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AN ANALYSIS OF PERSONAL INCOME DISTRIBUTION IN RURAL AREAS

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The objectives of this paper are three-fold.

(1) An empirical study of the pattern of distribution of income in the rural sector;

(2) Measurement of inequalities or concentration of income; and

(3) An analysis of the factors associated with concentration.

I

The pattern of distribution of personal incomes is normally represented by frequency distribution of income units and the total incomes received by these units, classified according to pre-determined levels of income. It provides a simple and complete basis for the interpretation of income data.

Sometimes the distribution is expressed in terms of deciles and quartiles, as is done in the Rural Credit Survey Report. This method has the disadvantage, in that total income and size of personal incomes vary between different areas, making it impossible for us to effect inter-regional comparisons.

Yet another method of classification is based on sociological or economic norms. 'Poverty line' defined by Booth[1] in classifying 'poor' and 'very poor' below a certain minimum income level and similar techniques employed in the Resurvey of Poona, come under this category.

Of the three methods given above, the frequency distribution method has been used in the present analysis. To facilitate inter-village comparisons, frequencies and incomes are expressed in terms of percentages.

In India extensive data on incomes in rural areas are not available. Limitations of rural income data as compared with urban statistics are numerous. The present study is based on information available for nine South Indian villages, surveyed by the Agricultural Economics Research Centre of Madras University. Two villages each from Mysore, Andhra and Kerala and three from Madras State have been chosen. In order to obtain villages with differing characteristics, such as climate, rainfall, irrigational facilities, cropping pattern, nearness to towns, etc., the selection of villages has been purposive. This will provide scope not only for an investigation of inter-village variations but also for a cross-sectional analysis of any possible association between some of these factors and the distribution of income.

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1. Charles Booth : Life and Labour of People in London.

Data based on survey method are subject to response errors and imperfections. Under-estimation, particularly in higher income levels, is unavoidable. Nevertheless, suitable cross-checks in the form of expenditure and investment pattern were used so as to get reliable estimates of the incomes.

In this paper, 'income units' refer to households and 'income' to net income of the household. It is assumed that all the members staying in the household pool their income from all sources. Besides income from occupations and dairy enterprises, rent received from lands leased out, interest on loans and remittances received, if any, constitute the total income of the household.

Percentage distribution of households and incomes received by them in each class-interval is given in Appendix I. The table reveals that (*a*) general poverty seems to prevail in most of the villages. The proportion of households receiving more than Rs. 3,000 per annum (*i.e.*, those with taxable income) is negligible except in the two canal irrigated villages and one urban-oriented village (Kumudavalli, Madigai and Aradeshahalli).

(*b*) Percentage of households with an annual income below Rs. 250, which can be called the destitute level, is significant. In dry villages this ratio varies from one-fourteenth to one-fifth of the total number of households.

(*c*) The percentage distribution though fails to convey concisely the extent of inequality in incomes, nevertheless, gives a rough idea of the same. For instance, 9.8 per cent of the households in Kumudavalli Village belonging to the destitute level are recipients of only 1.8 per cent of the aggregate income of the village. The pattern of the income distribution and its inequality can be observed by a comparison of mean, median and mode (Table I).

TABLE I—AVERAGE INCOME PER HOUSEHOLD

Village	Mean	Median	Mode
Kumudavalli	1073	544	429
Madigai	1039	696	500
Aradeshahalli	1155	735	625
Chembedu	603	447	377
Pallipuram	779	596	449
Deshwara	723	554	450
Keezchery	523	426	385
Sengipatti	588	480	419
Rajagambiram	63[illegible]	535	436

Each of the three measures of central tendencies tabulated in Table I, indicates a specific type of average income. Arithmetic mean, the most commonly used measure indicates the general position for all households. The median states the middle value of the distribution and remains unaffected by extreme values. The third of the measures, *viz.*, mode, is that level of income where the frequency of households is maximum.

Median income is greater than the modal value and arithmetic mean is much greater than both the mode and the median in each village. The wide differences in the three types of averages confirm the fact that the shape of the distribution is very much skewed.

II

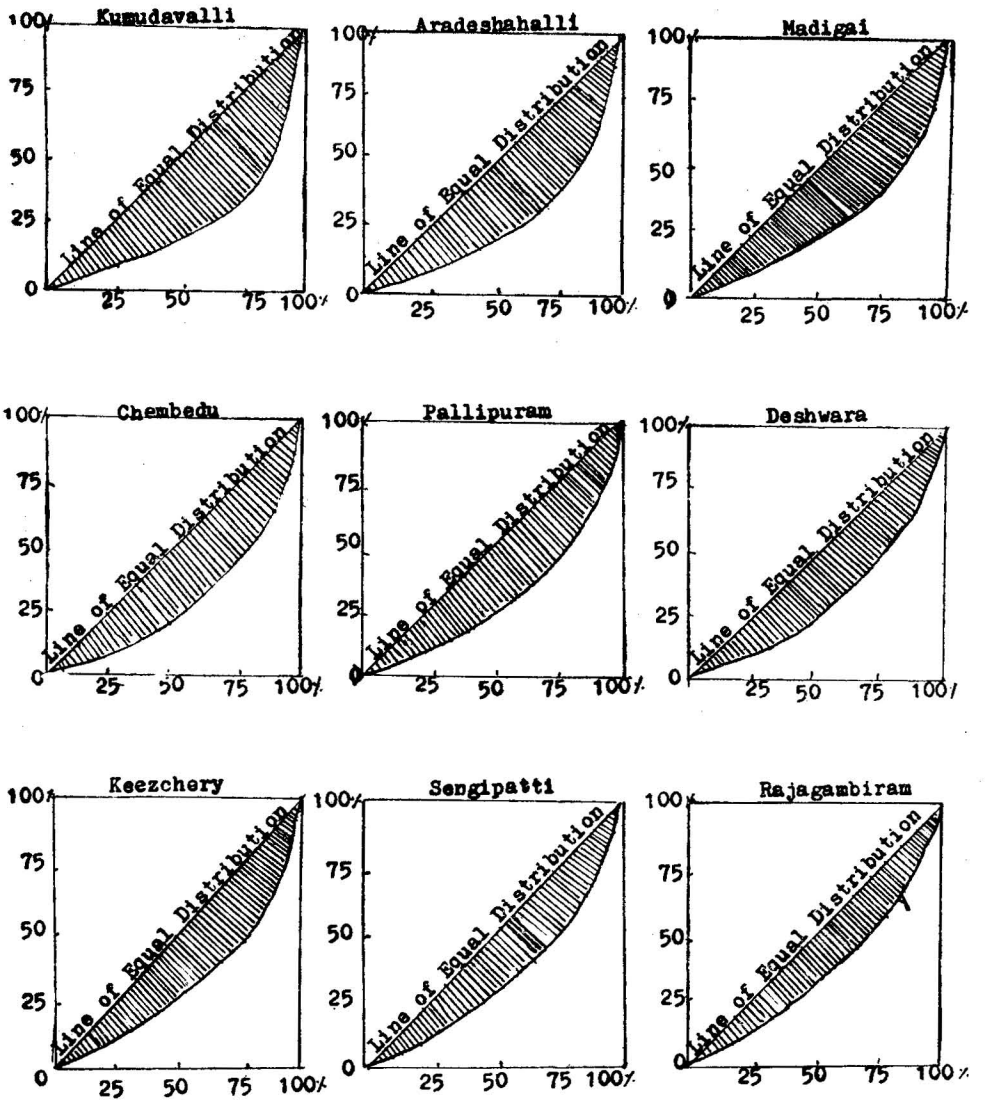
Alternative techniques are available for measuring inequalities in incomes. Theoretical study of income distribution and inequalities was originally initiated by Pareto followed by the contributions of Gini and Lorenz. Recent works of Gibrat, Aitchinson and Brown in the field are worth noting.

Pareto's assumption of logistic fit to income data was developed mainly as a description of the high income tail of skew distributions and as such, proved inadequate for the entire range. Theoretically, Pareto's curve drawn on double logarithmic paper approximates a straight line, the slope 1 ($\propto$) of which is an index of inequality. Critics of Pareto curve, notably Dr. Yntema and Gini, have proved that better and more sensitive techniques exist to measure income inequality or concentration.

Gini's curve, which takes into account aggregate incomes received as against size of individual incomes adopted by Pareto, when plotted on double-logarithmic graph also approximates a straight line. The slope of this curve (δ) provides another measure of concentration of incomes. Gini's contribution to the measurement of concentration includes a simple device known as the 'concentration ratio.' The concept of his 'concentration ratio' algebraically given by the ratio of mean difference to twice the arithmetic mean is "simple and logical." This measure has the advantage over the indices '$\propto$' and 'δ' in that "it is independent of any mathematical formula to which the data must present a reasonably good fit. As Lydall points out, the distribution of income does not conform exactly to any simple mathematical function. The concentration ratio overcomes this difficulty and gives a single measure of inequality in incomes. Geometrically, the ratio is illustrated by Lorenz curve (*vide* chart p. 190). This curve is obtained by plotting cumulative percentages of incomes received against the cumulative percentages of households. The greater its concavity, the greater the inequality in incomes. Gini's concentration ratio is equal to the ratio of the area circumscribed by the Lorenz curve and the diagonal line of equal distribution (shaded area in the chart) to the total area of the triangle below the diagonal.

Gibrat's distribution, based on law of proportional effects and expressed as a complex mathematical function has not been popularly accepted. Besides, the calculation of concentration is involved and burdensome. Lastly, the lognormal curve, suggested by Aitchinson and Brown has not yet been used by many. "Despite the existence of a number of plausible hypotheses to explain why the distributio

DISTRIBUTION AND CONCENTRATION OF PERSONAL INCOMES IN NINE SOUTH INDIAN VILLAGES



of income should be lognormal in character, none of them is entirely convincing," says Lydall.

With these theoretical considerations, we may review briefly the investigations that have been done in the field of rural incomes. Family incomes in eighteen Bengal villages have been analysed by R. K. Mukherjee and M. M. Mukherjee. The results are presented in 'A Note on the Concentration of Income in Bengal Villages.' (*Sankhya*, 7, p. 442). Lorenz curves are drawn to illustrate the income distributions. By fitting Pareto curve, its slope 'α' and Gini's coefficient 'δ' are

calculated. Concentration ratios worked out for the two localities under study are 0.50 and 0.43. No attempt has been made to test the goodness of fit of Pareto curve. The conclusions drawn are only tentative since the samples are not large enough. A few other studies[2] pertaining to Indian incomes are concerned mainly with fitting of Pareto's curve. They prove the well-known fact that Pareto's curve represents a good fit for the high income tail of the distribution. Lack of complete data detracts from the usefulness of such studies.

In the present analysis, an attempt was made to fit Pareto's curve to the income data but it had to be abandoned as an unsuitable method for measuring inequality, since the fit was not satisfactory, obviously due to the predominance of low income households below the modal class.

Gini's concentration ratio which summarises the unequal income distribution has been calculated for each village. This method is particularly suited to study variations in the inequality of incomes without making it imperative that all villages follow the same mathematical distribution pattern. Table II presents the results.

TABLE II—CONCENTRATION RATIOS AND PER CAPITA INCOME

Village	Concentration Ratio	Per Capita Income
Kumudavalli	.5401	233
Madigai	.4238	227
Aradeshahalli	.4419	198
Chembedu	.3919	121
Pallipuram	.3815	141
Deshwara	.3470	138
Keezchery	.3360	96
Sengipatti	.3181	139
Rajagambiram	.3175	140

Concentration is high in deltaic villages and urban oriented villages. It is comparatively low in dry villages. This suggests a possible hypothesis that there is association between level of development and degree of inequality in incomes. The coefficient of correlation is positive and significant at 5 per cent probability level.

III

Evidence based on studies[3] tracing the relationship between concentration of income and level of development for countries is not conclusive. Unless there are redeeming measures the tendency is towards concentration of wealth and in-

2. "Application of the Pareto Formula to the Distribution of Personal Income in India," by A. C. Bose and S. S. Roy, *Indian Economic Review*, 1956-57, Vol. 3; and "A Note on Trend of Concentration Ratio," by M. M. Mukherjee *Indian Journal of Economics*, Vol. 28, 1947-48.

3. "Distribution of Incomes in Ceylon, Puerto Rico, U. S. and the U. K.," Teodore Morgan, *Economic Journal*, Vol. 63.

come as economic activity increases. Under-developed countries such as Ceylon and Puerto Rico are seen to have higher income inequalities than U.K. or U.S. But as compared with U.S.A., U.K. shows a less uneven distribution. Per capita income is generally considered as an index of degree of development of a country. Using the same criterion at the village level, it is seen that two out of the three villages which show high per capita income are situated in the canal irrigated areas; one has strong urban orientation. In these villages, the concentration ratio of incomes is high. It is tempting to conclude that inequalities grow with riches. But our data are limited to a few villages and it is not possible to generalise with so small a sample. However, the precise relationship between riches and inequalities needs to be traced.

One of the primary causes of inequalities of income is the distribution of wealth and in rural areas the distribution of land ownership in particular. To investigate the association between landholdings and inequality of income, the concentration ratios of land distribution are calculated. Table III presents the result.

TABLE III—CONCENTRATION OF LAND AND INCOME

Village	Concentration Ratios	
	Land Ownership	Income
Kumudavalli	.8979	.5401
Madigai	.7254	.4238
Aradeshahalli	.8834	.4419
Chembedu	.7031	.3919
Pallipuram	.9043	.3815
Deshwara	.7402	.3470
Keezchery	.5673	.3360
Sengipatti	.6893	.3181
Rajagambiram	.7167	.3175

The two sets of concentration ratios are positively correlated. But the reason for richer villages showing a greater inequality in the distribution of landholdings than poorer villages cannot be established precisely with the available data.

However, from a study of the selected villages we find two possible factors which might have influenced the distribution pattern of income. With the advent of Government investment in the form of irrigation projects in the two canal irrigated villages, two structural changes in the economy might have possibly taken place. Firstly, the benefits derived from this investment are not uniformly distributed. Logically, the distribution of additional income is proportional to the ownership of land. This results in the distortion of income distribution. Secondly, with the irrigation projects, land attains greater marketability and transfers are on a wider scale. It is probable that such transfers are from the poor to the rich, the

consequence of which is greater concentration of wealth in the village due to the increase in the proportion of landless households. This, in turn, gives rise to more inequality in income distribution.

There is yet another important cause for unequal land and income distribution. With abundant irrigational facilities the demand for agricultural labour increases; emigration of landless agricultural labourers into the village not only changes the distribution pattern of land ownership but also increases the disparity in the personal incomes for the village as a whole. The percentage of landless households with agricultural labour as the main occupation is higher in the canal irrigated villages than in the dry villages.

Thus, it may perhaps be inferred that the pattern of land distribution, emigration of landless labour and unequal distribution of additional benefits resulting from Government investment in the 'rich' villages contribute significantly to concentration of incomes.

IV

It is of vital importance to determine not merely the degree of inequality or concentration but the particular character of the disparities in incomes. While it is neither practicable nor desirable to attain a dead level of uniformity in incomes, a general minimum standard of living and a greater measure of social justice may be worth striving for.

A brief analysis of the rural destitutes has been attempted here. Households having an annual income of less than Rs. 250 are considered to be destitutes. Table IV shows some significant features of such households.

TABLE IV—PERCENTAGE DISTRIBUTION OF HEADS OF DESTITUTE HOUSEHOLDS

Village	Percentage of female heads	Percentage of male heads	Percentage of heads over 55 yrs.	Percentage of disabled population among destitutes
Kumudavalli	35.7	64.3	28.6	23.1
Madigai	57.1	42.9	21.4	28.0
Aradeshahalli	—	100.0	50.0	50.0
Chembedu	22.4	77.6	26.5	14.6
Pallipuram	81.8	18.2	24.2	11.1
Deshwara	54.5	45.5	36.4	33.3
Keezchery	50.0	50.0	35.1	11.0
Sengipatti	58.9	41.1	26.8	14.8
Rajagambiram	60.9	39.1	41.3	34.0

As seen from Table IV, the majority of the destitute households in most of the villages are headed by women. With the exception of village Aradeshahalli, where only two households are found in this group, the percentage of female heads of househods among the destitutes ranged from 22.4 to 81.8. In almost all such households, widowhood is the cause for it. In a few instances, desertion or disabled husbands necessitate the wives to shoulder the burden of the household. Thus the absence of male workers in the family is one of the chief causes of destitution. The proper channelisation of welfare aids in the direction towards providing social security to these helpless widows calls for policy measures.

Another major problem of destitude households is old age. Of the total, the percentage of heads of age 55 years and over is significant. The proportion ranges from one-fifth to one-half of the total number of destitute households.

Except in three villages, caste and low income are not correlated. Harijans and persons belonging to socially backward communities are not necessarily associated with destitution in most of the villages. Besides the above mentioned problems, disability is fairly common among the members of a destitue household. Sickness is the main cause and in a few cases physical deformity prevents adult male members from being economically independent. The proportion of disabled persons to total destitue population has been tabulated in the last column of Table IV.

The above analysis throws light on some of the chief causes of destitution in rural areas. When widowhood, old age and sickness are the main difficulties, land grants or employment opportunities may not provide the proper solution. Social welfare schemes in the form of social security, old age pension and health insurance and free medical aid may help these destitute households in maintaining a minimum level of living. This calls for proper policy formulation.

V

Summarising, the pattern of income distribution varies from village to village. Concentration of incomes is generally high in rich villages. Inequalities in income are associated with unequal distribution of land holdings. Provision of social welfare and social security to rural destitutes calls for policy measures. The study of distribution pattern and concentration of rural incomes has further policy implications in that (i) heavy reliance is placed on taxation for raising additional resources for the Third Plan and to assess the tax potential of rural areas, estimation of size distribution of incomes is essential. (ii) A study of existing conditions is necessary for formulating, implementing and evaluating any developmental plans towards a reduction of inequalities in income and wealth, a more even distribution of economic power and a greater measure of social justice.

APPENDIX I

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS ACCORDING TO SIZE OF INCOME

Village	Less than Rs. 250	250-500	500-750	750-1,000	1,000-1,500	1,500-2,000	2,000-3,000	3,000-5,000	5,000-10,000	Over 10,000	Total
Chembedu											
Households	18.0	40.6	18.7	10.8	6.8	1.8	2.2	0.7	0.4	—	100
Income	5.8	24.5	18.5	15.5	14.2	5.3	8.0	4.8	3.4	—	100
Kumudavalli											
Households	9.4	36.4	23.6	11.0	5.8	0.9	4.3	6.1	1.8	0.7	100
Income	1.8	13.5	13.3	8.8	6.4	1.5	9.7	22.1	12.8	10.1	100
Madigai											
Households	5.0	25.2	25.2	16.4	13.6	4.7	4.3	3.3	2.0	0.3	100
Income	0.9	9.8	14.5	13.5	16.9	7.8	9.8	12.6	10.4	3.8	100
Rajagambiram ..											
Households	9.7	36.3	28.6	12.6	9.1	2.2	1.1	0.4	—	—	100
Income	2.7	21.9	27.6	17.3	17.0	6.1	4.3	3.1	—	—	100
Sengipatti											
Households	11.7	41.6	24.5	11.5	6.7	3.0	0.4	0.6	—	—	100
Income	3.6	27.2	24.8	16.8	13.6	8.7	1.5	3.8	—	—	100
Aradeshahalli											
Households	1.2	17.5	33.3	17.5	17.0	4.1	5.9	2.3	0.6	0.6	100
Income	0.2	6.4	18.0	13.1	17.2	6.2	11.7	6.7	4.8	15.7	100
Deshwara											
Households	5.5	39.8	21.9	10.9	12.9	4.5	3.5	1.0	—	—	100
Income	1.2	20.5	18.2	12.7	20.9	10.0	11.6	4.9	—	—	100
Keezchery											
Households	17.5	46.2	20.6	6.7	5.2	2.2	1.1	0.5	—	—	100
Income	5.7	32.7	23.8	10.9	11.6	7.1	5.4	2.8	—	—	100
Pallipuram											
Households	7.1	32.1	28.1	14.3	11.5	3.0	2.1	0.7	0.7	0.4	100
Income	1.6	16.2	21.8	15.7	17.7	6.6	6.3	3.1	5.0	6.0	100

DISTRIBUTION OF INCOMES IN THE RURAL SECTOR IN U.P.

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Source of Data

The Department of Economics and Statistics of the Government of Uttar Pradesh has been preparing estimates of State income for the last several years. These estimates provide breakdowns for rural and urban areas separately, and they are available and have been published for all years from 1948-49. The concept underlying the estimates is "Net Output at Factor Cost," and the estimate is of the income originating within the State. Within the rural sector, estimates are built for different constituents, such as agriculture, animal husbandry, etc. The net contribution of each constituent to the State income has been estimated by first estimating its gross output in the rural sector and then making necessary deductions, such as, for instance in the case of agriculture, for seed, maintenance of work, cattle, manures, depreciation and repairs of agricultural implements, etc.

Constituents of Rural Income

The estimates of State income and the contribution to it of the various constituents have been worked out both at current prices and at constant prices as in 1948-49. As only the latter estimates provide a valid comparison over time, the estimates at constant prices are given in Table I. They show the percentage distribution of the rural income of the State over the different constituents of rural economy.

Share of Cultivators :—Amongst the constituents shown in Table I, 'agriculture' can be identified with the cultivators as a class. It will be observed that this class commands roughly two-thirds of the total rural income of the State. If to this be added also the share attributable to 'animal husbandry,' the proportion would increase to just below four-fifths or 80 per cent.

Share of Cottage Industry:—The constituent 'cottage industry' provides another identifiable class of artisans. The share of that class in the total rural income has been varying between 11 per cent and about 13 per cent. It may, however, be mentioned that figures of income from this constituent are not of the same degree of accuracy as for other constituents.

Share of Trade :—The constituent 'rural trade' commands a little below 5 per cent of the rural income of the State. It is, however, not necessarily identifiable with the class which is engaged purely in rural trade. A cultivator who, apart from his occupation of cultivation, makes an income on the marketing side of his produce is, to that extent, regarded as a trader and the income obtained by him from that source is included not under agriculture but under rural trade.

Share of Agricultural Labour :—Amongst the various classes in the rural population, four classes stand out as relatively more important, namely, cultivators, agricultural labourers, artisans, and traders. The figures given in the table provide some idea of the share of these classes in the rural income of the State separately, except for agricultural labour. No separate estimates for this class

TABLE I—PERCENTAGE DISTRIBUTION OF RURAL INCOME IN U. P.

(At Constant Prices)

Constituents	Years										
	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59
1. Primary production..	78.3	79.1	79.2	78.9	79.5	79.8	80.6	79.9	80.6	79.6	80.0
1.0 Agriculture ..	63.1	65.0	65.0	63.6	65.2	65.5	67.3	65.3	66.4	64.2	66.9
1.1 Animal Husbandry	15.0	13.8	13.9	15.0	14.0	14.0	13.0	14.2	13.8	15.0	13.5
1.2 Forestry ..	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
2. Non-Primary production	21.7	20.9	20.8	21.1	20.5	20.2	19.4	20.1	19.4	20.4	19.2
2.0 Cottage Industry	13.2	12.6	12.6	12.9	12.6	12.4	11.6	12.1	11.5	12.1	11.2
2.1 House Property	3.6	3.4	3.4	3.5	3.4	3.4	3.2	3.3	3.2	3.3	3.1
2.2 Rural Trade ..	4.9	4.9	4.8	4.7	4.5	4.4	4.6	4.7	4.7	5.0	4.9
3.1 Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3.2 Total Rural Income (in crores of Rupees)	1,023.1	1,069.2	1,065.6	1,045.1	1,074.3	1,086.4	1,161.4	1,161.3	1,167.1	1,108.4	1,197.6

as such have been prepared. Certain type studies of the economy of certain villages in Uttar Pradesh, with special reference to cost of cultivation, revealed that in the economy of individual cultivator households, wages paid to hired agricultural labour constituted roughly 4.4 per cent of the gross value of agricultural produce. Using this ratio and applying it to the estimates of the contribution of agriculture to rural income of the State, the share attributable to agricultural labour is of the order of 3.5 per cent of the total rural income of the State. It should, however, be stated in this connection that an agricultural labourer often has some additional means of income other than agricultural labour. This share of 3.5 per cent must, however, be regarded as his share purely in his capacity as agricultural labourer excluding his income from any other source in any other capacity.

U.P. and India:—No breakdowns of the national income of India separately for rural and urban sectors are available in published form. Certain estimates have, however, been attempted in this paper by applying to figures of national income of India certain ratios which relate to Uttar Pradesh and which have been assumed to apply at the national level also; these ratios are based on the figures of State income and its constituents for the year 1958-59 at current prices. For instance, the rural part of the State income in Uttar Pradesh constitutes 64.8 per cent of the total State income. Again, the contribution of agriculture and animal husbandry in the rural sector of U.P. constitutes 96.2 per cent of the total contribution of agriculture and animal husbandry to the State income. Applying these ratios at the national level, the share of agriculture and animal husbandry in the rural sector in India in the total national income in the rural sector comes to 71.9 per cent; as against this, the corresponding percentage for the State of Uttar Pradesh comes to 79.7 per cent. Of this latter, however, 62.1 per cent is attributable to rural agriculture alone (and the remaining 17.6 per cent to animal husbandry) and if these proportions between agriculture and animal husbandry are also applied at the national level, then out of the combined percentage of 71.9 for both agriculture and animal husbandry, the share attributable to rural agriculture alone comes to 56 per cent. Thus against a figure of 62.1 per cent as representing the share of rural agriculture in the rural income of Uttar Pradesh, the corresponding comparable figure for India, based on the assumptions indicated above, comes to 56 per cent.

A STUDY OF DISTRIBUTION OF INCOME IN SOME VILLAGES IN ORISSA

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Income and wealth are two important measures of material condition of people. For formulation of policies for the development of an economy, a know-

ledge about the distribution of income and wealth in different regions and sectors of the economy is useful. The importance of income studies in the rural sector of the Indian economy needs no emphasis. The rural areas of the country however are extensive and diverse in character. The nature of distribution of income and wealth between the rural and urban sectors and among different classes of people in the rural sector in all areas of the country is not similar. Studies of income structure in different regions contribute to knowledge on the subject.

Difficulties of collecting statistics relating to income and wealth are well-known. In general, people have a tendency to under-state their income and wealth, for fear of taxation or theft. In the rural areas, the difficulties are greater. Apart from the general tendency for under-statement, many persons in the rural areas have no definite notion about their income. In India, very few agricultural families keep accounts of their income and expenditure. The majority of the families in the rural areas even if they try to state their incomes honestly will be unable to state them correctly because they themselves have vague notions about their income. Often the rural people do not include in their incomes many free commodities and services which they consume in their daily lives. For example, free dwellings and free fuel from the village forests or their own orchards are usually not taken into account in the calculation of income. Supplementary earnings from minor sources are sometimes neglected. Even quantities of major products are remembered vaguely and stated in round figures. Figures of distant periods are vaguely remembered and those of the present period are always regarded as lower than the expected normal. Thus in their own computation of incomes and statement of them before the investigators many omissions, misstatements and discrepancies remain. In general, figures for production err on the side of under-statement. If the prices with which the production figures are multiplied are rural prices, like the harvest prices, the figures for money income are depressed to a great extent.

The figures presented below give an analysis of distribution of income in 50 villages in the Puri district, in the coastal areas of Orissa. The figures were collected in the course of a survey conducted by the Department of Rural Economics and Sociology of the Utkal University in 1958 in one of the National Extension Blocks (Pipili) in the Puri district of Orissa. The agricultural land in the area which is not under canal irrigation at present is expected to come under canal irrigation in a year or two under the Mahanadi Delta Irrigation Project. The purpose of the survey was to study the existing resources of the area, the man-power, the pattern of land use, the wealth and incomes of the people, so as to assess the existing production opportunities and the possibilities of their better utilisation when irrigation is introduced. In all, 240 families from fifty villages were selected for investigation on the basis of stratified random sampling method. The income figures refer to net incomes which were calculated taking into account:

(*i*) value of crops produced after payments made to the renter or landlord;

(*ii*) value of livestock products;

(*iii*) value of non-farm products;

(*iv*) wages received from others for farm work and non-farm work; and

(*v*) other incomes including remittances from outside.

From the above figures the following items were deducted:

(*i*) materials purchased for crops, hired labour expenses, home produced crop expenses and marketing costs;

(*ii*) cash expenses for livestock, home produced livestock expenses and changes in livestock inventories;

(*iii*) repair and depreciation;

(*iv*) cash and other costs of non-farm products; and

(*v*) land taxes and interest on productive loans.

The net incomes were calculated in this manner in order to ascertain the amounts available to the families for consumption. For purposes of study two types of figures were collected, namely, figures for the year previous to the survey and the figures which were considered normal by the head of the family.

Tables I and II show the distribution of the sample families according to the normal aggregate annual income of the family and the aggregate income of the family in the year previous to the survey respectively.

TABLE I—DISTRIBUTION OF THE SAMPLE FAMILIES ACCORDING TO THE NORMAL AGGREGATE ANNUAL INCOME OF THE FAMILY

Income in Rupees	Number	Per cent
Upto — 100	21	8.8
101 — 200	25	10.4
201 — 300	35	14.6
301 — 400	24	10.0
401 — 500	14	5.8
501 — 600	26	10.8
601 — 700	18	7.5
701 — 800	8	3.3
801 — 900	15	6.3
901 — 1,000	9	3.7
1,001 — 1,250	15	6.3
1,251 — 1,500	6	2.5
1,501 — 2,000	10	4.2
Above 2,000	8	3.3
Not Given	6	2.5
Total	240	100.0

TABLE II—DISTRIBUTION OF THE SAMPLE FAMILIES ACCORDING TO THE AGGREGATE INCOME OF THE FAMILY IN 1957 (THE YEAR PREVIOUS TO THE SURVEY)

Income in Rupees	Number	Per cent
Upto — 100	44	18.3
101 — 200	48	20.0
201 — 300	42	17.5
301 — 400	29	12.1
401 — 500	21	8.8
501 — 600	12	5.0
601 — 700	8	3.3
701 — 800	6	2.5
801 — 900	5	2.1
901 — 1,000	4	1.7
1,001 — 1,250	7	2.9
1,251 — 1,500	1	0.4
1,501 — 2,000	5	2.1
Above 2,000	2	0.8
Not Given	6	2.5
Total	240	100.0

The tables indicate that the figures stated for the year just previous to the survey were generally lower than the normal figures, though 1957 was not an abnormal year for the area according to the season and other natural factors. It appears that the figures for the year previous to the survey were generally under-stated while the normal figures were not much under-stated. The general inclination was to show that though normally the family gets more, in the year concerned, the income was less. Thus the table showing the normal income indicates the correct position more than that showing the income in 1957. From the tables it may be noticed that the aggregate net annual incomes of more than 50 per cent of the families were between Rs. 101 and 600. Less than 40 per cent of the families had incomes more than Rs. 600 a year. Only about 16 per cent of the families had incomes more than 1,000 a year and 3.3 per cent above 2,000 a year. Thus the majority of the families were in the income group between Rs. 101 and 600. A comparison may be made between the distribution of income presented here with that in the rural areas around Rourkela given in the report of Economic Survey of Rourkela, 1958 by Dr. S. Misra.[1] His report indicates that 42.6 per cent of the families had incomes between Rs. 101 and 600 a year and about 32 per cent were in the income group between Rs. 301 and 600. The Pipili Survey analysed here indicates that about 26 per cent of the families were in the same income group. In Rourkela area families having more than Rs. 1,000 a year formed about 27 per cent of the total while in the Pipili area they formed about 16 per cent of the total. In Rourkela area, about 6 per cent of the families had incomes more than Rs. 2,000 a year while in the Pipili area 3.3 per cent of the families were in that income group. The manner in which income is computed for the Rourkela area and whether items of production cost have been deducted from the gross income have not been mentioned in the report. But in general it appears that a much larger per cent of the families in the Pipili area in the coastal region of Orissa were in the income groups upto Rs. 200 than in the Rourkela area, in West Orissa. Both the surveys indicate the concentration of the families in the income groups below Rs. 600 a year.

1. S. Misra: Rourkela—An Economic Survey, 1958, p. 79.

Tables III and IV show the distribution of the families according to per capita income and Table V, the distribution of the families according to family size.

TABLE III—DISTRIBUTION OF THE SAMPLE FAMILIES ACCORDING TO PER CAPITA NORMAL INCOME OF THE FAMILY

Income in Rupees	Number	Per cent
Upto 25	24	10.0
26 to 50	23	9.6
51 to 100	64	26.6
101 to 150	34	14.2
151 to 200	34	14.2
201 to 250	23	9.6
251 to 300	9	3.7
Above 300	23	9.6
Not Given	6	2.5
Total	240	100.0

TABLE IV—DISTRIBUTION OF THE SAMPLE FAMILIES ACCORDING TO PER CAPITA INCOME OF THE FAMILY IN 1957 (THE YEAR PREVIOUS TO THE SURVEY)

Income in Rupees	Number	Per cent
Upto 25	43	17.9
26 to 50	50	20.8
51 to 100	74	30.8
101 to 150	28	11.7
151 to 200	11	4.6
201 to 250	9	3.8
251 to 300	6	2.5
Above 300	13	5.4
Not Given	6	2.5
Total	240	100.0

TABLE V—DISTRIBUTION OF THE SAMPLE FAMILIES ACCORDING TO THE SIZE OF THE FAMILIES

Number of persons in the family	Number of families	Per cent
1 to 3	80	33.3
4 to 6	113	47.1
7 to 9	36	15.0
10 and above	10	4.2
Not given	1	0.4
Total	240	100.0

The per capita income shows the relation between the aggregate income and the size of the family and indicates the level of living more precisely. The tables giving the distribution of the families according to per capita income, reveal the same fact of extremely low living of the people as shown by the tables giving aggregate incomes. About 55 per cent of the families had per capita income between Rs. 51 and 200. This shows the extent of the poverty prevailing in the area. As to family size, it may be noticed from Table V that 33.3 per cent of the families had 1 to 3 members, 47.1 per cent 4 to 6 members, 15 per cent 7 to 9 members and 4.2 per cent had more than 10 members. Thus a small proportion of the families were large while the majority were either small or medium families. The very low per capita income of the families was generally more due to low aggregate incomes of the families than the large size of the families. A scrutiny of the families having less than Rs. 25 as per capita income showed that such families were distributed over all castes and generally owned no land or had less than one acre of land.

With regard to the sources of income, it was noticed that there were three main sources of income, *viz.*, growing of crops on owned or leased land, wages on farm or non-farm work and income from livestock. Out of the three, income from livestock was of minor importance. Only 32 per cent of the total number of families derived income from livestock and about 18 per cent derived more than Rs. 30 a year. Thus the two major sources of income were crops grown and wages. Out of the 240 families in the sample, 154 families (64 per cent) derived some income from wages. Out of them 96 (40 per cent of the total) earned wages in other farms, 51 (21 per cent of the total) earned wages from non-farm work and 7 (3 per cent of the total) from both the sources. Out of the total number of families, 47 families (about 20 per cent) had no crop income and entirely depended on wage incomes.

The lack of other subsidiary sources of income and dependence of a large percentage of the families entirely on wages which are not available uniformly in all seasons also indicate the extent of poverty of the people in the area. The crop incomes of the majority of the families were low as their land holdings were very small. The distribution of the sample families according to the size of the holdings is presented in Table VI.

TABLE VI—DISTRIBUTION OF THE SAMPLE FAMILIES ACCORDING TO SIZE OF HOLDINGS

Size of Holding (in acres)	Number	Per cent
Landless	64	26.7
Less than 1	24	10.0
1 to 3	77	32.1
3.01 to 5	35	14.6
5.01 to 8	17	7.1
8.01 to 10	7	2.9
10.01 to 15	8	3.3
15.01 to 20	7	2.9
20.01 and above	1	0.4
Total	240	100

The table shows that 26.7 per cent of the families were landless, 10 per cent owned less than one acre each and about 32 per cent had 1 to 3 acres each. Thus cultivation of crops being the main source of income, as the majority of the families had very small amounts of land, they had naturally very low incomes. Dr. S. Misra's survey shows that in the Rourkela region in West Orissa, about 9.3 per cent of the people were landless, 5.3 per cent had less than one acre each and about 24 per cent had between one to three acres each. Thus the percentages of landless families and of those owning 1 to 3 acres were much higher in the Pipili area than in the Rourkela area. It is generally recognised that the man-land ratio in the coastal districts of Orissa is much lower than that in the western districts. Even in Rourkela area only about 5 per cent of the families had more than 20 acres each. In Pipili area, less than 1 per cent of the families had more than 20 acres each.

The amount of wealth possessed by a family also indicates its economic condition. In the present survey, the wealth of a family has been calculated by taking into account the dwelling house, farm land, livestock, farm tools and other assets of the family. Table VII shows the distribution of the sample families according to the amount of wealth possessed by the family.

TABLE VII—DISTRIBUTION OF THE SAMPLE FAMILIES ACCORDING TO THE WEALTH OF THE FAMILY

Wealth in Rupees	Number	Per cent
Upto 100	19	7.9
101 to 250	25	10.4
251 to 500	26	10.8
501 to 1,000	48	20.0
1,001 to 1,500	31	12.9
1,501 to 2,000	11	4.6
2,001 to 3,000	27	11.3
3,001 to 5,000	25	10.4
Above 5,000	26	10.8
Not given	2	0.9
Total	240	100

It may be seen from the table that about 18 per cent of the families had wealth upto Rs. 250 each. It means that they had no land and lived in mud huts often situated on other people's land. Their entire wealth consisted of a few pieces of utensils of bronze, brass or aluminium, a few pieces of farm tools and baskets and other household articles of insignificant value. The largest group of the families was in the wealth range between Rs. 501 and 1,000. Only 10.8 per cent of the families had each more than Rs. 5,000 worth of wealth. As to the major items of wealth, in case of land owning families, land was the major item of wealth amounting to more than 60 per cent of the total wealth. In case of landless families, dwelling houses formed 60 to 100 per cent of the wealth. Farm tools and other assets formed minor items of wealth. Except in case of 16 families, farm tools formed less than 5 per cent of the wealth of the families. In the majority of cases it formed 1 to 2 per cent of the wealth.

Table VIII gives an analysis of the debt of the families.

TABLE VIII—DISTRIBUTION OF THE SAMPLE FAMILIES ACCORDING TO THE DEBT OF THE FAMILY

Debt in Rupees	Number	Per cent
Nil	131	54.6
Upto 50	47	19.7
51 to 100	27	11.2
101 to 250	20	8.3
251 to 500	13	5.4
Above 500	2	0.8
Total	240	100

The table shows that 45.4 per cent of the families were in debt. About 20 per cent of the families had debt upto Rs. 50, 11.2 per cent between Rs. 51 and 100 and about 15 per cent more than Rs. 100. In comparison to the excessive low income and low level of wealth of the families, the percentage of the families in debt appears rather low. But as a large proportion of the families had very little asset, it appears that it is difficult for them to get loans.

In general though the estimates of income are at best approximate, yet they reveal the remarkable low aggregate and per capita income of the families under survey. The average family in the area owned 1 to 3 acres of land, had 4 to 6 members and earned a net income of Rs. 200 to 400. Personal observations in the area, in course of the survey corroborated the figures suggesting the low level of wealth and income. For example in several cases, it was noticed that men belonging to the type of families referred to above had only one piece of dhoti and one towel. They were compelled to dry the dhoties immediately after bath on the side of tanks to use them again, putting on the wet towel in the meantime. The entire absence of furniture in the villages was visible. In many villages it was noticed that a group of 20 to 30 houses situated on both sides of a village street could not supply even two chairs or a bench for a group of visitors whom they considered distinguished. Their embarrassment on such occasions was quite pathetic. The houses had invariably mud walls and straw thatch with extremely limited space. The general wealth of the families were the small amounts of land, mud houses, a small number of livestock and a few pieces of utensils. Families considered to be poor according to the village standard were those who did not possess land or cattle and who actually could not have grains for two meals a day. It is usual for women and children of such families to collect wild edible leaves from the village ponds or fields for a part of the food and dry leaves and cowdung from the common places of the village for fuel. The poverty of the people in general was quite visible. The causes of the poverty are evidently the low man-land ratio, lack of facilities for double and multiple cropping and lack of subsidiary occupations. As has been pointed out above, the major sources of income of the families were crops from the meagre land owned or leased and agricultural and non-agricultural wages. All wet land in the area is devoted to rice cultivation in the rainy season. In the absence of irrigation facilities,

the nature of the season determines the volume of the harvest. The second crop is usually horse gram which requires the minimum of moisture and which can be grown with a small amount of effort. Income from livestock, orchards, etc., were of minor significance. Except for carpenters, blacksmiths and other professional castes, general cultivators have no subsidiary industries. In short here is a case of stagnant rural economy. It is not a peculiarly distressed pocket but a fairly representative area of the coastal districts of Orissa. The area surveyed had been under a N. E. S. Block for the previous three years but no improvement in the economic condition of the people was visible. The system of production and the way of life were traditional. The impact of the new era of economic development was very little noticed.

AGRICULTURAL INCOME DISTRIBUTION — A STUDY OF KERALA

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INTRODUCTION

The measurement of income distribution is a complex process. To overcome the various difficulties involved, Prof. Colin Clark maintains that the distribution of the net agricultural product and the net non-agricultural product should be regarded as two entirely separate problems to be analysed separately.[1] In this paper an attempt is made to study some aspects of the structure of agricultural income distribution in Kerala which has peculiarities of its own.

Nearly 54 per cent of the total population of Kerala depend on agriculture for their livelihood as against 70 per cent for the whole of India. This comparatively low percentage of agricultural population does not mean a high degree of industrialisation. Kerala is admittedly less industrialised than the rest of India. This paradox arises from the high population pressure on land which makes it physically impossible for agriculture to support more than 54 per cent of the population. Further the various services which are mentioned as non-agricultural form merely a super-structure over the inner core of agricultural enterprise. Thus the economy of the State revolves largely around agriculture.

AGRICULTURAL INCOME—SECTOR-WISE DISTRIBUTION

Agricultural income is the total income from the use of the factors of production in agriculture of all the farms of the State including forests.[2] Out of a total 'national' income of Rs. 318.1 crores for 1955-56 for the State, the agricultural sector accounted for Rs. 177.9 crores or 55 per cent and the non-agricul-

1. Colin Clark: The Conditions of Economic Progress, Third Edition, p. 616.
2. John D. Black: Introduction to Economics for Agriculture, p. 529.

tural sector including all professions and services accounted for the rest. The composition of agricultural income as between the different sectors for the years from 1955-56 to 1957-58 is given in Table I.

TABLE I

Item	Amount in crores of rupees		
	1955-56	1956-57	1957-58
Agriculture	166.00	199.28	214.14
Animal Husbandry and ancillary	7.10	20.52	21.20
Forests	2.50	2.56	3.32
Fisheries	2.30	3.96	6.09
Total	177.90	226.32	245.85

Note:—Figures for 1955-56 are not strictly comparable with those for 1956-57 and 1957-58. The figures for 1955-56 are net income figures calculated by the Department of Statistics, Kerala State while the others represent the gross value of production computed from the figures from the various departments. The difficulties involved in obtaining information regarding the value added by processing of agricultural produce, transportation, etc., and on retail prices, the volume and flow of marketable surpluses, the inter-sectoral and intra-sectoral flow of agricultural income and above all the difficulties of estimating the operational farm expenses are formidable factors (to be rubbed off by rough estimations) in calculating net agricultural income. So, only the gross value of production is taken as a crude approximation of income.

Agriculture and animal husbandry constitue the single largest item of agricultural income. The per capita income from these sources for the agricultural population of Kerala would be Rs. 223 for 1955-56, Rs. 286 for 1956-57 and Rs. 306 for 1957-58.

Kerala has got an extremely valuable forest resource covering 25.8 per cent of its geographical area. This is higher than the all-India figure which is only 22.4 per cent. Kerala's forest products command high value so that the revenue yield from forests is about Rs. 10 per acre for Kerala as against Rs. 3 for the whole of India. Barring a negligible percentage of forest income that goes to private owners of Malabar, almost the entire income from forests goes to the Government.

Out of the total Indian coastline of 3,000 miles, Kerala's share is 360 miles. There are in Kerala about a lakh of active fishermen as against 5 lakhs in the whole of India. According to a survey conducted by the Fisheries Department in 1956-57, the average income of fishing household was found to be Rs. 542 per annum. The per capita income of active fishermen for the years for which value of aggregate output is available is as follows:

1955-56	Rs. 230
1956-57	Rs. 396
1957-58	Rs. 609

The phenomenal rise in income in 1957-58 could be explained by the occurrence of exceptionally large shoals of sardines along the Kerala coast during the year. This cannot be considered a permanent gain.

REGIONAL DISTRIBUTION OF AGRICULTURAL INCOME

The national income of a country for a given period can be apportioned among smaller spatial units or among still smaller territorial units. A district-wise study of the distribution of agricultural income in Kerala will throw some light on the composition and the structure of agricultural income in the various parts of the State.

Table II shows the net area sown in each district, the net area sown as percentage of the total area and the total value of crops raised in each district in 1957-58.

TABLE II

District	Net area sown (acres)	Net area sown as percentage of the total area of the district	Aggregate value of agricultural production Rs.	Average income per acre
Trivandrum	3,63,893	67.3	14,21,82,745	398
Quilon	5,08,555	43.7	20,23,41,720	397
Alleppey	3,90,279	86.2	17,37,80,242	445
Kottayam	6,77,485	42.1	27,60,49,694	407
Ernakulam	4,63,829	57.4	16,32,63,059	352
Trichur	3,18,987	43.1	14,61,05,345	457
Palghat	5,50,344	43.6	45,19,35,777	421
Kozhikode	7,42,405	45.3	38,70,90,394	521
Cannanore	5,29,282	37.1	19,87,14,790	375
Kerala State	45,45,059	47.3	214,14,63,766	471

Note: The gross agricultural production of each district is valued by taking the farm price for that district obtained from the Department of Statistics. "The value of gross production means the value of the total produce of crops whether sold, disposed of in other ways or retained for consumption for use in farm business or for sale."[3] It may further be mentioned that for sesamum, lemongrass and tea, the value added is that of the processed produce.

Kozhikode, Kottayam and Palghat districts have the largest cultivated area while Trichur and Alleppey have the smallest. The above table shows that the proportion of total area cultivated varies greatly from district to district ranging from 86 per cent in Alleppey to 37 per cent in Cannanore. The value of crops per acre is highest in Palghat and lowest in Ernakulam. Palghat is a typical agricultural region in that all varieties of crops are grown there. (See Appendix I). Trichur and Trivandrum come lowest in respect of aggregate value of agricultural production.

The distribution pattern of crops given in Appendix I throws into bold relief the fact that cash crops are cultivated throughout the entire State. However Kottayam district with 88 per cent of Cardamom (about 85 per cent of all-India production), 64 per cent of Tea, 35 per cent of Rubber (34 per cent of all-India production), and 34 per cent of Ginger (30 per cent of all-India production) of the State's production is by far the premier cash crop region of the State. Though Palghat has the pride of place in terms of total value and volume of pro-

3. All-India Rural Credit Survey Report, Vol I, Part I, p. 818.

duction, the value of cash crops comes only to 39 per cent. (See Appendix I[1]). Nevertheless we can reasonably expect that part of the foodgrains of that district will form a marketable surplus coming in the cash-nexus as the district accounts for 28 per cent of the total paddy, 94 per cent of Jowar and 60 per cent of other cereals in the State. As 80 to 90 per cent of cash crops are marketed the money income of the agriculturists in those areas where cash crops predominate may be higher. There has been a phenomenal rise in the prices of cash crops since the war and though the rise has not been steep in recent times, the secular trend has been an upward curve. Total value of exports of cash crops from Kerala has shown an increase from Rs. 7,400 lakhs in 1953-54 to Rs. 7,921 lakhs in 1957-58. The major share of these incomes must go to Kottayam, Kozhikode and other districts where cash crop production looms large. Landlords and plantation companies will naturally be the principal gainers. The Taxation Enquiry Commission's observations in this regard are particularly true of Kerala especially because comprehensive land reforms have not taken place in the State. "A main conclusion of the study of income distribution in India on the basis of such inadequate data as are availabe is that in the rural sector comparatively large landholders particularly such as have regular irrigational facilities and have been growing cash crops have improved their relative positions especially in those parts of the country where significant land reforms have not taken place. On the other hand the position of important sections of the agricultural population comprising landless agricultural labour and non-occupancy tenants has been particularly vulnerable and appears to have suffered some deterioration."[4] However, as Kerala's agrarian economy is essentially "a small man's economy" where even pepper, coconut and rubber are grown in small plots[5] it may be inferred that part of the increase in money income might have augmented the income of small cultivators.

Table III gives the number of families assessed to agricultural income-tax to the total number of agricultural families in each district in 1957-58.

TABLE III

District	No. of agricultural families	Number of assessees	Percentage of (3) to (2)
1	2	3	4
Trivandrum	1,34,840	753	0.5
Quilon	1,97,607	1,029	0.5
Alleppey	1,69,595	980	0.5
Kottayam	1,43,466	3,431	2.0
Ernakulam	—	—	—
Trichur	1,50,478	777	0.5
Palghat	1,64,088	689	0.3
Kozhikode	1,60,992	343	0.2
Cannanore	1,26,924	140	0.1
Kerala State	12.47,990	8,142	0.6

Data for column 3 is from the administrative report of the Agriucltural Income-tax and Sales Tax Department

4. Taxation Enquiry Commission Report, Vol. I, pp. 79-80.
5. The Travancore-Cochin Banking Enquiry Committee Report (1951), p. 16.

The number of families having incomes above Rs. 3,000 are few and far between. Only 0.6 per cent of the total families in the State are falling within such an upper strata. In Kottayam District 2 per cent of the total agricultural families are assessable to agricultural income-tax and the total income assessable in that district in 1957-58 was about 23 per cent of the value of gross agricultural produce in that District. Though Palghat and Kozhikode top the list as regards volume and value of agricultural production the number of assessees is only 0.3 per cent and 0.2 per cent respectively, even less than in Trivandrum and Trichur, the two districts of least agricultural production. Though Quilon and Alleppey come next to Kottayam as regards the number of assessees, only a small percentage of the value of agricultural production is assessed to agricultural income-tax.

Table IV will show the per capita agricultural income in each district of Kerala.

TABLE IV

District	Agricultural population (estimated) 1957-58	No. of persons of the agricultural population per acre net area sown	Per capita agricultural income of agricultural population
Trivandrum	7,41,660	2.0	191
Quilon	9,88,035	1.9	204
Alleppey	9,32,723	2.4	186
Kottayam	7,89,065	1.1	373
Ernakulam	8,02,102	1.7	203
Trichur	7,52,390	2.3	195
Palghat	9,02,484	1.6	507
Kozhikode	8,85,456	1.1	437
Cannanore	6,98,080	1.3	284
Kerala State	74,91,995	1.6	280

The gross agricultural income per head of the agricultural classes varies from a maximum of Rs. 507 in Palghat to Rs. 186 in Alleppey District. Alleppey which has the highest density of agricultural population (2.4 per acre) has the lowest per capita income and that partly explains the proverbial poverty in the district. Trichur and Trivandrum which have a high density of population have also comparatively lower per capita agricultural income. The districts of Palghat and Kozhikode having the highest per acre yield have the highest per capita income. Giving a "crude interpretation" of some agricultural data Colin Clark maintains that if we confine our measurements to the comparison of different regions within a country where agricultural technique is more or less given, then as the number of labour units per sq. mile of agricultural land increases, so does the gross product of labour fall off.[6] Though the regional data of per capita and density of population do not show a positive co-relation between the per capita income and the density of agricultural population, as is asserted by Colin Clark, nevertheless the experience of Alleppey and other districts shows that low per capita income goes with high density of agricultural population.

6. Colin Clark, *Op. cit.*, p. 636.

ESTIMATE OF FACTOR SHARES

Factor shares may be estimated on both net and gross basis. But it is beset with innumerable difficulties. However, an attempt is made to throw some light on certain aspects of factor payments in the State.

The estimate of pure rent as a remuneration for land as a factor of production could not be easily calculated due to lack of available data. The Rural Credit Survey has revealed that the percentage of rent received to rent paid in Kerala was 103, and that only the upper strata cultivators receive rent in the State. The annual average cash rent received per family in the upper income strata was only Rs. 6.9 in 1951-52 and they formed less than 2 per cent of the total population of the State.[7] The wage rate data provide a more or less stable estimate regarding the share of agricultural labour as a factor of production.[8] The average daily wage rates of agricultural labourers in Kerala in 1958 after a revision of the minimum wage rate came to Rs. 1.50 for men and Re. 1 for women. Assuming that the minimum wage rate has been implemented the total wage bill for the working year (185 days according to labour enquiry for Kerala) for the estimated agricultural labour population would come to Rs. 57.9 crores. (The calculation is made on the assumption that there are 40 effective earners in every 100 agricultural labourers.[9]) This is about 27 per cent of gross agricultural income for 1957-58.

Though a significant proportion of the value of the plantation produce depends on processing, plantation industry is basically agricultural. The total annual wage of the 1.4 lakh plantation labourers in Travancore-Cochin was about Rs. 5 crores and the estimated figure for Kerala would be of the order of Rs. 6.3 crores.[10] This is about 2.8 per cent of the gross agricultural income for 1957-58 and the per capita income of plantation labour would be of the order of Rs. 333.

A comparison of the study of the consumption pattern of the agricultural labourers of Travancore-Cochin in 1950-51 conducted by the Agricultural Labour Enquiry Committee with that of a study conducted by the Director of Statistics, Kerala State for 1957-58 shows no significant difference. That means, over the last seven years real income of agricultural labourers has not improved. Compared with the other agricultural and non-agricultural population, the position of the agricultural labourers is deplorable as could be seen from Table V.

The consumption pattern shows that agricultural non-labour classes are better placed compared with the others and that the agricultural labourer enjoys a comparatively low standard of life. Tapioca which is an inferior food is a major item of expenditure of the agricultural labour class and sugar, clothing and milk form only insignificant items of expenditure. With only about Re. 1.80 to spend on milk for the whole year we can infer that the agricultural labour class occupies only the lowest rung of the ladder in the hierarchy of agrarian structure.

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7. Rural Credit Survey Report, Vol. I, Part I, p. 1,029.
8. "Regional Differences in Factor Shares in American Agriculture," Vernon W. Ruttan and Thomas T. Stout, *Journal of Farm Economics*, Vol. XLII, No. 1, p. 57.
9. Census of India, 1951, Vol. XIII, p. 78.
10. Minimum Wages Committee on Plantation Report, p. 6.

TABLE V—CONSUMPTION PATTERN IN KERALA (1958)

(in rupees)

	Monthly per capita domestic expenditure on							
	Rice	Tapioca	Meat, egg, fish	Oil and Oil products	Sugar	Cloth-ing	Fuel and Light	Milk and Milk products
Agricultural labour ..	4.79	0.73	0.53	0.41	0.14	0.62	0.91	0.15
Agricultural non-labour	6.58	0.64	0.79	0.88	0.36	1.99	1.40	0.84
Non-agriculture	5.62	0.50	0.80	0.67	0.36	1.19	1.18	0.80

Source:—An Economic Review of Kerala, 1959, p. 28.

PERSONAL DISTRIBUTION—INEQUALITY OF INCOMES

Personal distribution refers to the distribution of income among families.[11] Unfortunately we do not have accurate and reliable information regarding agricultural income distribution in Kerala. However agricultural income-tax data provide a rough picture of the pattern of income distribution in this State. According to the Kerala State Agricultural Income-tax Act (1950) as amended upto November, 1957, agricultural incomes above Rs. 3,000 were subjected to tax. Table VI gives the distribution of agricultural income among agricultural families in Kerala State in 1957-58.

TABLE VI

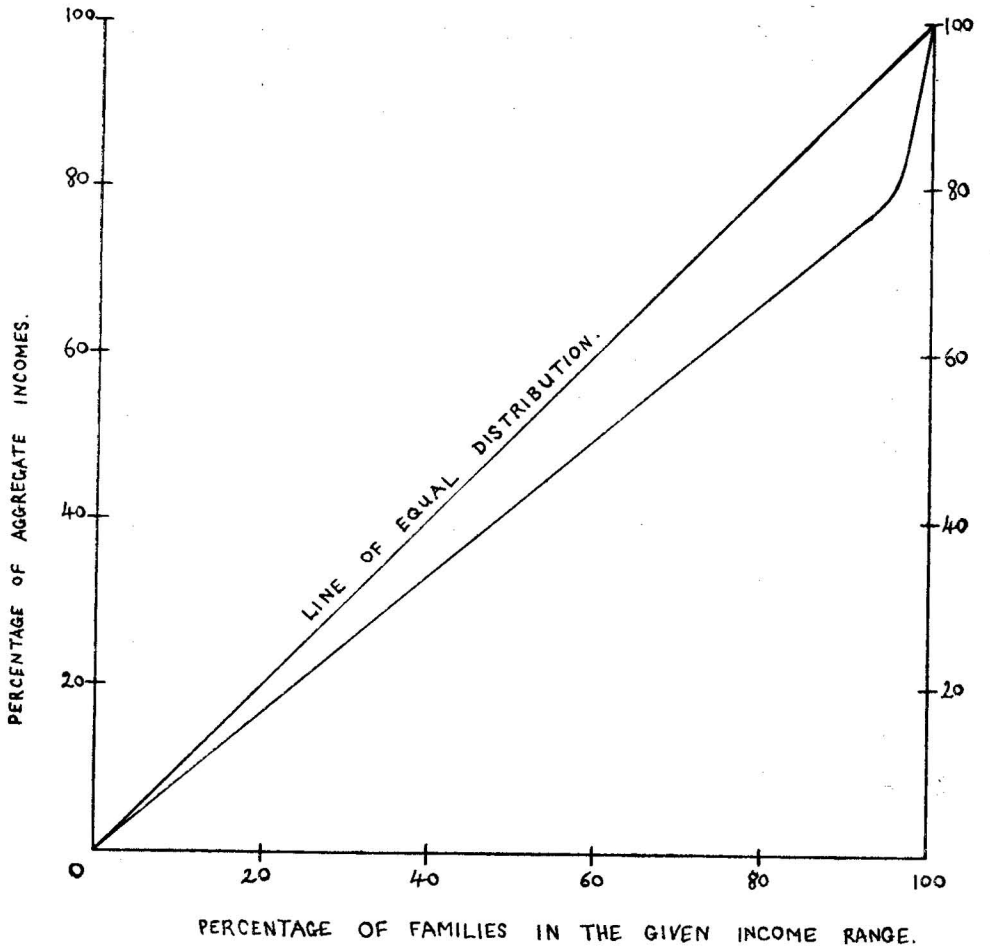
Income class	No. of agricultural families	Percentage of families	Cumulative percentage	Aggregate income (in lakh Rs.)	Percentage of aggregate income	Cumulative percentage
Upto 3,000 ..	16,04,051	99.44	99.44	17,175.1	79.9	79.9
3,000—5,000 ..	5,822	0.36	99.80	147.7	0.7	80.6
5,000—10,000 ..	2,178	0.13	99.93	161.1	0.8	81.4
10,001—25,000	672	0.04	99.97	101.2	0.5	81.9
25,001—50,000	178	0.02	99.99	46.7	0.2	82.1
50,001 and above	99	0.01	100.00	3,782.6	17.9	100.00

Data have been graphically presented in the Lorenze Curve in the opposite page.

The table and the graph show that except for the uppermost tail of agricultural income the distribution is not very inequitable in that nearly 80 per cent of the gross agricultural income goes to 99 per cent of the agricultural population. However, a negligible minority of 0.01 per cent of the agricultural population accounts for 17.9 per cent of the total agricultural income of the State.

The concentration coefficient of agricultural income calculated by using Gini's formula comes to 0.21 whereas that of landholdings is 0.66.[12] According to

11. John D. Black, *Op. cit.*, p. 566.
12. Concentration ratio is a statistical measure of the inequality of wealth. It is zero when all incomes are of equal size and one when they are infinitely uneven.



Dr. M. S. Randhawa, Kerala has the highest concentration ratio of land holdings.[13] From these two ratios we may infer that agricultural income is more equitably distributed than land holdings. Another possible inference is that at least some people who are apparently below Rs. 3,000 are assessable to agricultural income-tax.

CONCLUSION

A study of the distribution of agricultural income over a period of time in a State, say 20 to 25 years, would give a picture of the pattern of the secular trend of income distribution in the State. But data for this are extremely inadequate. In this paper the gross value of agricultural produce in 1957-58 is taken as a rough approximation of agricultural income. The conclusion hat is indicated by this study is that Kerala which is hailed as a "small man's economy" has a comparatively egalitarian distribution of agricultural income. Agricultural non-labour class are better off compared with the agricultural labourers who form about 33 per cent of the agrarian population.

13. M. S. Randhawa: Agriculture and Animal Husbandry in India, p. 77.

APPENDIX I

PERCENTAGE DISTRIBUTION OF EACH CROP AMONG THE DIFFERENT DISTRICTS OF KERALA: 1957-58

District	Paddy	Jowar	Ragi	Other cereals and millets	Pulses	Sugarcane	Pepper	Ginger	Turmeric	Cardamom	Arecanuts	Bananas	Other Plantations	Cashewnuts	Tapioca	Groundnuts	Coconut	Sesamum	Cotton	Tobacco	Tea	Coffee	Rubber	Lemongrass
Trivandrum	6	—	1.6	—	5.4	—	13.1	—	8.6	—	6.8	4.5	6.7	9.6	26.0	—	11.6	1.3	—	—	1.6	—	3.3	—
Quilon	7.2	—	8.8	—	15.7	9.0	9.1	—	2.9	—	7.9	9.1	5.4	19.5	26.8	—	13.2	13.3	—	—	6.7	—	23.5	—
Alleppey	8.1	—	—	—	2.8	59.1	3.1	—	1.3	—	4.8	6.2	2.4	5.3	11.3	—	18.7	65.5	—	—	—	—	1.8	—
Kottayam	6.2	—	—	—	1.5	11.3	20.7	36.8	29.2	88.1	5.3	10.5	4.3	4.0	15.2	—	10.6	—	—	—	63.6	5.9	35.4	6.5
Ernakulam	9.2	—	1.1	6.1	4.4	4.5	10.7	19.2	11.6	4.0	8.3	8.6	4.7	16.0	8.7	—	9.1	5.9	—	—	—	—	13.1	56.0
Trichur	13.4	—	19.1	2.1	20.2	—	—	—	1.6	—	7.8	11.3	6.1	20.2	3.0	—	6.9	3.3	—	—	1.3	—	6.1	1.6
Palghat	28.0	94.1	18.1	60.1	29.1	7.2	2.8	17.9	26.5	3.6	25.2	14.5	23.5	4.3	1.6	100	1.0	4.6	99.5	—	1.5	15.7	2.8	1.8
Kozhikode	11.2	3.6	28.2	20.0	12.5	—	9.3	24.4	13.4	2.6	31.5	19.1	20.1	10.5	4.5	—	21.8	6.5	—	5.0	19.7	70.2	9.9	2.0
Cannanore	10.3	2.3	20·0	8.2	7.4	4.8	30.1	1.2	2.4	1.3	12.8	15.5	27.4	13.4	2.9	—	9.6	2.1	—	95.0	3.6	5.2	4.1	28.1

APPENDIX II

PERCENTAGE VALUE (1957-58 PRICES) OF CASH CROPS TO THE TOTAL VALUE OF AGRICULTURAL PRODUCE IN EACH DISTRICT OF KERALA

District	Per cent	District	Per cent
1. Trivandrum	41	5. Ernakulam	60
2. Quilon	64	6. Trichur	47
3. Alleppey	65	7. Palghat	39
4. Kottayam	85	8. Kozhikode	69
		9. Cannanore	67

RURAL INCOME DIFFERENCES IN SOUTH INDIA

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Regional income studies until very recently have been rare, if not completely absent, in our country. It was not until the publication of the Reports of the Agricultural Labour Enquiry, the Rural Credit Survey, the National Sample Surveys and the work of the Central Statistical Organisation that we have something of a comparable data for different regions in India. These reports have thrown invaluable data on significant economic disparities among the different States in the country.

The uses to which regional income figures could be put are too well-known to detain us here. The object of the paper is two-fold: (1) to indicate the level of income in each State in South India and (2) to explain the forces at work for the existence of high or low level of income.

Some of the limitations of the study may be briefly noted at the very outset. Our study is confined to South India consisting of the four States of Madras,[1] Mysore, Travancore-Cochin and Coorg. The study is also limited to the rural sector of India. It may be interesting to note that out of about seventy-five million population in the region, as much as eighty per cent is rural. Further, the study is restricted to the agricultural labour families who constitute roughly about one-half of the entire rural population in South India. Another important limitation of the study is that significant differences within each State are concealed whenever we talk in terms of State averages.

1. Madras State included the new State of Andhra constituted on October 2, 1953.

All the data used here are from the Reports of the Agricultural Labour Enquiry.[2] Other sources of data such as the Rural Credit Survey or the National Sample Survey Reports, etc. could not be used by way of supplementing the data of the Agricultural Labour Enquiry because of certain important methodological dissimilarities like the unit of sample, the size of the sample, the demarcation of divisions, the reference period, the basis of classification, concepts and definitions used and the scope of the enquiry, etc. It is extremely doubtful that in the face of such significant dissimilarities, different sources of data could at all be used in analysing any social or economic phenomenon. It is also doubtful whether such attempts, not quite uncommon in the scientific profession, would conform to the rules of Social Science Research Methodology.

Table I gives a picture of the level of income by different sources for each State in the Southern Region.

TABLE I—INCOME BY SOURCES OF AN AVERAGE AGRICULTURAL FAMILY IN SOUTH INDIA

(In rupees)

States	Agricultural labour	Non-Agricultural labour	Cultivation of land	Miscellaneous occupations and other sources	Total income
Mysore	202	49	87	58	396
	(51.0)	(12.4)	(22.0)	(14.6)	(100)
Madras	226	31	76	32	365
	(61.9)	(8.5)	(20.8)	(8.8)	(100)
Travancore-Cochin	384	77	30	50	541
	(70.9)	(14.2)	(5.5)	(9.4)	(100)
Coorg	251	288	44	62	645
	(38.9)	(44.7)	(6.8)	(9.6)	(100)
South India ..					484
All-India					447

(Figures in brackets indicate percentages to the total).

An important striking feature as one looks at the table is that significant income differences exist amongst the States in South India. The average annual income of an agricultural labour family is the lowest in Madras[3] while it is the highest in Coorg — the difference is of the order of 90 per cent. Two States in this region, namely, Mysore and Madras have smaller levels of income than either the zonal average[4] or the all-India average.

2. In particular the Report on Intensive Survey of Agricultural Labour, Vol. IV—South India, Government of India, Ministry of Labour, 1955.

3. It must be pointed out that there is some discrepancy in the figures of average annual income per family given by the Agricultural Labour Enquiry for the State of Madras. Two different figures are given as average annual income for the State as a whole. One is Rs. 365; the other is Rs. 354, A. L. E. Report, Vol. IV—South India, pp. 34, 42-43.

4. It is surprising to find that the zonal average for South India is put at Rs. 382 by Mr. Chatterjee. It is not clear how he gets this figure. The omission of annual average income of Coorg in the table does not fully explain the position. There appears to be no justification to omit any State within the region in the computation of zonal average. However, even according to the figures given in the table by Mr. Chatterjee for the three States of South India, the zonal averag works out to Rs. 434 and not Rs. 382. See K. D. Chatterjee, "Regional Variations in India with special reference to the Results of the Agricultural Labour Enquiry," in Seminar Series—I on Rationale of Regional Variations in Agrarian Structure of India, The Indian Society of Agricultural Economics, Bombay, 1957, pp. 86-90.

A further analysis of the data on income by sources reveal that income from agricultural labour is the major source in Mysore, Madras and Travancore- Cochin. The percentage contribution of agricultural labour in the total income varies from 50 per cent in the case of Mysore to 70 per cent in the case of Travancore-Cochin. Coorg, however, takes an exception. The major contribution in this State is from non-agricultural labour, and agricultural labour as a source comes next in order of importance. The most important non-agricultural employment in Coorg is the cultivation of coffee, cardamom and other plantation crops. Non-agricultural labour as a source of income in the three other States, excepting Coorg, is not quite significant. Cultivation of land as a source of income is about 20 per cent in Mysore and Madras, and as far as other States are concerned in this region, it is negligible.

We have seen earlier how significant income differences exist between the States in South India. The important issue is to find out from the available data the factors influencing the level of income. The level of income of an agricultural labour family is dependent on a variety of factors. We shall attempt in the following pages a search for factors influencing the level of income.

Analysing the data in terms of wages paid to men and women in agricultural and non-agricultural activity, we have some of the most interesting results. In the first place, wage rates both for men and women are generally higher in non-agricultural employment. This would clearly mean that where non-agricultural employment is a major source of income and wages paid to non-agricultural employment are higher, the latter, *i.e.*, higher wages certainly explain the high

TABLE II—AVERAGE DAILY WAGE IN AGRICULTURAL AND NON-AGRICULTURAL EMPLOYMENT FOR ADULT CASUAL WORKER IN SOUTH INDIA

States	Wages for Agricultural Employment		Wages for Non-agricultural Employment	
	Men	Women	Men	Women
	Rs. as. ps.	Rs. as. ps.	Rs. as. ps.	Rs. as. ps.
Madras	0 15 6	0 9 6	1 1 7	0 8 6
Mysore	0 14 7	0 9 5	1 1 5	0 10 1
Travancore-Cochin ..	1 5 5	0 13 4	1 1 7	0 11 2
Coorg	1 3 4	0 15 11	1 7 0	1 0 0

level of income in the State. The second important inference is that wages paid to men labour are significantly higher in both agricultural and non-agricultural occupations for all the States in South India. Examining the figures for each State we discover that the proportion of men labour to women labour is higher in both Travancore-Cochin and Coorg and that wage rates for both men and women in agricultural and non-agricultural occupations, are also higher than Madras and Mysore. These factors lead us to the explanation as to why there is high level of income in Travancore-Cochin and Coorg.

Another important factor besides wages paid to men and women for non-agricultural and agricultural occupations is the number of days worked in a year. Table III gives data regarding the number of days worked in the year, both for

TABLE III—TOTAL NUMBER OF DAYS WORKED IN A YEAR BY SEX IN AGRICULTURAL AND NON-AGRICULTURAL EMPLOYMENT IN SOUTH INDIA

States	Men			Women		
	Agricultural	Non-agricultural	Total	Agricultural	Non-agricultural	Total
Madras ..	159	19	178	134	6	140
Mysore ..	130	24	154	120	10	130
Travancore-Cochin	185	30	215	133	14	147
Coorg ..	130	58	188	101	55	156

men and women and in agricultural and non-agricultural occupations. It could be seen that the total number of days worked in a year for both men and women is much higher in Travancore-Cochin and Coorg than in Mysore and Madras. It could also be seen that the proportion of the days worked on non-agricultural employment is much higher in Travancore-Cochin and Coorg. These factors corroborate the other evidence explaining the high level of income in these two States.

The last but not the least factor is the extent of unemployment or the number of days where no employment was available. This factor which is only an obverse of the number of days worked, certainly will affect levels of income through wages. As is to be expected a high level of employment must always go with high level of income. A low level of employment or high level of unemployment must have a depressing effect on the wage level, and in turn, on the level of income. But what are the facts? We get the opposite results once we carefully examine the figures.

TABLE IV—AVERAGE NUMBER OF DAYS UNEMPLOYED IN A YEAR AND AVERAGE DAILY WAGES OF AGRICULTURAL LABOUR IN DIFFERENT STATES OF SOUTH INDIA

(For male adult worker only)

States	Average number of days unemployed	Average daily wages for men (in annas)
Madras	116	15.5
Mysore	65	15.0
Travancore-Cochin	108	20.8
Coorg	91	20.8

There appears to be no correlation at all between level of unemployment and wages. For instance, the average number of days unemployed in Travancore-

Cochin is one of the highest in South India. Yet we find a high wage rate prevailing in that State. Mysore registers the smallest number of days unemployed with comparatively low wages. Such tendencies appear to be extremely difficult to explain[5] by the use of the simple demand and supply analysis. But once we go a little deeper and analyse the forces operating on the demand and supply side, it should not be so difficult as to make the application of economic reasoning impossible. Let us consider the situation of a high level of employment and low wages prevailing in Mysore. This could be explained by introducing the concept of disguised unemployment. The high level of employment may be having significant under-employment component that is concealed. This obviously represents surplus labour and, naturally, must bring down the level of wages. There is another factor which may be considered in explaining the low level of wages. And that is the level of living. If the level of living is low, it gets reflected in the low level of wages. This is certainly true of Mysore. The high proportion of money spent on food and in particular "*ragi*" — the cheapest grain accounting for a substantial portion in the food item consumed by the agricultural labour families in the State—clearly indicates a low standard of living. Another example of seeming absurdity is the situation of high level of wages and high level of unemployment prevailing in Travancore-Cochin. How can a very high wage rate be sustained with a large volume of unemployment, is really an important question to answer. There are a whole set of reasons like custom and tradition deciding the high level of wages. But there is nothing in them of economic reasoning. In terms of economic reasoning, the phenomenon may be explained in the following way. The existence of seasonal excess demand and the smaller number of casual workers in agriculture in the State may be a factor in pushing up the wage level. The peak period demand, while getting them high wages, cuts the other way also. They have to be unemployed for more days in the slack season. The data on average daily wages for different agricultural operations fully support the above line of reasoning.

In summing up our discussion, two broad and general conclusions may be drawn. In the first place, significant differences in income levels do exist between the States in South India. Secondly, while factors like agricultural and non-agricultural occupations, size of the holding, earning strength of the family, sex-wise composition of the earning strength, wages paid to men and women and number of days worked influence the level of income, no one factor, taken by itself, can explain fully or consistently the high or low level of income prevailing in the different States. It is in their combination that we have to seek an answer for the income disparities.

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5. Prof. M. L. Dantwala brings out clearly the lack of strong correspondence between the level of unemployment and the level of wages and laments the great difficulty to explain this phenomenon. It appears to me that he does not go beyond the simple demand and supply analysis. If only he had gone deeper in analysing the forces affecting both demand and supply, he would certainly have resolved the difficulty. See his paper on "Regional Variations in Agricultural Employment and Wages" in Seminar Series—I on Rationale of Regional Variations in Agrarian Structure of India, The Indian Society of Agricultural Economics, I ombay, 1957.