no.	industry	NIC-1970 group	SIC-1960 group
(1)	(2)	(3)	(4)
1.	agriculture and allied activities		
1.1	cultivation . . . . .	000 to 006	000 to 004
1.2	agricultural labour . . . . .		
1.3	other agricultural production . . . . .	0007, 008, 204h, 207h	005 to 009, 200h 202h
1.4	plantations . . . . .	010 to 019	010 to 015
1.5	agricultural services . . . . .	030 to 038 less 035	890 (p)
1.6	livestock production . . . . .	020 to 029, 200h, 201h	(040 to 048 less 047), 204h, 206h
1.7	hunting, trapping and game propagation . . . . .	040	047
2.	forestry and logging		
2.1	logging and production of fuel . . . . .	051, 052	021, 022
2.2	gathering of minor forest products . . . . .	053 to 059	023 to 026
3.	fishing		
3.1	ocean sea and coastal fishing . . . . .	060	030
3.2	Inland water fishing . . . . .	061	031
3.3	other fishing and allied activities . . . . .	062 to 069	032
4.	mining and quarrying		
4.1	coal mining . . . . .	100, 101	100
4.2	crude petroleum and natural gas . . . . .	110, 111	106
4.3	metal ore mining . . . . .	120 to 129	101 to 103, 105
4.4	other mining . . . . .	190 to 199	104, 107 to 109
5.	manufacturing		
5.1(a)	non-household . . . . .	200 to 399	200 to 399
5.2(a)	household . . . . .	202 to 399 less 204h, 207h	201 to 399 less 202h, 204h, 206th corresponding -to column 3
5.1(b)	registered . . . . .	ASI : 200 to 399	
5.2(b)	unregistered . . . . .	200 to 399 less ASI (200 to 399), 200h, 201h, 204h, 207h	
5.2(b)	unregistered . . . . .	200 to 399 less ASI (200 to 399), 200h, 201h, 204h, 207h	
6.	construction*	500 to 519, 035, 039, 050	400 to 403, 020, 890(p)
7.	electricity, gas and water supply		
7.1	electricity . . . . .	400, 401	500, 501
7.2	gas . . . . .	410	502
7.3	water supply . . . . .	420	510
8.	transport, storage and communications		
8.1	railways . . . . .	700	700
8.2	mechanised road transport		
8.2.1	passenger transport by bus . . . . .	701	701

APPENDIX 15.1 : *Contd.*

(1)	(2)	(3)	(4)
8.2.2	passenger and freight transport by other motor vehicles	702, 703	702
8.3	non-mechanised road transport		
8.3.1	hackney carriages and transport by animals	704, 705	703, 704
8.3.2	transport by man	706	705
8.4	water transport		
8.4.1	ocean and coastal transport	710	707(p)
8.4.2	inland water transport	711	706
8.4.3	supporting services to water transport	712	707(p)
8.5	air transport	720, 721	708
8.6	services incidental to transport	730, 707, 708	709, 710
8.7	storage		
8.7.1	warehousing	740	720
8.7.2	cold storage	741	721
8.7.3	other storage	749	722
8.8	communication		
8.8.1	post, telegraph and signal	750	730
8.8.2	telephone	751	731
8.8.3	others	759	
9.	trade, hotels & restaurants		
9.1	trade		
9.1.1	wholesale trade	600 to 649, 821	600 to 639, 690
9.1.2	retail trade	650 to 689, 822	640, to 689, 696, 699
9.2	hotels and restaurants	690, 691	882
10.	banking and insurance		
10.1	banking		
10.1.1	banks	800	695(p)
10.1.2	non-banking financial institutions	801, 810	692, 693(p), 695(p)
10.1.3	others	809	694
10.2	insurance		
10.2.1	life	811	693(p)
10.2.2	others	819	693(p)
11.	real estate and business services		
11.1	real estate	820	691
11.2	business services	823 to 829	850 to 853
12.	public administration and defence	900 to 903, 954	800 to 809, 732
13.	others services		
13.1	education and research		
13.1.1	education	920, 921	810 and 811
13.1.2	research and scientific services	922	812
13.2	medical and health services	930, 931	820, 821
13.3	religious and community services	940 to 949	830 to 832, 841, 860, 861(p),
13.4	legal services	830	840
13.5	recreational entertainment services	950 to 959 less 954	697, 861 (p), 862, 870 to 873
13.6	personal services	960 to 969	880, 881, 883 to 885
13.7	sanitary services	910	511
13.8	services not elsewhere classified	980, 990	890(p), 900, 999

\*These cover only the exclusive construction activity and not own account construction by factories, mines and households.

## NOTE :

NIC—1970 : National Industrial Classification—1970, CSO, used for industrial category of workers in the Population, Census, 1971.

SIC—1960 : Standard Industrial Classification—1960, DGET, used for industrial category of workers in the population Census, 1961.

h refers to household part of the industry.

(p) refers to part of minor group of industry Annex.

## ANNEX

METHOD OF ALLOCATION OF 1961 WORKING FORCE  
BETWEEN SUB-GROUPS TO CONFORM WITH 1971  
CLASSIFICATION

The 1961 working force in parts of industry (indicated by 'p') appearing in the classification under col. 4 may, be estimated using the proportion of 1971 working force in the equivalent industries of NIC, 1970. For instance, 890(p) which appears in col. (4) against serial no. 1.5 'agricultural services' is equivalent to the major group industry 03 excluding minor group industries 035 and 039 of NIC, 1970 in col. 3. Industry 890 as a whole is equivalent to major group industries 98, 99 and 03 combined of NIC, 1970. The 1961 working force in 890(p) under 'agricultural services' may, therefore, be estimated as the proportion of 1971 working force in major group 03 excluding industries 035 and 039 to that in 98, 99 and 03 combined, multiplied by the 1961 working force in the industry 890. Such details for each of the groups where adjustment is called for are given below :

serial no.	SIC group	adjustment
(1)	(2)	(3)
1.5	890(p)	$\frac{(03-035-039)}{(98+99+03)} \times 890$
6	890(p)	$\frac{(035+039)}{(98+99+03)} \times 890$
13.8	890(p)	$\frac{(98+99)}{(98+99+03)} \times 890$

## ANNEX : Contd.

serial no.	SIC group	adjustment
(1)	(2)	(3)
8.4.1	707(p)	$\frac{(710)}{(710+712)} \times 707$
8.4.3	707(p)	$\frac{(712)}{(710+712)} \times 707$
10.1.2	693(p)	$\frac{(810)}{(81)} \times 693$
10.2.1	693(p)	$\frac{(811)}{(81)} \times 693$
10.2.2	693(p)	$\frac{(819)}{(81)} \times 693$
10.1.1	695(p)	$\frac{(800)}{(80)} \times 695$
10.1.2	695(p)	$\frac{(801+809)}{(80)} \times 695$
13.3	861(p)	$\frac{(949)}{(949+959)} \times 861$
13.5	861(p)	$\frac{(959)}{(949+959)} \times 861$

APPENDIX 15.2 : COMPOSITION OF INDUSTRIAL SECTORS OF DOMESTIC PRODUCT BY TWO DIGIT MAJOR GROUPS  
AND THREE DIGIT GROUPS OF NIC-1970

industry	major group	minor group
1. agriculture & allied activities		
1.1 agriculture and ancillary activities . . . . .	00, 01, 20	000 to 008, 010 to 019 204h 207h
1.2 livestock and ancillary activities . . . . .	02, 20, 93	020 to 029, 200h 201h; 931
1.3 hunting, trapping and game propagation . . . . .	04	040
1.4 agricultural services . . . . .	03	030 to 038 less 035
2. forestry & logging . . . . .	05	051 to 059
3. fishing . . . . .	06	060 to 069
4. mining and quarrying . . . . .	10, 11, 12, 19	100 to 199
5. manufacturing		
5.1 food products . . . . .	20, 21	200 to 219 less (200h, 201h 204h and 207h)
5.2 beverages, tobacco and tobacco products.		
5.2.1 beverages . . . . .	22	220 to 224
5.2.2 tobacco . . . . .	22	225 to 229
5.3 textiles . . . . .	23 to 26	230 to 269
5.4 wood & wood products . . . . .	27	270 to 279
5.5 paper and paper products and printing, publishing and allied industries.		
5.5.1 paper & paper products . . . . .	28	280 to 283
5.5.2 printing publishing and allied industries.	28	284 to 289
5.6 leather & leather products . . . . .	29	290 to 299
5.7 rubber, plastic, petroleum and coal products	30	300 to 307

h : household industries.

APPENDIX 15.2 : *Contd.*

industry	major group	minor group
5.8 chemical and chemical products (except products of petroleum and coal)	31	310 to 319
5.9 non-metallic mineral products . . . . .	32	320 to 329
5.10 basic metal and industries . . . . .	33	330 to 339
5.11 metal products and parts except machinery and transport equipment.	34	340 to 349
5.12 machinery, machine, tools and parts except electrical machinery	35	350 to 359
5.13 electrical appliances machineriessupplies etc.	36	360 to 369
5.14 transports equipment and parts . . . . .	37	370 to 379
5.15 other manufacturing industries . . . . .	38	380 to 389
5.16 repairs . . . . .	39	390 to 399
5.17 construction . . . . .	50, 03, 05	500 to 502, 035, 039, 050
<b>7. electricity, gas &amp; water supply</b>		
7.1 electricity . . . . .	40	400 to 401
7.2 gas . . . . .	41	410
7.3 water supply . . . . .	42	420
<b>8. transport, storage &amp; communication</b>		
8.1 railways . . . . .	70	700
8.2 road transport . . . . .	70	701 to 706
8.3 water transport . . . . .	71	710 to 712
8.4 air transport . . . . .	72	720, 721
8.5 services incidental to transport . . . . .	70, 73	707, 708, 730
8.6 storage . . . . .	74	740 to 749
8.7 communications . . . . .	75	750 to 759
<b>9. trade, hotels &amp; restaurants</b>		
9.1 trade . . . . .	60, to 69,	
9.1.1 wholesale trade . . . . .		600 to 649, 821
9.1.2 retail trade . . . . .		650 to 689, 822
9.2 hotels & restaurants . . . . .	69	690, 691
<b>10. banking and insurance</b>		
10.1 banking . . . . .	80, 81	800 to 809, 810
10.2 insurance . . . . .	81	811, 819
<b>11. real estate and business services</b>		
11.1 real estate . . . . .	83	830
11.2 business service . . . . .	82	823 to 829
<b>12. public administration and defence</b>		
	90, 95	900 to 903, 954
<b>13. Other services</b>		
13.1 educational scientific and research srevices .	92	920 to 922
13.2 medical and health . . . . .	93	930
13.3 community services . . . . .	94	940 to 949
13.4 legal services . . . . .	83	830
13.5 recreational & cultural services . . . . .	95	950 to 959
13.6 personal services . . . . .	96	960 to 969
13.6.1 domestic . . . . .		960
13.6.2 laundry, dyeing, etc. . . . .		961
13.6.3 hair dressing etc. . . . .		962
13.6.4 portrait & commercial photographic studies		963
13.6.5 personal services . . . . .		969
13.7 sanitary services . . . . .	91	910
13.8 other services . . . . .	98, 99, X0, X1	
13.8.1 international bodies . . . . .		980
13.8.2 services not elsewhere classified and activities not adequately defined.		990, X00, X10