

CHAPTER III

COMPARABLE ESTIMATES OF WORKFORCE BY DIFFERENT EMPLOYMENT CATEGORIES

1. INTRODUCTION

In the present study, the analysis of workforce is important, at least, for two reasons. Firstly, it examines inter-district variations in productivity which is measured in terms of labour productivity (Chapters IV and VI). Secondly, it considers the industrial structure (employment) of workforce as an indicator of economic development. An attempt is made (later in Chapter V) to isolate and quantify the contribution of industrial structure to the inter-district income inequalities in Karnataka for the years 1960-61 and 1970-71. Such an exercise is meaningful only when the data on workers by employment categories on comparable basis for the periods under consideration are available . Therefore, an accurate measurement of supply of workforce and its changes, in each of the districts, on comparable basis assumes greater significance. But

identification and measurement of economically active population is not an easy task. In fact, the measurement of economically-active population involves insurmountable conceptual problems. The comparability of data on workforce and its changes, over the period get complicated with the changes in definitions or concepts of workforce from year to year. The size of the workforce may vary from census to census, due to differences in concepts and definitions or due to differences in actual procedures of data collection. This problem is more serious in the case of female workers. A wide variety of conceptual and procedural changes may be reflected in the movement of female workforce, into and out of workforce, from one census to another.

Concepts and definitions of workforce have undergone changes between the 1961 census and the 1971 census of India. As such, it is necessary to examine in detail the problem of comparability between 1961 and 1971 census - economic data. Then, the methodology of adjusting the data of the two censuses on comparable basis has to be evolved. The next section devotes itself to this aspect.

In the third section, the workforces in the different industrial categories are estimated for the year 1961 such that they are made comparable to the 1971 census economic data. The fourth section deals with the growth of workforces by sectors between the periods 1961 and 1971. The conclusions are presented at the end.

2. CENSUS DATA ON WORKFORCE : PROBLEM OF COMPARABILITY AND
THE ESTIMATES

A closer examination of census economic data by sex reveals that the total workforce in Karnataka State has declined from 1.07 Cr. in 1961 to 1.02 Cr. in 1971 (i.e. about 5 % decline in a decade), whereas the total population of the state has increased at the rate of 2.4 % p. a. during the same period . It is also important to note that , while the male workforce increased slightly, the female workforce declined substantially in all the districts. It is generally believed that the data regarding male workforce are relatively more firm as compared to that of female workers, as the latter are more sensitive to changes in concepts and procedures. In 1971, however, even the figures of the male worker appear to be gross underestimates of the true size of the working force. This is evident when we look at the worker figures of 1961 and 1971 census data which are given in Table 3.1 for the districts of Karnataka. J. Krishnamurthy points out that such a large fall in crude rates is unlikely, unless there is a reason to believe that changes in age composition and/or socio-economic factors have operated to lower worker participation.¹ However, the decline in worker participation

1 J.Krishnamurthy, "Workforce in 1971 census, some exercises on provisional results", Economic and Political Weekly, Vol. VII(3), Jan. 15, 1972, pp 115.

TABLE 3.1 : Worker Figures (Male, Female and Total) For The Districts of Karnataka :
1961 and 1971 (Census).

Sr. No.	Districts	Male Workers (Census)		Female Workers (Census)		Total Workers (Census)	
		1961	1971	1961	1971	1961	1971
1	Kodagu	100419	109624	51087	43214	151506	152838
2	Shimoga	314233	348522	135992	68141	450225	416663
3	Uttar Kannada	201098	229063	108994	56876	310092	285939
4	Chikmagalur	187515	204923	97082	49998	284597	254921
5	Dakshina Kannada	393400	460203	337451	288541	730851	748744
6	Bellary	274498	318542	147852	107920	422350	426462
7	Hassan	268483	303167	155255	46809	423738	349976
8	Tumkur	428583	468364	257932	85359	686515	553723
9	Chitradurga	337145	399549	220447	199830	557592	519379
10	Belgaum	582042	690084	278596	169699	860638	859783
11	Mysore	511476	600899	212415	97315	723891	698214
12	Mandya	280761	329887	145934	45958	426695	375845
13	Dharwad	564087	650008	260379	181470	824466	831478
14	Bangalore	740987	935664	252131	127093	993118	1062759
15	Kolar	397422	534314	210618	95118	608040	529432
16	Raichur	332967	407745	179094	119256	512061	527001
17	Gulbarga	422587	481376	239579	126386	662166	607762
18	Bijapur	493242	550804	294703	155295	787945	706099
19	Bidar	198657	221927	111203	50171	309860	272098
Karnataka State		7029602	8144665	3696744	2034449	10726346	10179114

Sources: (i) Census of India - 1961, Mysore, Part II - B(i) General Economic Tables, Table B-1.
(ii) Census of India - 1971, Series No.14, Mysore, Part I-A, Vol. II- General Report, Statement No. 10*27.

rate partly reflects a change in the concepts. Hence, the examination of differences in the concepts and the definitions in the 1961 and 1971 censuses needs attention. The major differences in the concepts and the definitions used in 1961 and 1971 are as follows :

i) In 1961 and 1971, the data on workers were collected by adopting the labourforce 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.² The reference period for the seasonal workers employed in agriculture and household industries was the last working season in 1961 and the last one year in 1971. The reference period for other workers in regular employment was reduced from a fortnight in 1961 to one week in 1971. Because of this difference in reference periods, at the 1961 census, a person was categorised basically as an economically active worker, even if such a person's contribution to work was extremely marginal.³ For example, if a woman who is basically engaged in household duties, went to her husband's field taking his lunch, and, for

2 Government of India, "National Accounts Statistics - Sources and Methods," C.S.O., Ministry of Planning, April 1980, pp 59.

3 Census of India - 1971, Series No. 14 - Mysore, Part I-A, Vol. II, General Report.

about an hour or so tending the cattle, she was straight-away treated as engaged in cultivation. Similarly, a full-time student, if he sat for a little time, however short the period might have been, in his father's shop even on a single day in a fortnight, he was treated as an economically active worker and his basic characteristic as a whole-time student was ignored.

ii) Besides the change in the reference periods the other changes introduced were :

(a) In 1961 there was a simple dichotomous classification for a person to turn 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 to the type of the main activity that the person returns himself / herself as engaged in mostly. In other words, at the 1971 census, every individual was first asked to declare his main activity. If the individual was economically active, she was classified as cultivator, agricultural labourer, household industry or as other worker. The classification would depend on the main activity of the person. Persons were also asked if, apart from the main activity, they did any secondary work. If so, they were appropriately categorised in question no.17. This structure emphasises main activity as such. Thus, a woman who is mainly a housewife but works occasionally in the fields to help the family would be recorded as a

'non-worker-housewife', first under question no.16 and her occasional work would be reflected in question no.17 as cultivator or agricultural labour. In other words, many persons who were workers only marginally might have been counted as 'workers' in 1961 and as 'non-workers' in 1971.

(b) During the 1961 census, data on the secondary activity (or work) of the person were not collected, while in 1971, data on 'secondary' work were collected in respect of both 'workers' and 'non-workers'. Theoretically speaking, the persons enumerated as workers under question 16 and those with secondary work in question 17 should be comparable with the 1961 results. However, operational deficiencies may have tended to depress the number whose secondary work was regarded. The scale or size of unsuccessful enumeration of question 17 on secondary work is not known. In the 1971 census, family workers, particularly women, who contribute labour in family, cultivation or who work as agricultural labourers in the fields of others for wages occasionally, but who spend their time mostly as housewives are recorded as non-workers. To this extent, family workers who in 1961 census would have been recorded as workers are not enumerated as such in the 1971 census. In such cases, if their contribution has not been recorded as secondary work, the result would tend to depress the number of total workers. This is in contrast to the inflation of

such workers stated to be effect of 1961 census definition."⁴

Thus, on comparing the two definitions, one gets an impression that the 1961 census had a very generous view of the concept. Therefore, many researchers have contended that the 1971 census data and 1961 census data are not strictly comparable. To preserve comparability between the results of two censuses, the Registrar General of India conducted a sample survey over the period December 1971 to June 1972 where both the sets of census questions were canvassed. Two inter penetrating sub-samples of households in rural and urban areas were drawn independently on 18 states including the Union Territory of Delhi. The 1971 economic questions were used 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) i) the effect due to conceptual differences 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 temporal effects

4. Census of India - 1971, Series No. 14 - Mysore, Part I-A, Vol. II, General Report.

were assumed to be negligible. The sampling error of the interpenetrating sub-samples are also likely to be of the same order. According to Sample Survey, 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. Such 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 of the Economics Questions - Some Results - Paper I (Registrar General of India, 1974). For arriving at the comparable estimates of number of workers, the sample survey suggests an additive model of adjustment. But, this does not solve the problem of comparability of economic data of Censuses for the districts of Karnataka, because, the survey which was based on two sub-samples suggests the method of deriving comparable data on workforce for the states.

However, the problem of comparability of census economic data between 1961 and 1971 is being solved in several ways. Some of them are ;

- i) Adjusting the 1971 workforce to fit the 1961 concept. In this case, age, sex, area specific of 1961 workforce is applied to the 1971 population and the workforce under the

assumption of constancy rate of workforce between the two census⁵ is drawn.

ii) Comparing the economic data of 1961 and 1971 with respect to male worker participation rate without any adjustment, and not including female participation at all.⁶

iii) Some studies have adopted a little modified way of deriving comparable data than the method suggested by sample survey.⁷

iv) There are also studies which have used census data for estimation of workers in the intervening periods without any adjustment on the ground that the differences in concepts will have little effect on the analysis.⁸

5 P. M. Visaria, "The Provisional 1971 Census Data on the Workforce", a paper read at the seminar on the first results of 1971 Census of India at the Institute of Economic Growth, Delhi, 1971.

6 M. S. Prakash Rao, Shashikumar, S. Kulkarni, "Growth of Agricultural Labour in India," Indian Journal of Labour Economics, Vol. XVI(4), Jan. 1974, pp 379-393.

7 For details see, (i) Government of India, "National Accounts Statistics, Sources and Methods," C.S.O., Ministry of Planning, April 1980, pp 60.

(ii) R. H. Dholakia, "Comparability of 1961 and 1971 Census data on workforce - An Inter-State Analysis," Anvesak, Vol. VII(2), Dec. 1977.

8 S. K. Mukhopadhyay, "Sources of Variation in Agricultural productivity," The MacMillan Company of India, Ltd., Delhi, 1979, pp 32.

In the present study, an attempt is made to estimate the workers on comparable basis by adjusting the 1961 Census data suitable to the 1971 Census data dimensions. The 1971 Census definition is taken as the base for the present analysis, since, it is considered to be more scientific and acceptable to many researchers. It is assumed that the age-sex specific worker participation rate in each district has remained constant between 1961 and 1971. By applying the age-sex specific worker participation rate of 1971 to the corresponding population category of each district in 1961, the age-sex specific workers in 1961 are obtained. The age-sex specific workers, so derived, are added up to get the total workers in each district. When the total workers are divided by the total population of the respective district, one can get the overall worker rates in each of the districts for the year 1961. These rates, then, are made comparable to the 1971 Census data. The estimated rates are named as the "Adjusted worker participation rates in 1961."

But, deriving the comparable data on wor^kforce, on the lines of the above methodology, is not simple. This is because, there are differences in the age-groups of workers and population between the two censuses, i.e., 1961 and 1971. Therefore, it is necessary to make some adjustments. The 1971 Census classified the population and workers by sex in

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 Age Not Stated (ANS). The 1961 Census classifies the population and workers by sex in four age groups, viz., 0 - 14, 15 - 34, 35 - 39 and 60+, besides ANS. To ensure inter-census uniformity of age groups, the researcher regrouped the population and workers of the 1971 Census data into three broad age-groups, viz., 0 - 14, 15 - 59 and 60 and above. Then the worker participation rates for the respective age-groups were calculated. After obtaining the age, sex-specific worker participation rates for 1971, the required age, sex-specific of population from the 1961 Census, by regrouping the detailed age groups distinguished by the 1961 Census, were derived. Then by applying the above said methodology, the adjusted worker participation rates for the year 1961 were obtained. This method captures the age-sex composition of populations. The estimated (or adjusted) worker participation rates in 1961 and worker participation rates of 1971 Census are given in Table 3.2.

At this stage, it is to be noted to what extent the estimates are underestimated when compared to 1961 actual Census data. The degree of underestimation in respect of female worker is found to be significant in all the districts.

TABLE 3.2 : Adjusted Worker Figures For The Year 1961 And Worker Figures of 1971 Census For The Districts of Karnataka.

Sr. Districts No.	Workforce (Male, Female, Total) in Number						Worker Participation Rates (in Percentage)					
	Male		Female		Total		Male		Female		Total	
	1961 (Adj-usted)	1971 (Census)	1961 (Adj-usted)	1971 (Census)	1961 (Adj-usted)	1971 (Census)	1961 (Adj-usted)	1971 (Census)	1961 (Adj-usted)	1971 (Census)	1961 (Adj-usted)	1971 (Census)
1 Kodagu	95848	109624	32332	43214	128180	152838	55.30	55.34	21.63	23.98	39.71	40.40
2 Shimoga	290122	346522	53727	68141	343919	416663	54.13	51.71	11.16	10.86	33.80	37.01
3 Uttara-Kannada	189214	229063	48255	56876	237470	285939	53.40	52.79	14.40	13.70	34.44	33.68
4 Chikmagalur	171510	201925	40161	49998	214671	254921	56.61	53.88	14.17	14.03	35.94	34.61
5 Dakshina-Kannada	359395	460203	234232	288541	593627	748744	47.84	48.83	28.82	28.95	37.96	38.61
6 Bellary	265370	318542	89550	107920	354920	426462	56.83	55.81	19.97	19.55	38.78	37.99
7 Hassan	249097	303167	38060	46809	287157	349976	54.74	54.29	8.63	8.61	32.05	31.75
8 Tumkur	392608	468364	72152	85359	464760	553723	56.15	56.30	10.79	10.73	33.99	34.02
9 Chitradurga	316420	399549	94425	199830	410845	519379	56.10	55.44	17.81	17.71	37.54	37.17
10 Belgaum	560571	690084	139501	169699	700072	859783	55.14	55.44	14.42	14.40	35.29	35.48
11 Mysore	479306	600899	78893	97315	558199	698214	55.93	56.16	9.69	9.66	33.40	33.61
12 Mandya	260294	329887	36613	45958	296907	375845	56.94	56.02	8.28	8.13	33.02	32.56
13 Dharwad	541105	650008	152166	181470	693271	831478	54.12	54.01	16.01	15.94	35.55	35.50
14 Bangalore	677149	935664	93185	127093	770234	1062757	51.84	53.09	7.77	7.93	30.76	31.58
15 Kolar	370376	534314	82079	95118	452455	529432	56.49	56.16	12.94	12.80	35.07	34.91
16 Raichur	324623	407745	95130	119256	419753	527001	58.54	57.05	17.42	17.01	38.13	37.22
17 Gulbarga	394397	481376	104108	126386	498505	607762	56.07	54.82	14.96	14.68	35.62	34.94
18 Bijapur	460082	550804	132070	155295	601152	706099	55.83	54.78	16.11	15.85	36.21	35.56
19 Bidar	181810	221927	41472	50171	223282	272098	54.03	52.86	12.69	12.41	33.67	33.02
Karnataka	6591367	8144665	1658112	2034449	8249479	10179114	54.74	54.40	14.36	14.20	34.97	34.74

Source : Computed from (i) Census of India-1961, Vol. XI, Mysore, Part II-F(i), General Economic Tables, Table B-1.
(ii) Census of India-1971, Series No.14, Mysore, Part I-A, Vol.II, General Report, Statement No.10.27.

However, the degree of underestimation, as regards the female workforce, varies from 30.59 % in Dakshina Kannada to 75.48 % in Hassan, whereas the degree of underestimation for male workers varies from 2.50 % in Raichur to 8.64 % in Dakshina Kannada. In fact, the results clearly indicate the extent of overestimation of female workers by the 1961 Census, which has employed a liberal concept of workforce while that of 1971 Census has not. The degree of underestimation for the total workers varies from low level of 15.40 % in Kodagu to high level of 32.30 % in Tumkur. The degree of underestimation of total workers for Karnataka is worked out at 23.09 %.

A comparison of the estimated (or adjusted) workforce for 1961 and the 1971 Census workforce, reveals that in as many as 13 districts there has been a decline in the worker participation rates in 1971 from 1961. However, there has been an increase in the worker participation rates in Kodagu, D.K., Tumkur, Bengalore, Belgaum and Mysore districts from 1961 to 1971.

3. ESTIMATES OF COMPARABLE WORKFORCE BY EMPLOYMENT

CLASSIFICATION : 1961 AND 1971

Changes in the industrial distribution of the workforce are a major indicator of changes in the level of development.

Therefore, in order to understand the influence of changes in the industrial structure (employment) of workforce on changes in the level of development, it is necessary that the workforce be classified similarly by the employment categories for the periods of comparison. But, the classification of workers by employment categories in the two Censuses of India i.e., 1961 and 1971 are found to be dissimilar. Hence, an attempt is made in the present section to derive a set of comparable estimates of the structure (employment) of workforce in the districts of Karnataka for the two bench-mark years, viz., 1960-1961 and 1970-1971.

Although, both the Censuses of India, viz., 1961 and 1971, classified workers in nine broad categories, there is a difference in their classification. The 1961 Census system of industrial classification was based on the Standard Industrial Classification (SIC) of 1960, while the 1971 classification was based on the National Industrial Classification (NIC) of 1970. There are differences between the Standard Industrial Classification of 1960 and the National Industrial Classification of 1970. These differences have to be kept in mind while comparing the economic data of the two Censuses. A comparative Chart of NIC 1970 and SIC 1960 is provided in Appendix Table 3.1. The industrial categories adopted for the 1971

Census, on the basis of NIC 1970 are also indicated in the said Table. In 1971, under Industrial Category V, workers are classified as V(a) if they are workers in manufacturing, processing, servicing or repair establishments, which is not a household industry. Cultivators and Agricultural Labourers are identified separately in the individual slip and therefore, no NIC - 1970 Code was assigned to them.

The classificatory scheme of workers in Industrial Categories at the two Censuses are given in Table 3.3 for easy comparison.

TABLE 3.3 : Industrial Category of 1971 and 1961 Census.

Industrial Category	1971 Census	1961 Census
Cultivators	I	I
Agricultural Labourers	II	II
Livestock, Forestry, Fishing, Hunting, Plantations, Orchards and Allied Activities	III	III
Mining and Quarring	IV	III
Manufacturing, Processing, Servicing and Repairs		
(i) Household Industry	V(a)	IV
(ii) Other than Household Industry	V(b)	V
Construction	VI	VI
Trade and Commerce	VII	VII
Transport, Storage and Communications	VIII	VIII
Other Services	IX	IX
Non-Workers	X	X

Source : Census of India - 1971, Series-14 Mysore, Part 1-A
Vol. II, General Report, pp 814.

At this stage, the difference between the Industrial Categories adopted at the 1961 and 1971 Censuses may be pointed out. At the 1961 Census, Category III included Livestock, Forestry, Fishing, Hunting, Plantations, Orchards and Allied Activities, with Mining and Quarrying; and Household Industry was separately Categorised as Category IV. At the 1971 Census, Mining and Quarrying has been separated as Category IV and Household Industry has been brought under Category V.

Further, there is an important difference between the type of the activities that are included under household industry in the 1961 Census and those included in the 1971 Census. Household industry includes activities under Division 0 Agriculture, Hunting, Forestry and Fishing and Division 1 Mining and Quarrying of the NIC 1970 along with those under Division 2 and 3 Manufacturing and Repair in the 1961 Census. In the 1971 Census the activities falling under Division 0 and 1 are excluded from household industry and the latter, therefore, only covers those falling under Divisions 2 and 3 Manufacturing and Repair.⁹

⁹ Census of India - 1971, Series No. 14, Mysore, Part I-A, Vol. II, General Report.

Thus, it is evident that the industrial classification of workers in 1961 is not the same as that of the 1971 Census. However, Table IV Part C of the 1961 Census provides detailed information on the occupational divisions, which in turn, help suitably to adjust the 1961 figures for all ages without recourse to approximation. In fact, it is a sort of reclassification of workers in the Categories III and IV of 1961 Census suitable to the Categories III, IV and V(a) of workers in the 1971 Census. Such a reclassification of workers in 1961, gives comparable classification of workers between the two Censuses.¹⁰

In 1971, Category III consists of workers in Division 0 Total (Household + Non household), Category IV Consists of Workers in Division 1 Total (Household + Non household) and Category V(a) consists of workers in Divisions 2 and 3 Total (Household and Non household). In 1961, Category III consists of workers in Division 0 Non Household and Division 1 Non Household and Category IV consists of workers in Division 0 Household, plus Division 1 Household, plus Divisions 2 and 3 Total (Household + Non Household). By clubbing the workers in Division 0 Non Household of Category III and the

10 Similar reclassification of workers for Indian States was also made. See, R.H.Dholakia, "Inter-State Variations In Economic Growth in India", An unpublished Ph.D. Thesis submitted to M.S.University, Baroda, April 1977, Chapter 4.

workers in Division 0 household of Category IV of the 1961 Census data, the researcher obtained the workers in Category III of 1971 in 1961. By adding workers in Division 1 Non Household of Category III with workers in Division 1 Household of Category IV of 1961, the workers in the Category IV of 1971 in 1961 are obtained. The residual of workers in Divisions 2 and 3 Total of Category IV of 1961 forms workers in Category V(a) of 1971 in 1961. The details of workers, in Divisions 0, 1 and 2 & 3 Household and Non Household, are given in Table B-IV part C of the 1961 Census. The workers in the nine Industrial Categories of 1971 Census and the workers reclassified in nine Industrial Categories (as per the 1971 classification) for 1961 are given in Appendix Table 3.2 and Appendix Table 3.3, respectively.

Now, the task is to calssify the workers into three broad sectors, viz., the Primary Sector which includes agriculture and allied activities, forestry and fishing, the Secondary Sector, that includes mining and quarrying, large-scale and small-scale manufacturing, construction and the Tertiary Sector which comprises electricity, gas and water supply, trade and transport, banking and insurance, public administration and other services. It is easy to distinguish clearly these three sectors from one another

in the 1971 Census classificatory system of workers. The aggregation of I, II and III Industrial Categories of the 1971 Census corresponds to the concept of Primary Sector ; and the aggregation of the Industrial Categories IV, V, VI of the 1971 Census clearly define the Secondary Sector ; and the aggregation of the Industrial Categories VII, VIII and IX as given in the 1971 Census forms the Tertiary Sector for our purpose . Table 3.4 presents the Industrial Structure of the workingforce in these three broad sectors in 1970-71.

From the table, it is very clear that only in Bangalore and D.K. the share of the Primary Sector in the Total employment is less than 60 %. But in all other districts, the share of the Primary Sector in the total employment is above 70 % in 1970-71 ; and in the districts like Hassan, Tumkur and Mandya it is more than 80 %. On the other hand, the share of the Secondary Sector in the total employment does not exceed 12 % in any of the districts, except in Bangalore, D.K. and Bijapur where it does in 1970-71. In fact, it is found that in Kodagu, Chikmagalur, Hassan, Tumkur, Mandya, Kolar, Raichur and Bidar, the share of the Secondary Sector in the total employment is less than 10 % in 1970-71. The share of the Tertiary Sector in the total employment is less than 20 % in all the districts except Bangalore.

TABLE 3.4 : Workers In Three Broad Industrial Group, Karnataka : 1971.

Sr. Districts No.	(in numbers)				
	Workers in			Tertiary Sector (in %)	Total Workers
	Primary Sector (in %)	Secondary Sector (in %)	Tertiary Sector (in %)		
1 Kodagu	110341 (72.19)	12911 (8.45)	29586 (19.36)	152838	
2 Shimoga	308026 (73.93)	47046 (11.29)	61591 (14.78)	416663	
3 Uttara Kannada	197494 (69.07)	33759 (11.81)	54686 (19.12)	285939	
4 Chikmagalur	192996 (75.70)	19037 (7.48)	42888 (16.82)	254921	
5 Dakshina Kannada	440693 (58.86)	168496 (22.50)	139555 (18.64)	748744	
6 Bellary	316395 (74.19)	46804 (10.98)	63263 (14.83)	426462	
7 Hassan	281449 (80.42)	25374 (7.25)	43153 (12.33)	349976	
8 Tumkur	451154 (81.48)	42768 (7.72)	59801 (10.80)	553723	
9 Chitradurga	399052 (76.83)	54843 (10.56)	65484 (12.61)	519379	
10 Belgaum	645960 (75.13)	101608 (11.82)	112215 (13.05)	859783	
11 Mysore	495116 (70.91)	78599 (11.26)	124499 (17.83)	698214	
12 Mandya	310358 (82.58)	23507 (6.25)	41980 (11.17)	375845	
13 Dharwad	586518 (70.54)	93411 (11.23)	151549 (18.23)	831478	
14 Bangalore	454644 (42.78)	261739 (24.62)	346374 (32.60)	1062757	
15 Kolar	422460 (79.80)	47025 (8.88)	59947 (11.32)	529432	
16 Raichur	417086 (79.14)	40589 (7.70)	69326 (13.16)	527001	
17 Gulbarga	447980 (73.71)	65575 (10.79)	94207 (15.50)	607762	
18 Bijapur	530107 (75.08)	86784 (12.29)	89208 (12.63)	706099	
19 Bidar	202407 (74.39)	22639 (8.32)	47052 (17.29)	272098	
Karnataka State	7210236 (70.83)	1272514 (12.50)	1696364 (16.67)	10179114	

Source : Computed from Appendix Table 3.2 .

Now, the problem which remains to be solved is that of estimation of the industrial structure of the 1961 total adjusted workers (our estimates). The bringing together of workers in to three broad sectors directly from the 1961 Census data prevents the comparison between the industrial structure of workforce into three sectors, in 1961 and that in 1971 for the obvious reason of differences in the concepts used. Hence, there is a need to adjust the workers in the nine categories for the year 1961 based on the concept of the 1971 Census. For the actual 1961 Census economic data, the ratio of workers to total workers for each of the nine categories of workers is, first, worked out. Then the calculated ratios are applied to the total adjusted workers (estimates) of 1961 to obtain the worker figures in each of the nine categories for the year 1961. The worker figures, so derived, in different employment categories are made comparable to those of 1971. This type of adjustment assumes that the degree of underestimation which is worked out for all the workers in each district is spread uniformly in all the categories of workers. The adjusted workers in the nine industrial categories (comparable to industrial classification of 1971) for 1961 are given in Appendix Table 3.4. From the data given in Appendix Table 3.4, it is easy to derive the three sectoral

classification of Adjusted Workers for the year 1961 as was done for the year 1971. The Adjusted Workers in the three broad sectors for 1961, which are made comparable to 1971, are given in Table 3.5.

It is clear from the table that in all the districts except Bangalore, the share of the Primary Sector in the total employment is above 70 % (while in Hassan, Tumkur, Mandya and Kolar it is above 80 %). On the other hand, the share of the Secondary Sector in the total employment does not exceed 20 % in any of the districts in Karnataka in 1961; and is less than 10 % in Kodagu, Chickmagalur, Bellary, Hassan, Tumkur, Mysore, Mandya, Kolar, Raichur, Gulbarga and Bidar. The share of the Tertiary Sector in the total employment does not exceed 20 % in any of the districts, with the exception in Bangalore where it does. It is below 10 % in Hassan, Tumkur, Mandya and Bijapur districts.

It can be observed , from the data given in the two tables, viz., Table 3.4 and 3.5, that in as many as fifteen districts the share of the Primary Sector in the total employment has fallen between 1961 and 1971, whereas, in four districts, viz., Shimoga, U. K., Bellary and Raichur, it has moved up. The share of the Secondary Sector in the total employment has improved from 1961 to 1971 in all the districts, except Shimoga, U.K., Chikmagalur, Dharwad and

TABLE 3.5 : Adjusted Workers In Three Broad Industrial Group, Karnataka : 1961.

Sr. Districts No.	(in numbers)				Total Workers
	Workers in			Tertiary Sector (in %)	
	Primary Sector (in %)	Secondary Sector (in %)	Tertiary Sector (in %)		
1 Kodagu	995122 (74.21)	10101 (7.88)	22957 (17.91)	128180	
2 Shimoga	223376 (64.95)	66892 (19.45)	53651 (15.60)	343919	
3 Uttar Kannada	163593 (68.88)	32890 (13.85)	40987 (17.27)	237470	
4 Chikmagalur	168238 (78.36)	18505 (8.62)	27928 (13.02)	214671	
5 Dakshina Kannada	408059 (68.74)	90588 (15.26)	94980 (16.00)	593627	
6 Bellary	260583 (73.42)	35243 (9.94)	59094 (16.64)	354920	
7 Hassan	247472 (86.19)	15334 (5.34)	24351 (8.47)	287157	
8 Tumkur	397370 (85.50)	29977 (6.45)	37413 (8.05)	464760	
9 Chitradurga	324774 (79.06)	42687 (10.38)	43384 (10.56)	410845	
10 Belgaum	552846 (78.96)	72247 (10.33)	74979 (10.71)	700072	
11 Mysore	419598 (75.17)	53084 (9.51)	85517 (15.32)	558199	
12 Mandya	255608 (86.09)	18349 (6.18)	22950 (7.73)	296907	
13 Dharwad	513576 (74.08)	80072 (11.55)	99623 (14.37)	693271	
14 Bangalore	414054 (53.74)	151293 (19.64)	204987 (26.62)	770334	
15 Kolar	372235 (82.26)	34070 (7.54)	46150 (10.20)	452455	
16 Raichur	329380 (78.48)	31565 (7.52)	58808 (14.00)	419753	
17 Gulbarga	373679 (74.96)	48156 (9.66)	76670 (15.38)	498505	
18 Bijapur	467516 (77.77)	75926 (12.64)	57710 (9.59)	601152	
19 Bidar	174584 (78.18)	15049 (6.75)	33649 (15.07)	223282	
Karnataka State	6161663 (74.69)	922028 (11.18)	1165788 (14.13)	8249479	

Source : Computed from Appendix Table 3.4 .

Bijapur. Though the share of the Tertiary Sector in the Total employment has improved in almost all the districts, the fall is observed in Shimoga, Bellary and Raichur between 1961 and 1971. Thus, despite the changes in the structure of labour force between the two Censuses, it is interesting to observe that more than 71 % of the labour force is employed in the Primary Sector and only 12 % and 17 % are employed in the Secondary and the Tertiary Sectors, respectively, in Karnataka State for the Year 1971. The findings suggest that, the growing population is still absorbed in the Primary Sector which in turn puts further pressure on land. If this tendency is allowed to continue, it may, perhaps, prove to be a major retarding factor in the growth and development of the district economies.

4. GROWTH OF WORKFORCE

The average decadal growth rates of workforce by broad sectors in Karnataka between the years 1961 and 1971 are worked out and given in Table 3.6. From the table it can be observed that the overall growth of workforce ranges from 17.01 % in Kolar to 61 % in Mysore. The decadal growth of workforce is found to be above 20 % in as many as 13 districts.

The growth of workers, in the Primary Sector, varies

TABLE 3.6 : Growth of Workers In Three Broad Sectors,
Karnataka (Average Decadal Growth):1961-1971.

Sr. No.	Districts	Growth of Workforce In			Growth of Total Workforce
		Primary Sector	Secondary Sector	Tertiary Sector	
1	Kodagu	15.99	27.82	28.88	19.24
2	Shimoga	37.90	-29.67	14.80	21.15
3	Uttar Kannada	20.72	2.64	33.42	20.41
4	Chikmagalur	14.71	2.87	53.57	18.75
5	Dakshina Kannada	8.00	86.00	46.93	26.13
6	Bellary	21.42	32.80	7.05	20.16
7	Hassan	13.73	65.46	77.21	21.88
8	Tumkur	13.53	42.66	59.84	19.14
9	Chitradurga	22.87	28.48	50.94	26.42
10	Belgaum	16.84	40.64	49.66	22.81
11	Mysore	18.00	48.06	45.58	60.91
12	Mandya	21.42	28.11	82.91	26.59
13	Dharwad	14.20	16.66	52.12	19.94
14	Bangalore	9.80	73.00	68.97	37.96
15	Kolar	13.49	38.02	29.90	17.01
16	Raichur	26.63	28.59	17.89	25.55
17	Gulbarga	19.88	36.17	22.87	21.92
18	Bijapur	13.39	14.30	54.58	17.46
19	Bidar	15.94	50.43	39.83	21.86
Karnataka		17.01	38.01	45.51	23.39

Source : Computed from (i) Table 3.4 and
(ii) Table 3.5 .

from 8 % in D. K. to 38 % in Shimoga between 1961 and 1971. It is also observed that the growth of workforce in the Primary Sector is higher than that of the total workforce in Shimoga, Uttar Kannada, Bellary and Raichur during the decade. Apart from these districts, in two more districts, i.e., Chitradurga and Mandya, the growth of workforce in the Primary Sector exceeds 20 %.

The increase in the workforce in the Secondary Sector varies from 2.64 % in U. K. to 86 % in D. K. between 1961 and 1971. It is interesting to observe that the workforce in the Secondary Sector grew by more than double the rate of that of the total workforce in D.K., Hassan, Tumkur, Bangalore, Kolar and Bidar.

The growth of workforce in the Tertiary Sector varies from 7 % in Bellary to 69 % in Bangalore. The workforce in the Tertiary Sector grew by more than 40 % in eleven districts. However, the growth of workforce in the Tertiary Sector is found to be below the rate of growth of total workforce in Shimoga, Bellary, Mysore and Raichur districts.

5. CONCLUSION

i) The concepts and definitions of workforce have undergone changes between the two Censuses of India i.e.,

1961 and 1971. Therefore the economic data of the 1961 Census and 1971 Census are not strictly comparable. In the present work, the workers are estimated on comparable basis by adjusting the 1961 Census data suitably to the 1971 Census dimensions.

ii) However, the classifications of workers by employment categories in the two Censuses of India i.e., 1961 and 1971 are also found to be dissimilar. With the help of the details on workers, provided in Table B-IV Part C of the 1961 Census, the workers in 1961 are reclassified suitably to the 1971 Census classification of workers. Then, by applying the ratios of nine categories of reclassified workers of the 1961 Census to the total Adjusted workers (estimates) of 1961, the workers in each of the nine categories for the year 1961, which are now made comparable to that of the workers classification found in 1971, are obtained.

iii) Despite the changes in the structure of labour force between the two Censuses of India, it is observed that more than 71 % of the total workforce is employed in the Primary Sector and only 12 % and 17 % are employed in the Secondary and Tertiary Sectors, respectively, in Karnataka State for the year 1971. The results indicate that the increased population between 1961 and 1971 is largely absorbed in the Primary Sector.

APPENDIX TABLE 3.1 : National Industrial Classification (NIC) of 1970 And Standard Industrial Classification (SIC) of 1960.

NIC of 1970 - Adopted by 1971 Census			SIC of 1960 - Adopted by 1961 Census	
Division	Description	Industrial Classification of 1971 Census	Division	Description
0	Agriculture, Hunting, Forestry and Fishing	III	0 & 8 (Partly)	Agriculture, Livestock, Forestry, Fishing & Hunting
1	Mining and Quarrying	IV	1	Mining and Quarrying
2&3	Manufacturing & Repair	V	2 & 3	Manufacturing
4	Electricity, Gas & Water	IX	5 Part	Electricity, Gas, Water & Sanitary Services
5	Construction	VI	4	Construction
6	Wholesale and Retail Trade, Restaurant and Hotels	VII	6 & 8 (Partly)	Trade & Commerce
7	Transport, Storage and Communication	VIII	7	Transport, Storage & Communication
8	Financing, Insurance, Real Estate & Business Services	VII	6 & 8 (Partly)	Services
9	Communities, Social and Personal Services	IX	5 & 8	Other Services
1X	Activities not adequately defined		9	Activities not adequately defined

Source : Census of India - 1971, Series No. 14, Mysore, Part I-A, Vol. II, General Report, Statement No. 10.2 .

APPENDIX TABLE 3.2 : The Worker Figures In The Nine Industrial Category, Karnataka : 1971 (Census).

Sr. Districts No.	Total Workers									
	I	II	III	IV	V(a)	V(b)	VI	VII	VIII	IX
	Culti- vators	Agri- cult- ural Labour	Live- stock, Fish- ing, Fore- stry & Logging	Min- ing & Quarry	House Hold	Non House Hold	Con- struc- tion	Trade and Com- merce	Trans- port Stora- ge & Commu- nica- tion	Other Services
1 Kodagu	152838	35996	44292	539	2484	4925	4963	8689	2824	18073
2 Shimoga	416663	160788	14719	590	11720	25574	9162	25346	10031	26214
3 U. K.	285939	107105	40394	4795	7678	16247	5039	16497	10746	27443
4 Chikmagalur	254921	96628	48536	1515	4866	7867	4789	11906	4796	26186
5 D. K.	748744	219945	35157	2104	86506	66383	13503	56562	20727	62266
6 Bellary	426462	138999	6208	9787	13432	16654	6931	20679	13110	29474
7 Hassan	349976	216496	24404	760	7141	8925	8542	13826	6646	22681
8 Tumkur	553723	320832	20332	1520	21172	13317	6759	22133	7760	29908
9 Chitradurga	519379	223162	19362	1300	17703	26519	9321	26050	9327	30107
10 Belgaum	859783	403814	19334	854	45227	41235	14292	42182	14652	55381
11 Mysore	698214	336566	17412	1260	20631	37433	19275	39151	19887	65461
12 Mandya	375845	223143	5491	489	8637	11078	3303	13930	4570	23480
13 Dharwad	831478	249756	16575	2156	39639	39559	12057	60968	29618	60963
14 Bangalore	1062757	312926	20730	759	31390	199814	29776	111329	69041	166004
15 Kolar	529432	289899	20007	13490	9881	18080	5574	24035	7801	28111
16 Raichur	527001	208235	15115	3363	17905	12396	6925	24179	9894	35253
17 Gulbarga	607762	207589	18284	3698	26547	24653	10677	30867	12700	50640
18 Bijapur	706099	231309	23291	2072	54914	21891	7907	35229	13055	40924
19 Bidar	272098	89691	10177	837	11082	77359	3361	15024	5735	26293
Karnataka	10179114	4072879	419820	51888	438555	599909	182162	598582	272920	824862

Source : Census of India 1971, Series No. 14 Mysore, Part I-A, Vol. II, General Report, Statement No. 10.15.

APPENDIX TABLE 3.3 : The Reclassified (As Per The 1971 Census Classification of Workers) Worker Figures In Nine Industrial Category, Karnataka : 1961 (Census).

Sr. No.	Districts	Total Workers									IX	
		I	II	III	IV	V(a)	V(b)	VI	VII	VIII		
		Cultivators	Agricultural Labour	Live-stock, Fishing, Forestry & Logging	Min- ing & Quarry	House Hold	Non House Hold	Construction	Trade and Commerce	Transport Storage & Communication	Other Services	
1	Kodagu	151506	48433	19115	44890	293	2676	4893	4076	5088	14216	20616
2	Shimoga	450225	225258	51979	15173	3744	12188	24500	47145	15290	4502	50446
3	U. K.	310092	143713	32763	37113	8430	13489	13289	7735	12088	4529	36943
4	Chikmagalur	284597	142159	28697	52152	1031	6767	6992	9747	7542	2250	27260
5	Dakshina Kannada	730851	343147	130607	18627	453	47951	55507	7591	33024	11719	72225
6	Belliary	422350	209617	94727	5731	3567	17867	10597	9933	15548	4812	49951
7	Hassan	423738	313373	23575	28255	202	11155	7561	3724	8230	2239	25424
8	Tumkur	686515	487472	61482	38040	2163	26814	9470	5792	15088	2384	37810
9	Chitradurga	557592	337014	79707	24100	1439	28763	16274	11414	17851	3100	37930
10	Belgaum	860638	519238	143770	16588	1864	53477	26935	6587	29287	6667	56225
11	Mysore	723891	404752	94828	44587	310	29198	28775	10591	27956	8527	74367
12	Mandya	426695	311645	46219	9469	81	12065	9492	4723	7666	1470	23865
13	Dharwad	824466	369174	230285	11283	1128	54189	29508	10410	39302	13005	66182
14	Bangalore	993118	438079	63230	32442	517	36804	131975	25767	64501	21996	1778077
15	Kolar	608040	426584	51946	21684	17452	13650	9868	4860	18142	3743	40111
16	Raichur	512061	287420	105088	9334	2335	24524	5293	6342	15448	3480	52797
17	Gulbarga	662166	301601	175065	19668	2830	42519	14116	4520	21835	4417	75595
18	Bijapur	787945	371854	223047	17885	508	76420	15551	7113	25607	4401	4559
19	Bidar	309860	126131	104980	11151	35	17716	1284	1868	11527	1651	33517
Karnataka		10726346	5806664	1761110	468172	48382	528232	421880	189938	391020	106318	1004630

Source : Computed from (i) Census of India-1961, Volume XI, Mysore, Part II-B(i), General Economic Tables, Table - B-I.

(ii) Census of India-1961, Volume XI, Mysore, Part II-B(i), General Economic Tables, Table - B-IV, Part C.

APPENDIX TABLE 3.4 : The Adjusted Worker Figures In The Nine Industrial Category (Comparable to Industrial Classification of 1971 Census), Karnataka : 1961 .

Sr. No.	Districts	Total Workers	Culti- vators	Agri- cultural Labour	Live- Stock, Fish- ings, Fore- stry & Logging	III	IV	V(a)	V(b)	VI	VII	VIII	IX
							Min- ing & Quarry	House Hold	Non House Hold	Con- struction	Trade and Com- merce	Trans- port Stora- ge & Commu- nica- tion	Other Services
1	Kodagu	128180	40979	16176	37967	244	2269	4140	3448	4307	1205	17445	
2	Shimoga	343919	172063	39723	11590	2855	9320	18709	36008	11693	3439	38519	
3	U. K.	237470	110067	25101	28425	6460	10330	10187	5913	9261	3467	28259	
4	Chikmagalur	214671	107228	21682	39328	773	5109	5281	7342	5689	1696	20543	
5	D. K.	593627	278708	106081	23270	356	38942	45116	6174	26832	9498	58650	
6	Bellary	354920	176147	79609	4827	2981	15013	8908	8341	13061	4046	41987	
7	Hassan	287157	212353	15966	19153	144	7552	5111	2527	5600	1522	17229	
8	Tumkur	464760	329980	41642	25748	1487	18172	66414	3904	10225	1627	125561	
9	Chitradurga	410845	248315	58710	17749	1068	21200	11997	8422	13147	2301	27936	
10	Belgaum	700072	422353	116982	13511	1540	43474	21912	5321	23802	5391	45786	
11	Mysore	558199	312089	73124	34385	223	22495	22216	8150	21546	6587	57384	
12	Mandya	296907	216861	32155	6592	59	8402	6592	3296	5344	1009	16597	
13	Dharwad	693271	310447	193631	9498	970	45548	24819	8735	33069	10954	55600	
14	Bangalore	770334	339794	49070	25190	385	28502	102454	19952	50072	17024	137891	
15	Kolar	452455	317442	38640	16153	12985	10135	7330	3620	13483	2805	29862	
16	Raichur	419753	235607	86133	7640	1931	20106	4323	5205	12677	2854	43277	
17	Gulbarga	498505	227068	131805	14806	2144	32004	10618	3390	16450	3340	56880	
18	Bijapur	601152	283684	170186	13646	361	58312	11842	5410	19537	3366	34807	
19	Bidar	223282	90898	75648	8038	22	12772	915	1340	8306	1183	24160	
Karnataka		8249479	4432083	1372064	357516	36988	409657	328885	146498	304101	83314	778373	

Source : Computed from : i) Table 3.2 and ii) Appendix Table 3.3 .