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THE DYNAMICS OF RURAL TRANSFORMATION
A CASE STUDY OF TAMIL NADU

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The Dynamics of Rural Transformation
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I

A sudden revival of interest in the problems relating to the rural areas has been a significant factor in the public life of our country since the beginning of the seventies. And in the short span of less than a decade a large number of treatises on the subject have appeared dealing with a variety of rural problems and suggesting various forms of remedial measures. Hence today our knowledge about rural problems, especially in a quantitative sense, is much more thorough than it was ever before. But a major lacuna still exists. Our understanding of the "laws of motion" of rural society is far from satisfactory. Very often those who come out with brilliant suggestions about ways to solve rural problems imply also that if only we have the correct ideas, adequate resources and what is frequently referred to as "political will", we can intervene in any manner we like in the course of events in rural areas and direct it along lines we have determined. Such views imply that the stagnant rural societies are eagerly waiting for external forces to come in and stimulate them and indeed redeem them.

Only careful studies of what in fact has been happening can say whether these views are correct or not. But, of course, understanding the nature of social transformation is no easy task. Any appreciation and evaluation of change

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has to be essentially "total". But in something as complex as society or economy that undefined totality can be approached only in terms of parts. There is, therefore, an inevitable paradox in any study of social and economic transformation. On the one hand, the analysis of change can only be partial; on the other, the evaluation of change has to be total, which means in effect that partial discussion of change will assume the character of a total interpretation, and even what is claimed to be total will always remain less than complete. The paradox can be illustrated with reference to rural transformation.itself. If an examination of transformation of the rural scene is to be meaningful at all, one must take "all" its aspects into account. But since it is difficult(impossible?) to know what "all" implies, one becomes selective and decides to concentrate on only the economic aspects. But when an interpretation of rural transformation is made in terms of economic categories, that interpretation assumes a totality, however unintentional it may be, giving the impression that rural transformation is primarily, if not entirely, an economic phenomenon.

This is not merely an abstract philosophical problem. After all, if we are interested in the study of change it is partly because we are eager to know whether we can influence the course of events and turn it into a direction we consider desirable. And so we will soon be enquiring whether change can be induced or not, and whether the forces of change are internal or external. If an interpretation of change is "total", then all factors responsible for change are by definition "internal", and the search for external factors becomes a methodological contradiction.

There is another and related problem. The "totality" that one aims at itself can be shown to be highly functional. Thus the set of components that constitute the "total" explanation for an increase in output will be seen to be incomplete, or even highly inadequate, if the objective is to explain how the changes affect the different sections of society. If, thus, the totality

itself becomes functional it must be conceded also that the analytical frames and procedures too will depend on the nature of the problem being studied.

To these problems of a general nature one must add the special problems related to any empirical study of social or even economic transformation. One of the most important of these is that there is no adequate frame of analysis which can accommodate the variety of components that must be taken into account in any comprehensive study of economic change over a period of time. For instance, to study the nature of change over a period of, say, a quarter of a century one will have to take into account changes in land ownership and tenure patterns, in technological and organisational patterns of production, in methods of payment and of accumulation etc. At present we have no way of bringing them together coherently. An important reason for this is the fact that each one of these has to be handled in terms of its own unanalysed categories and it is not easy to bring together diverse unanalysed entities into a unified frame for analysis.

One can multiply problems of this kind. But it is not necessary to do so here. What we need to note is that any study of socio economic transformation is a slippery procedure (which is why it is so seldom undertaken) but that without understanding the nature of transformation of the past continuing into the present it is impossible to understand the laws of motion of rural societies.

The present study, therefore, is an attempt to bring together as much of the empirical evidence as is available on the changes that have come about in the rural economy of Tamil Nadu during the quarter century from 1950 to 1975, to collate them and interpret them such that intuitively at least something of their inter relationships can be seen and something of the process of change can be understood. In the absence of an adequate frame of analysis the study has been done with a deliberately chosen focus. The attempt has been to interpret the changes, from the point of view of who the beneficiaries

of the changes have been. To do this the population of rural Tamil Nadu is divided into three groups, large farmers, small farmers and non-farmers. Because of the nonavailability of data pertaining to those involved in non-agricultural operations the analysis is confined to the agricultural sector of the economy so that the non-farmers are virtually agricultural labourers. Confining the study to the agricultural sector is one of its major limitations which,it is acknowledged, can give a distorted view of the dynamics of rural transformation. A second major gap is that there is no reference to the accumulation process at all in the study. This again is because there is virtually no data on savings and investment and these cannot easily be pieced together from indirect information as far as a State is concerned although such possibilities do exist at the level of the country as a whole. Notwithstanding these major limitations it is hoped that the study will serve as a kind of a first information report to build up a "case" so that further evidence can be marshalled, scrutinised and a more thorough-going enquiry organised.

II

As a background to the detailed discussion of the specific aspects of the economic change in rural Tamil Nadu contained in Section III, a brief review of the rate of growth of aggregate State Income and per capita income (strictly speaking, the value of net state domestic product, NSDP, in aggregate and per capita terms) and related matters is undertaken in this section.[1]

The aggregate NSDP increased from Rs.615.77 crores in 1950-51 to Rs.4191.35 crores in 1974-75 in current prices and from Rs.744.92 crores and Rs.1450.17 crores respectively in 1960-61 prices. The corresponding increase in per capita income was from Rs.204 to Rs.942 in current prices and from Rs.257 to Rs.326 in constant prices. 1974-75 was a year of low production and high prices because of a severe drought in

the State. Hence for further analysis 1973-74 is taken as the terminal year. In 1973-74 NSDP was Rs.3784.87 crores in current prices and Rs.1626.45 crores in 1960-61 prices with Rs.870 and Rs.374 as the corresponding per capita figures. Thus in real terms NSDP increased by 109.89 per cent from 1950-51 to 1973-74 and per capita income by 45.53 per cent. These indicated an annual compound rate of growth of 3.2 per cent in NSDP and 1.6 per cent in per capita income. During the same period the National Income of the country (again in 1960-61 prices) grew at 3.45 per cent per annum and per capita income at 1.35 per cent per annum. Thus in aggregate terms the performance of the Tamil Nadu economy was not as good as of the country as a whole, whereas in per capita terms the State did better than the country. The per capita income of the State in 1950-51 was Rs.257 compared with Rs.253 for the country as a whole; by 1973-74 there was a bigger difference between the two, that of the State as seen already, was Rs.374 but of the country was only Rs.340.

With these changes in the NSDP, the sectoral composition of output also changed quite significantly. In 1950-51 the primary sector(agriculture and allied activities) claimed 57 per cent of NSDP with the share of the secondary sector (mainly manufacturing) being 16.4 per cent and the rest (26.6 per cent) being accounted for by the tertiary sector (transport, communication and trade 12.1 per cent, finance and real estate 4.0 per cent, services 10.5 per cent). By 1973-74 the share of the primary sector came down to 42.8 per cent, that of the secondary sector went up to 22.4 per cent and of the tertiary sector moved up to 34.8 per cent (transport, communication and trade 16.2 per cent, finance and real estate 4.3 per cent and services 14.3 per cent). Thus, the period was one of major sectoral transformation in terms of the composition of output. It will be shown below that the sectoral transformation was of a different order in terms of the composition of the labour force.

The population of Tamil Nadu moved up from 30 million in 1951 to 33.6 in 1961 and to 41.2 million in 1971. The possibility of arriving at an economic classification of the population into workers (or earners) and non-workers (or dependants) has been made difficult by the changes in the definition of these categories in the census reports. According to the definition used in the 1951 Census report about 30 per cent of the population of the State constituted "earners". The 1961 Census relied on the concept of "workers" to define the participation ratio and estimated that 45.6 per cent of the population qualified to be workers. But this was on the basis of the definition that anyone who has had some regular work of more than one hour a day was to be treated as a worker. This rather elastic definition led to the inclusion within the category of "workers" of most of the housewives who rendered some assistance or other of about an hour a day in work like cultivation and household industries done by other family members. In the 1971 Census the category of "workers" was considerably narrowed by excluding women engaged primarily in household duties and boys and girls attending educational institutions from "workers" even if such persons rendered some help in family occupation. The result of the change in the definition was so drastic that when the population of the State increased from 33.69 million in 1961 to 41.20 million in 1971, the number of those categorised as "workers" decreased from 15.35 million to 14.74 million. Apart from this, the changes in the definition also brought about a substantial reduction in the female participation ratio and a visible reduction in the case of certain occupational categories especially "cultivators" and those engaged in "household industries".

A consequence of the definitional changes is that it is difficult to make any systematic inter-temporal comparisons even about the composition of the labour force. This fact must be kept in mind in appraising the comparisons that follow. Regrouping the total work force in each Census year into primary, secondary and tertiary sectors it is seen that 62.4 per cent belonged to the primary sector in 1951, 14.2 per cent

to the secondary sector and 23.4 to the tertiary sector. These changed to 63.3 per cent, 14.7 per cent and 20.3 per cent respectively in 1971. Thus the share of workers in the primary sector is seen to have gone up over the two decades. Because of the definitional problem referred to already, the share of the primary sector in 1971, if anything, is an under estimate. In any case these changes have come about at a time (as seen earlier) when the share of output of the primary sector decreased and that of the secondary sector increased. This is of special significance. If primary economic activities can be said to be more or less coexistent with rural areas and the secondary sector with urban areas, the implication of the finding is that the stimulus to secondary activities that came about during the period as witnessed by its increase in the share of NSDP was not accompanied by any significant absorption of the labour force and hence the labour force had to be absorbed by the primary sector predominantly in the rural areas.

In fact we can go a step further. If we divide the labour force into just two groups, viz., those engaged in agricultural activities and those in non-agricultural activities it is seen that between 1961 and 1971 there was a slight increase in the proportion of workers in the former group. Out of 1000 workers 605 workers were in agriculture in 1961 and it moved up to 618 in 1971. Although this is only a marginal increase, it must be remembered that the change in the definition of "workers" would have reduced those in agriculture in 1971. Hence even the marginal increase is significant indicating a definite shift of the labour force into agriculture. We must thus conclude that during the period under study there has been a shift of the labour force into the primary sector in general and into agriculture in particular.

An examination of the division of those engaged in agriculture into cultivators and agricultural labourers also is possible although, once again, changes in the Census definitions make comparisons difficult.[2] Between 1961 and 1971 the number of cultivators in the State came down by 1,850,000 of which

203,000 were males and 1,647,000 were females. It is reasonable to assume that the big fall in female cultivators is the result of change in definitions. At the same time the number of agricultural labourers registered an absolute increase of 1,662,000 with males accounting for 1,373,000 and females for 269,000. It is clear that the increase in agricultural labourers has come about essentially in the case of males and the figure is far in excess of the reduction in the number of male cultivators. While the change in the definitions has made it difficult to make precise calculations it must be inferred that the decrease in the number of cultivators and the increase in the proportion of agricultural labourers is one of the most striking aspects of change in the economy of rural Tamil Nadu in the recent past.

There is one other change that must be noted: the proportion of the population classified as rural and urban. According to the 1951 Census 76 per cent of the population of the State was classified as rural and the rest as urban. By 1961 the share of rural population had come down to 73 per cent and by 1971 to 70 per cent. In fact in terms of the population classified as urban, Tamil Nadu in 1971 ranked second in the country, next only to Maharashtra. But if the phenomenon is analysed carefully it will be seen that the "urbanisation" of Tamil Nadu is only an indication of the concentration of population in a few centres like Madras city, Coimbatore and Salem with a large number of very small towns around them.[3] Tamil Nadu still remains predominantly rural.

III

We can now move on to some of the details of the rural transformation in the State which are necessary to probe into its nature. These will be dealt with under three main heads:.

1. Land and Asset Distribution
2. The Agricultural Transformation
3. Wages and Consumption Patterns

1. Land and Asset Distribution

As in most other parts of India, the crucial factor in understanding the rural economy of Tamil Nadu is the highly skewed distribution of the ownership and operational holdings of land. The analysis of changes in the land owning and operating patterns that follow is based on data from the National Sample Survey, particularly the 8th, 16th, 17th and 26th rounds. The possibilities and limitations of using the NSS data are now well known and need not be repeated here. But a special problem must be referred to. The 8th round of the NSS conducted in 1953-54 related to the composite State of Madras as it existed before the reorganisation of States in 1956. Hence in terms of coverage it is not comparable with the subsequent rounds, viz., 16th round (1959-60), 17th round (1961-62) and 26th round (1971-72). So the analysis is confined to the period from 1959-60 to 1971-72, i.e., making use of the 16th, 17th and 26th rounds. Table 1 shows a classification of the rural households of Tamil Nadu on the basis of the ownership and operation of land in 1961-62 and 1971-72. The percentage of households not owning land declined from 24.20 to 17.01 while the percentage of households not operating land showed a marginal increase from 39.98 to 41.95. In both periods households owning and operating land constituted more than half of the total number of households. Over the decade the percentage declined only slightly from 57.70 to 55.13. Households not owning but operating land (that is, those who operate land fully by leasing in land) were a very negligible proportion, 2.32 in 1961-62 and 2.92 in 1971-72. While the relative position of these two categories remained fairly stable, there was a substantial increase of those owning land, but not operating it (from 18.01 to 27.80) and a significant fall in the proportion of those neither owning nor operating (from 21.88 to 14.09).

Table 2 gives information on ownership patterns in 1959-60 and 1971-72. An examination of the table does not give evidence of any drastic changes in the ownership patterns.

In 1959-60 the lowest group consisting of 60.42 per cent of the households accounted for 3.43 per cent of the area owned. In 1971-72 the same group and about the same proportion of households (60.53 per cent) accounted for a slightly higher share of land, i.e., 4.45 per cent of area owned. At the other end the largest four size groups (i.e., those owning above 20 acres and accounting for 0.98 per cent of the households in 1959-60) claimed 18.06 per cent of land owned, and in 1971-72 the same four groups (accounting for 0.73 per cent of households) had 12.98 per cent of owned land. In order to facilitate a more accurate comparison of the two periods the data have been intrapolated to show that the bottom 60 per cent of the households accounted for 3.39 per cent of the land in 1959-60 and 4.40 per cent in 1971-72, while the top 1.0 per cent of the households owned 18.22 per cent and 15.50 per cent respectively in the two periods. This may be taken as evidence of some shift, however modest it may be, of land owned from the biggest owners to the smallest. The concentration ratio declined from 0.7536 in 1959-60 to 0.7311 in 1971-72.[4]

But this aggregate figure does not convey much information about the nature of the change that has come about over the period. Hence an attempt has been made through an index of inter-class concentration(IIC) to study the relative position of the size groups in the two periods. The index is defined as follows:

$$IIC_i = \frac{q_i/Q}{p_i/P}$$

where Q is the total area and P the total number of households and q_i and p_i are the area owned and number of households for the i^{th} class.

The IIC_i's of the two periods are shown in Table 3 (multiplied by 100) columns 3 and 4. The figures in these columns are to be interpreted as follows: In column 3, 5.67 indicates that in 1959-60 the lowest size class had 5.67 per cent of what they would have been entitled to, had the distribution been equal. It is noticed that the IIC_i's of all size classes except the top one have gone up. A chi square test done to

test for significance of the change in the IIC_i's over the two periods indicate that the changes in the IIC_i's of the first three groups at the bottom are not significant. The changes of the next three groups are significant; and the changes in the other groups are significant and striking. These findings must be given the following interpretation:

a. Between 1959-60 and 1971-72 there have been some changes in the inter-class distribution of ownership holdings of land which, however, are not statistically significant.

b. The top class of those owning above 50 acres has lost its share of land and this change has been statistically significant.

c. The lowest three size groups owning less than 5 acres of land are seen to have improved their position, but the changes are not statistically significant.

d. All other groups (i.e., those owning more than 5 acres but less than 50 acres) have improved their position and the change is significant.

e. The major beneficiaries of changes in the ownership of land have been size classes 7 to 11 i.e., those owning more than 15 acres but less than 50 acres.

The overall stability noticed in the ownership holdings can be seen in the case of operational holdings also with the exception of the upper most group of those operating over 50 acres where there has been a clear decline in the average area operated. This group included 0.10 per cent of the households and accounted for 4.27 per cent of the area operated in 1959-60. By 1971-72 these percentages came down to 0.03 and 1.11 respectively. A more detailed examination of the distributional patterns with the help of the inter-class concentration index shows that the broad pattern is about the same as in the case of the ownership holdings. The changes in the IIC_i's of the lowest three size groups are not significant; the changes for the next four groups are significant and for the top four groups the changes are very striking indeed. For an examination of the changes in the pattern of asset distribution the sources are the two surveys of the Reserve

Bank of India, All India Rural Debt and Investment Survey 1961-62 and All India Debt and Investment Survey 1971-72. Table 4 gives the comparable information from these two surveys. It is seen that households with asset value of less than Rs.500 accounted for 29.5 per cent of the households and 1.2 per cent of the total assets in 1961-62. The same group accounted for 25.54 per cent of households and 0.86 per cent of assets in 1971-72. On the other hand, the top group of households with asset value of over Rs.20,000 constituted 5.3 per cent and claimed 43.3 per cent of the assets in 1961-62. Their share moved up to 8.15 per cent of the households and 60.47 per cent of the assets in 1971-72. The Gini Concentration Ratio for the two periods are 0.7090 and 0.7148 indicating a slight increase in concentration of asset ownership.

There is another possibility of looking at the changes in the distribution pattern of assets as has been shown by R P Pathak, K R Ganapathy and Y U K Sarma who used the RBI material to make a closer scrutiny of the phenomenon.[5] The procedure they adopted has been to approximate the asset distributions of 1961-62 and 1971-72 by a log normal distribution which was seen to be a good fit. The inter-class distribution on the basis of the value of assets as given in the RBI studies has been changed into a distribution based on decile groups. The pattern of distribution thus obtained is shown in Table 5. It is seen that in 1961-62 the lowest 10 per cent of households in rural Tamil Nadu had average assets worth Rs.42 and their share accounted for 0.08 per cent of total assets. Over the decade these figures came down to Rs.27 and 0.04 per cent. On the other hand, the top 10 per cent of the households had assets worth Rs.37,906 and their share in assets was 72.57 per cent in 1961-62. These figures moved upto Rs.59,001 and 77.64 per cent in 1971-72.

The table shows further that the changes observed in the average value of assets over the decade shows the following pattern: it is decreasing over the decile groups till the sixth group (50-60) and then starts increasing and the rate of increase is also increasing over the top four groups (60-100). The changes in the share in total assets also follows a consistent pattern.

The share of the assets accounted for by each of the first nine decile groups has declined and the rate of decline is itself declining over the decile groups. Thus starting with a 50 per cent decrease in the percentage share accounted for by the lowest 10 per cent it registered a decline of 13.19 per cent of the 9th group. The highest decile group alone registered an increase in the share of assets from 72.57 per cent to 77.64 per cent.

A further breakdown of the top decile groups shows some more interesting aspects. The top 1 per cent of the households accounted for 33.0 per cent of the total assets in 1961-62 as against 27.43 per cent of the first nine groups put together. Over the decade the share of the top 1 per cent increased to 38.97 per cent while that of the first nine decile groups taken together declined to 22.36 per cent. On this basis the evidence is that there is a very heavy concentration of assets in the hands of the wealthiest groups in the rural areas and that their relative share has increased over the decade while that of the first nine decile groups taken together has deteriorated.

2. The Agricultural Transformation

During the quarter of a century from 1950 to 1975 agriculture in Tamil Nadu witnessed some major changes, but also retained some of its main characteristics.

Basic data pertaining to the past performance of agriculture in the State are available from the two official periodical publications, Season and Crop Reports and Tamil Nadu - An Economic Appraisal. Table 6 gives a picture of the cropping pattern in the State for different periods from the beginning of the First Five Year Plan. The periods chosen correspond to the successive Five Year Plans - beginning and end of the First Five Year Plan, end of the Second and Third Plans, end of the three Annual Plans and the end of the Fourth Five Year Plan. The nine crops or crop groups given in the table account for between 80 and 85 per cent of the gross cropped area. What the table shows is that over the quarter of a century there is no substantial change in the cropping pattern. Paddy has been

and is the most important crop in the State and has improved its position, most of it during the First Five Year Plan itself. The gain in paddy is offset by decline in other cereals which kept the share of cereals as a whole fairly steady except in the very last year when cereals go down visibly mainly as a result of the fall in the share of the millets (i.e., all cereals other than paddy). The performance of groundnut and cotton is seen to be erratic, although towards the end, the former is seen to have registered marginal increase and the latter some decline. Among the crops sugarcane is the one that shows a steady and striking increase over the period with its share in gross cropped area going up three times though the total area itself has always been rather small. Table 6 thus shows that during the past 25 years the two 'wet crops' paddy and sugarcane, have improved their position while the dry crops, especially the non-paddy cereals have lost ground. It is seen also that the extension of paddy cultivation came about during the first decade whereas sugarcane registered its increase primarily in the second half of the period under review.

Table 7 examines changes in the area under the seven major crops which spell out more clearly the patterns observed in Table 6. Gross cropped area under paddy has gone up slightly over 50 per cent. Most of the increase happened during the first decade, a substantial part during the First Plan period itself. The decline in the share of millets noticed in Table 6 is seen to be the result of absolute decline in the area under cultivation. Upto the end of the Third Plan there was marginal increase in the area under cholam which declined since then going below the 1951-52 level by 1968-69 and registering a further fall since then. Ragi has a fairly similar pattern except that the decline started from the end of the Second Five Year Plan. The area under cumbu has been coming down fairly steadily after a marginal increase in the first phase. In the final phase, however, it has picked up again to some extent. Area under groundnut moved up slowly at first, but picked up suddenly in the seventies. In the case of sugarcane there has been very

striking increase but for the small dip in the First Plan period and also between 1973-74 and 1975-76. The area under cotton doubled during the first two Five Year Plans, but has been coming down since then. The following general pattern can be seen from Table 7. During the fifties there is an increase in area under cultivation of all major crops with the sole exception of cumbu. Hence the fifties may be treated as a period of extensive cultivation. In the sixties there is no major increase in the area under cultivation of any of the crops listed in the table except sugarcane with the area under all millets and cotton coming down. In the first part of the seventies the area under millets and sugarcane go down, paddy, groundnut and cotton show increase. Subsequently cumbu and ragi show some improvement while groundnut and cotton indicate marked fall.

The pattern noticed in Table 7 must be supplemented by details about production and productivity to get a more complete picture of the agricultural change in the past quarter of a century. The trends in production are shown in Table 8. Over the period production has gone up in the case of all crops. The biggest change has been in sugarcane which shows a more than fourfold increase followed by paddy which moved up by two and three fourth times. Considering the fact that paddy is the main crop in the State this increase indeed has been very impressive. In terms of time profile there are some pertinent observations. The increase in paddy production is in the fifties and seventies with production remaining stagnant in the sixties. Production of cholam, cumbu, groundnut and cotton also increased in the fifties, then declined in the sixties and revived in the seventies. Sugarcane is the only crop which has shown a steady increase in output (except between 1968-69 and 1973-74).

Table 9 shows changes in productivity per unit of land. The largest increase in productivity has been in paddy which shows a more than 80 per cent increase in 25 years. Ragi comes next with a 66 per cent increase in productivity. Moderate increases in productivity are shown by cumbu, sugarcane and cholam.

It is interesting to note that the poorest performance came from a "commercial crop", groundnut. The performance of cotton has also not been particularly commendable. Its productivity remained below the 1951-52 level in the fifties and then slowly picked up. The time profile, again, is interesting. In the fifties all crops show an increase in productivity although none of them is particularly impressive with the possible exception of sugarcane. In the sixties the productivity of cholam, ragi, groundnut and cotton decline, paddy, cumbu and sugarcane show marginal increase. In the seventies there is an all round improvement in productivity, and all of them are big increases too.

The agricultural changes of the period can now be summarised. In the fifties, there is an increase in the area under cultivation accompanied by some improvement in productivity. The sixties show stagnation in agriculture in area, production and productivity. The seventies reverse the pattern and would appear to have started an upward trend especially in productivity and consequently in output. During the entire period a shift of land from dry to wet crops is also discernible.

The changes in agriculture summarised above can now be taken up for detailed analysis. First we shall note the changes that have come about in the methods of production during the period. The total geographical area of Tamil Nadu is 130 lakh hectares. In 1951-52, 40.5 per cent of this total (about 54 lakh hectares) was net sown area. It moved up to 46.0 per cent (close to 60 lakh hectares) in 1960-61 and 48.3 per cent (almost 62 lakh hectares) in 1970-71. Early in the seventies the State Planning Commission's Task Force on Agriculture expressed the view that "the scope for bringing additional area under the plough is limited." Net sown area touched the peak of 63.5 lakh hectares in 1971-72 and showed some decline in subsequent years dipping to a low of 55.5 lakh hectares in the drought year 1974-75. Area sown more than once increased from 9.3 lakh hectares in 1951-52 to 13.2 lakhs in 1960-61, 12.5 lakhs in 1970-71 and 14.7 lakhs in 1973-74 (declining to 10.8 lakhs in 1974-75) leading to gross cropped area of 63.5 lakh hectares, 73.2 lakh hectares, 75.3 lakh hectares and 76.5 lakh

hectares respectively (and coming down to 66.3 lakh hectares in 1974-75 because of the drought).

The extensive cultivation of the fifties was facilitated by the increase in irrigation. Total area irrigated was close to 20 lakh hectares in 1951-52 and rose to 24.6 lakhs in 1960-61. In 1970-71 it was still 24.8 lakhs. Since then there was a significant increase to 29.1 lakh hectares in 1973-74 although in the subsequent drought year it came down again to 24.3 hectares. Percentage of total gross irrigated area to the total area sown was 38.9 in 1951-52. It went up to 44.2 in 1960-61 and after moving upto a record high of 47.6 in 1967-68, slided down to 46.2 in 1970-71. Since then it went up again to 48.0 in 1973-74.

It has been noted already that the extensive cultivation of the fifties was shared by all main crops except cumbu although the major changes were in the case of the two wet crops, paddy and sugarcane, as also of cotton (Table 7). The more important fact is that during the period of extensive cultivation the output per hectare of all crops registered an increase (Table 9). Extensive cultivation of the fifties, therefore, was not the usual case of less fertile land being brought under the plough resulting in an increase in output, but with decrease in productivity. It was essentially a case of more dry land being converted into wet land through irrigation, although there was some increase in net sown area also. It shows the fundamental importance of water in the agricultural situation in the State.

Table 10 gives the basic data relating to changes in agricultural implements over the period of the study. The elements of stability and changes can both be seen from the table. The total number of ploughs in use have only increased from 2.96 million in 1951 to 3.68 million in 1974 showing a very negligible increase in a quarter of a century. The number of carts has declined, again marginally from 0.68 million in 1951 to 0.59 in 1974. In contrast the number of tractors has gone up from 327 to 7107, the number of oil engines from 13,939 to 234,416 and most striking of all, the number of electric pumps

has shot up from 14,751 to 680,705. The stagnation and decline in the use of conventional implements and the sharp increases in the use of the modern ones has been one of the most impressive changes in the agricultural sector in rural Tamil Nadu.

There is a link between the changes in the irrigation patterns and changes in the use of agricultural implements. It can be seen that the spurt in the increase in irrigation of the early fifties is associated by a jump in the use of tractors. There was a slowing down of tractorisation in the second half of the fifties which is reversed only after a new form of irrigation through electric pumps becomesavailable. From then on there is a close connection between the increase in irrigation through electric pumps and the increase in the use of tractors. A possible explanation for the decline of carts since the second half of the sixties is that the increase in the growth of tractors may have led to tractors and trailers becoming substitute for carts. This inference is strengthened by the fact that between 1966 and 1974 there is a big change in the proportion of government to private tractors. In 1966 of the total of 2180 tractors, 469 belonged to the government and 1711 to private owners showing a ratio of 21.51:78.49. In 1974 government tractors accounted for only 954 out of a total of 7107while the private owners had the rest, that is 6153, changing the ratio to 13.42:86.58. When the number of government tractors just doubled over the period private tractors went up by nearly four times.

The increasing mechanisation of agriculture has also been accompanied by an equally impressive use of fertilisers. The consumption was very low in the early fifties and shows rather slow increase upto early sixties. With the introduction of high yielding varieties programme in the mid sixties there was a visible increase in the use of fertilisers which picked up again substantially by 1973-74. Per unit of cropped area, the consumption of fertilisers was only around 2 kg per hectare in 1951-52 , and by the beginning of the sixties had only gone up to a little over 6 kg per hectare. In the next five years there was a big jump to 22 kg per hectare which increased to

almost 26 kg per hectare by the end of the decade. The seventies again saw a substantial increase in the use of fertilisers, the final figure being 44 kg per hectare.

A reference to the High Yielding Variety Programme is necessary to complete the account of agricultural transformation in the State. The fifties gave a fairly rosy picture of agricultural change in the State. Area under cultivation had gone up: there was also the all-round increase in production and productivity. The food position was quite comfortable. Starting from 32 lakh tonnes in 1950-51 foodgrain production had moved up to 54 lakh tonnes in 1960-61 and on that basis a 70 lakh tonne target was set for the Third Five Year Plan. But after moving up to 58 lakh tonnes in 1962-63 foodgrain production tended to stagnate. It touched a low figure of 50 lakhs in the drought year of 1965-66 and just managed to return to the 1960-61 level next year.

The High Yielding Varieties Programme was launched in 1966-67 against this background. Already, the Intensive Agricultural Area Programme was started in Thanjavur in 1960-61 and extended to Madurai, Chingleput, Coimbatore and Tirunelveli districts in 1965-66 as Intensive Agricultural District Programmes. The IADP('Package Programme'), as is well known, aimed at a package deal to increase the production of cereals involving the application of fertilisers, the use of improved seeds, plant protection methods, cultural practices etc. along with provision of timely credit, education through demonstration and the like.

The HYV programme was inaugurated with cultivation of new varieties of seeds particularly ADT-27 in paddy in 2.1 lakh hectares of land. Since then it has had a rapid spread with more than three-fourths of the paddy area and over a quarter of the millet area now claimed to be covered by the new programme. That the increase in coverage was also accompanied by an increase in the consumption of fertilisers has already been noted. The impact of the HYV programme on the production and productivity of paddy and to some extent even of millets is

quite clear.

But a more adequate evaluation of the HYV programme is necessary. The impact of the HYV programmes was first seen in 1966-67 when the production of paddy went up to 37.9 lakh tonnes from the previous year's 35.2 lakh tonnes. But 1965-66 was a drought year which resulted in a fall in the output of paddy from the peak figure of 403 lakh tonnes it had registered in 1964-65. The next two years of good paddy performance were 1969-70 and 1970-71 when production shot up to 40.1 lakh tonnes and 50.1 lakh tonnes respectively. It turns out, however, that these two years were also preceded by severe droughts. The 1968-69 output of paddy was only 35.5 lakh tonnes. Hence even in 1969-70 paddy production had not equalled the 1964-65 level, or even the 40.2 lakh tonnes level reached in 1962-63. It is true that after recovery from the drought of 1968-69 the full potential of the HYV programme in paddy began to be realised. Paddy production in 1971-72 was 53.0 lakh tonnes, in 1972-73 the 55.7 lakh tonnes and in 1973-74 55.9 lakh tonnes and after the severe drought of 1974-75 which brought down production to 41.6 lakh tonnes, there was a splendid recovery to 58.6 lakh tonnes in 1975-76.

There is another aspect worth noting. Upto 1964-65 there was a steady increase in output with actual production being above the linear trend during most of the year. From then actual production was below the trend upto 1970-71. Often the impact of the HYV programme is evaluated against the background of the poor performance of the second half of the sixties. The 13.01 per cent increase in the production of paddy between 1968-69 and 1969-70, and the even more striking 24.80 per cent increase between 1969-70 and 1970-71 used to be the figures that gave the so-called green revolution its 'revolutionary' appearance. But a closer scrutiny shows that in longer perspective the achievements of the green revolution are much more modest. Except for the high growth performance between 1968-69 and 1969-70 and between 1969-70 and 1970-71, all of which must be regarded as 'recovery growths' the post HYV growth rates are much lower than what was achieved in the 1950s. But for the 'recovery rates'

the post HYV performance has been of the order of less than 6 per cent increase from year to year compared to the 7 to 9 per cent which were frequent in the fifties. Hence if the HYV programme can be expected to make a clear break with past trends it is yet to come about in the State. On the other hand there is reason to suspect that the green revolution may already be showing weariness. Only 45.4 per cent of the total paddy area was under the HYV programme in 1969-70. Since then it is said to have moved upto close to 80 per cent. If such vast tracts in fact have come under the HYV programme, the incremental increase in output has been not very striking at all.

Apparently the HYV programme has had more conspicuous success in the case of millets where production and productivity have both gone up in recent years in spite of the fall in area under cultivation.

3. Wages and Consumption Patterns

The Season and Crop Report gives information on the average rates of daily wages paid to agricultural and other labourers in the rural areas of Tamil Nadu according to districts and for the States as a whole. These figures are available for each month of the year which would permit a study of seasonal variations which is not attempted here. We shall concentrate on wage movements over time both in money terms and in real terms. For this purpose the data are taken from the annual wage rate series constructed by the Agro-Economic Research Centre of the Madras University.

Table 11 shows the average annual rate of wages for field labourers, herdsmen and other agricultural labourers for the entire period. In the case of male field labourers daily wages in money terms increased from Rs.1.55 in 1951-52 to Rs.3.48 in 1973-74 showing an average annual increase of 5.66 per cent. The daily wages of female field labourers more than doubled during the period indicating an annual average rate of growth of 6.28 per cent. The wages of non-adults in this category increased at 7.49 per cent per annum moving up from Rs.0.74 in 1951-52 to Rs.1.96 in 1973-74. Herdsmen's wages are generally lower than

that of field labourers, and have also increased at lower rates. The wage rates of males went up from Rs.1.13 in 1951-52 to Rs.2.18 in 1973-74 (4.26 per cent per annum) while those of females increased from Rs.0.87 to Rs.1.57, at an annual rate of 3.66 per cent.

The wages of other agricultural labourers also followed a similar pattern those of males increasing from Rs.1.34 to Rs.3.22 (6.38 per cent per annum), of females from Rs.0.90 to Rs.1.99 (5.51 per cent) and of non-adults from Rs.0.75 to Rs.2.01 (7.64 per cent annually). It can be seen also that in the first half of the fifties there was a fall in the wage rate of all categories. From then on there has been a general upward movement in almost all cases.

But the more important question relates to the pattern of real wages. In converting the money wages into real wages there is always the question of the choice of the appropriate deflator. The question has been more relevant in the cases we have been dealing with because there is no representative consumer price index relating to the groups of workers in our list. Hence some deflator had to be arbitrarily selected. Instead of relying on any one price three price series have been used for the deflation, paddy 1st sort, rice 2nd sort and ragi on the assumption that foodgrain prices in general may be as good a deflator as any other in the case of rural wage earners and that different grain prices may lead to different insights into the nature of movements in real wages.

The most striking aspect that emerges from these exercises is that as against a more than doubling of money wages in most instances, real wages between 1951-52 and 1973-74 have not only declined in the case of all categories but have come down rather substantially. Using paddy 1st sort as the deflator, the real wage of male field labourers in 1973-74 was only 67.10 per cent of what it was in 1951-52. During the same period the real wages of female field labourers came down to 71.28 per cent and of non-adult field labourers to 79.72 per cent. The decline has been even more drastic in the case of herdsmen where the real wages of males came down to 58.41 per cent, of females to

54.02 per cent and of non-adults to 77.05 per cent. In the case of other agricultural workers the pattern is closer to that of field labourers with the real wage level coming down to 71.64, 66.67 and 80.00 per cent respectively for men, women and children. The pattern in the movement of real wages using the price of ragi as deflator is strikingly similar if the two terminal periods alone are taken into account because the two prices for 1973-74(with 1951-52 as base) turned out to be almost identical. The deflation using the price of rice 2nd sort shows some differences as can be seen from the relevant table. Taking the series as a whole the temporal pattern of real wage movements has been a decline upto about the early sixties (with the exception of 1954-55 and 1955-56 when the grain prices were exceptionally low) a slow revival after that upto the end of the sixties and a subsequent decline again in the seventies.

There is also an "index number of rural prices" compiled and published by the Department of Statistics, Government of Tamil Nadu "to represent the movements of prices relevant to villages in rural areas." The index has two obvious limitations. The first is that its base is 1936 and hence it represents the weights assigned in the pre-second world war period which must have certainly become obsolete by this time. Secondly, the index is compiled separately for 8 different villages representing the five zones of the State and there is no index pertaining to the State as a whole. In order to construct a State Index we have taken a simple average of those 8 indices. The procedure is no doubt arbitrary, but there is no other alternative. The State rural price index so constructed has been used for a further deflation of the money wages. Deflation by the rural price index shows the highest increase in real wages over the period, but still the real wages of all categories of workers are seen to be lower in 1973-74 than in 1951-52 similar to the patterns observed from the three earlier real wage series. Hence the most striking aspect of the wage movements in rural Tamil Nadu during the period since 1951-52 is the decline in real wages of all categories of rural workers examined irrespective

of the deflator used to convert money wages into real wages.

Turning now to consumption patterns the analysis is confined to the period from 1957-58 to 1971-72 relying on NSS data. Table 12 shows the distribution of average monthly per capita expenditure on major items of consumption in the rural areas of the State for the period from 1960-61 to 1970-71. It is seen that around 70 per cent of the total expenditure is on food items and that in the latter half of the period it is higher-over 72 per cent in 1964-65, 78 per cent in 1968-69, 77 per cent in 1969-70 and 76 per cent in 1970-71. Over time, therefore, there is a reduction in the share of expenditure on non-food items. The fall is quite pronounced in the case of clothing. It was over 8 per cent in 1960-61 and reached the highest level in 1963-64, but only slightly higher than the 1960-61 level. From then on it registered sharp falls, reaching a low figure of 3.6 per cent in 1968-69. This was probably very exceptional, but even in 1970-71 the expenditure on clothing was only 6 per cent of the total. Such large fluctuations are not noticed in the case of expenditure on fuel and light which has ranged only between 6 and 8 per cent over the decade. Hence clothing and what are described as "other non-food items" appear to be the ones that make the adjustments when expenditure on food tends to move up.

The absolute figures of consumption show how desperately low the consumption standards are. According to the table per capita monthly expenditure which was Rs.18.57 in 1960-61 slowly moved up in current prices to Rs.32.85 in 1969-70, but came down to Rs.27.87 in 1970-71. It is not easy to explain why the 1970-71 figure of per capita monthly expenditure is lower than the previous two years even in terms of current prices during a period of generally rising prices. Using the rural price index referred to above an attempt has been made to arrive at the levels of consumption in constant (1960-61)prices. The annual per capita expenditure in the rural areas of the State derived from these figures is shown in Table 13.

The fall in per capita consumption expenditure in the early seventies is very pronounced, and as mentioned above it is something of a puzzle. It certainly does not correspond to the movements in per capita net domestic product in the State. Per capita net domestic product was Rs.335 in 1969-70 in 1960-61 prices, and moved upto Rs.359 in 1970-71, again in 1960-61 prices. But, it is not necessary that the movements in per capita net domestic product for the State as a whole and per capita consumption expenditure in the rural areas of the State should be of the same order or even of the same direction. It was noticed above that between 1969-70 and 1970-71 real wages in the rural areas of agricultural labourers had come down substantially. The fall in per capita consumption expenditure seen here is quite consistent with that finding.

On the basis of the break down of consumption expenditure for different expenditure groups an attempt has been made to see whether disparities in the levels of consumption are getting reduced or not over the period under consideration. The Gini concentration coefficient which was 0.5987 in 1961-62 comes down to 0.3603 in 1970-71 showing a marked decrease in concentration. But a closer examination of the figures show that there must have been considerable under-reporting of expenditure by the top expenditure groups. The total per capita expenditure of practically all expenditure groups upto the ninth group from below shows an increase during the period under discussion. However, the top three expenditure groups show a fall in total per capita expenditure even in current prices. If this is to be taken seriously the implication will be that in a period of rising prices the highest expenditure groups alone came to have a fall in their consumption levels. It seems more reasonable to assume that it is a case of under-reporting. There is further internal evidence to support this assumption. If the evidence on the fall in the real wages of the poorer sections seen earlier in this section is taken into account along with the fact that this was a period of rising per capita income, the chances are that disparities in consumption patterns may have in fact gone up.

IV

In this section an interpretation of the changes noted in sections II and III is attempted. We must begin with an identification of the main factors responsible for bringing about changes in the rural economy of Tamil Nadu. Among these, by far the most obvious and perhaps the most dominant has been State policy. In retrospect it can be seen that State policy towards the rural areas had a two-prong objective, the first to stimulate the productive operations and the second to bring about some structural transformation. Both these were considered to be, in the final analysis, meant to benefit the poor majority, the latter explicitly and the former indirectly.

State Policy to Increase Production

State policy to stimulate productive operations goes back at least to 1942-43 when the Grow More Food Campaign was launched in the wake of cessation of imports during the Second World War.[7] The Campaign had a two-fold objective of extensive cultivation by bringing new areas under food crops, increasing double crop cultivation and cultivation during the off season and intensive cultivation by the use of improved seeds and better manuring. Until 1946, most schemes for growing more food consisted of inducements and concessions designed to add to the areas under irrigated and unirrigated food crops and to increase the acre yields of crops and to encourage the use of protective food like vegetables. In subsequent years with greater emphasis on self-sufficiency in food production in the country as a whole, further schemes of land reclamation, supply of fertilisers, etc., were taken up which accounted for the big increase in the net sown area and gross cropped area in the early fifties. An aspect worth noting here is that this was accompanied by a Three Year Plan of Intensive Cultivation Schemes (1949-50 to 1951-52) which represented a co-ordinated and integrated programme with a view to concentrate the Grow More Food efforts in compact areas called "Intensive Cultivation areas". As we shall see later on, the "selective and intensive" approach became the

firm policy from the mid sixties onwards.

In the general objective to stimulate production, irrigation has been one of the major measures. The State had 21.95 lakh acres under major and medium irrigation projects at the commencement of the First Plan. During the First Plan, nine schemes were taken up at a cost of Rs.28.9 crores. The Lower Bhavani Project and the Mettur Canal Schemes were the most important among these. Under the Second Five Year Plan, in addition to carrying over the incomplete works of the First Plan, five more schemes were taken up and four of them were completed. The Parambikulam-Aliyar Project started during the Second Plan was completed during the Third Plan period. With that the State reached its limits in terms of major irrigation, and a recent official assessment has been that further extension to irrigation on a large scale from major and medium projects would require import of water from catchments draining into other States.[8]

Hence from the Third Plan onwards there was a shift into minor irrigation projects. The shift in irrigation policy was not only from major irrigation to minor irrigation. Along with it also came a shift from public irrigation to providing subsidies for private irrigation, especially pumpsets and tube wells. The number of electrically operated pumpsets shot up from less than 100,000 in 1961 to over 200,000 in 1966 and moved upto 680,000 in 1974. By the beginning of the 1970s Tamil Nadu claimed over 40 per cent of the number of pumpsets connected with electricity in the whole country. This was also accompanied by subsidised supply of electricity for agricultural purpose. Liberal credit facilities were also made available for the purchase of pumpsets.

From 1946-47 onwards there have been schemes to provide machinery like tractors and bulldozers to farmers for the reclamation of virgin lands and current fallows and for modernising agriculture in general. Initially tractors and bulldozers owned by the Agricultural Department were hired out to farmers at concessional rates. In 1951-52 the Tractor Hire

Purchase Scheme was introduced "with a view to assist ryots owning large extents of lands to reclaim virgin lands and bring more area under cultivation by mechanical means." [9] It was claimed also that while the Tractor Hiring Scheme is intended to provide facilities for mechanised cultivation to the poorer sections of the ryots who cannot afford to have tractors of their own, this scheme helps to increase the availability of private tractors in local areas.[10]

Subsidies of various kinds were made available for soil conservation, land development, the use of improved seeds and chemical fertilisers and the like. It is thus clear that the main policy instrument used by the State to achieve increase in production was subsidies. Though the schemes themselves have undergone many changes during the past quarter of a century the principle has continued to be the same.

The Intensive Agricultural Area Programme started in 1960-61 and extended in 1965-66 was another one of these schemes. The programme which was also known as the 'package programme' aimed at a package deal to increase production of cereals involving the application of fertilisers, the use of improved seeds, plant protection methods, cultural practices, etc., all supported through liberal credit provisions. The HYV programme started in 1966-67 was but the culmination of a series of subsidised programmes started more than a quarter century earlier.

Land Reforms

Along with these measures to increase production, State policy was also geared to bringing about a structural transformation of the rural economy in which land reforms were to play the major role.[11] In the 1950s the aim of land reforms was to give protection to the tenants. The Thanjavur Tenants and Pannaiyal Protection Act, 1952, The Madras Cultivating Tenants Protection Act, 1955, The Madras Cultivating Tenants (Payments of Fair Rent) Act, 1956 and the Madras Cultivating Tenants (Protection from Eviction) Act, 1956, were among the more important of the legislative measures of that period. These were followed by land ceiling legislations in the sixties and early seventies. The

Land Ceiling Act of 1961 fixed the ceiling on agricultural land that could be held by a family consisting of not more than five members at 30 standard acres. For families having more than five members an additional five standard acres was allowed for each additional member subject to an overall limit of 60 standard acres. The 1961 Act was amended in 1970 reducing the ceiling limit to 15 standard acres for a family of five and the overall ceiling limit to 40 standard acres for any family above this size. The norm used for arriving at "standard acre" in both these Acts was one acre of wet land assessed at the rate of Rs.10 and above per acre with increase in acreage permitted as one moved down to dry land and land with lower assessment, reaching a maximum of four acres.

There were also other pieces of legislation affecting the ownership and use of land during the sixties. The Tamil Nadu Agricultural Lands Record of Tenancy Rights Act of 1969 proposed to prepare a record of tenants in districts so that the intermediaries or landholders would not take advantage of the measures brought in to protect the rights of tenants. Similarly, the Madras Occupants of Kudiyiruppu (Protection from Eviction) Act, 1964 aimed to protect tenants and agricultural labourers from being evicted from their Kudiyiruppu (i.e. place of residence). The Madras Occupants of Kudiyiruppu (Conferment of Ownership Rights) Act, 1971 followed it up by laying down the procedure to confer rights (pattas) to the Kudiyiruppudar concerned.

With these measures of land reform there were also efforts to protect the interests of agricultural labourers through minimum wage laws. The national Minimum Wages Act of 1948 was in vogue till a State law was passed in 1959 fixing minimum wages for seven classes of workers employed in agriculture. The minimum wages were revised upwards in 1969. A series of measures were also taken to provide special assistance to small farmers.

The survey of agricultural change in the State has shown that the policy measures to boost production have been quite successful. But the review of land ownership and operation has suggested that the measures enacted to bring about a structural change in the rural areas have not had much of an impact. The fall in the share of the top size group and the increasing share of the bottom groups may be taken as the positive results of the land reforms measures mentioned above,[12] but apparently the "radical" land ceiling measures have left the ownership pattern substantially unaltered. It was seen that the Minimum Wage Acts did not protect the real wages of the agricultural labourers from falling.

Growth without structural change:

Thus the rural transformation in Tamil Nadu between 1950 and 1975 has been one of growth without major structural changes. In what follows we shall examine the impact of such a "growth". If the efforts to stimulate productive operations have been successful it is important to examine who among the producers have been the beneficiaries of such programmes. The discussion in Section III has indicated that the major beneficiaries of the changes, viewed from the stand point of asset accumulation have been the richest section among farmers, particularly the top 1 per cent. All-India comparison shows that in terms of the share of assets of the richest 1.0 per cent, Tamil Nadu topped the list both in 1961-62 and 1971-72.[13] At the other end in terms of the average value of assets of the lowest size groups, Tamil Nadu was next to last in 1971-72 (Orissa being the last) and in the percentage of rural households not owning any land at all and in the category of neither owning nor operating, Tamil Nadu in 1971-72 stood first (with 17 and 14 per cent respectively of rural households coming in these categories).[14] It is, therefore, not surprising that in the matter of distribution of rural assets also Tamil Nadu shows the greatest inequality.

Large and small farmers

We must examine what accounts for the differential impact of growth of output on large and small farmers. A careful examination of the farming conditions and practices of large and small farmers based on recent Farm Management Studies in Thanjavur and Coimbatore[15] indicates that while there are differences between the large and small farmers in terms of land utilisation and cropping pattern these differences do not seem to arise from what may be described as purely technical factors. The major differences between the large and small farmers is in terms of the utilisation of basic factors, owned land and owned labour. The large farmers operate substantially on owned land with hired labour whereas the small farmers operate with own labour and a higher proportion of leased-in-land. Large and small farmers also differ in the use of implements. On the whole the large farmers rely on major implements, both traditional and improved and the small farmers depend on traditional implements both major and minor. The scale factor is seen also in the availability of irrigation water. On the one hand we have the evidence from the World Agricultural Census, Tamil Nadu, that the small farms have a higher proportion of irrigated to unirrigated land. But the large farms have been the major beneficiaries of the "pumpset revolution".

We have noted already that the shift into subsidised private irrigation was part of the major effort from the second half of the sixties to boost agricultural production via the seed-fertiliser-water-implements revolution also referred to as the "green revolution". What is important here is to realise that in the new technology there is a high level of complementarity of water, other inputs and modern implements. Analysing the time profile of change in farm implements it is seen that there was a close link between increase in irrigation through electric pumps and the increase in the use of tractors since the early sixties.

These technological complementarities are also possibly scale neutral. But the possibility of taking advantage

of the technical complementarities certainly is not scale neutral. To give an example, the Techno-Economic Survey of Madras, 1961 had calculated that it would cost a farmer about Rs.145 per acre for water from a tube well if the yield of the tube well was about 20,000 gallons per hour and the area irrigated 40 acres of paddy, pointing out that wells yielding less than 20,000 gallons per hour would be uneconomical.[16] Hence the farmer's economic standing is an important factor determining the possibility of taking advantage of the new technology. Obviously the bigger farmers would have a differential advantage in this respect. There is the possibility that through appropriate credit policy the advantage of the larger farmers could be neutralised to some extent. However, all the evidence we have is that official credit operations in effect have also been to the advantage of the bigger farmers. The Thanjavur FMS gives some details of the sources of credit to farmers of different size classes.

Dividing these sources into two, viz., official (consisting of Government, Cooperatives, Banks and Panchayat Union) and private (i.e.money lenders, relatives and all other sources) it is seen that official sources apply 28.16 per cent in the case of the lowest, 16.78 and 15.27 per cent of the next two size groups and 71.48 and 77.34 per cent for the top two groups, the rest in all cases coming from private sources. Actual credit received from official sources was Rs.2,960 for 35 farmers of the lowest group and Rs.108,347 for 20 farmers of the highest group showing an average of Rs.84.6 and Rs.5417.4 respectively.[17] Another study conducted by the Director of Agriculture, Tamil Nadu in 1970 to find out the nature of credit distribution in the agricultural sector showed that per farmer Government credit was Rs.35.5 in the case of farmers with less than 2.5 acres, Rs.248.4 for farmers in the next size class between 2.5 and 7.5 acres, Rs.857.1 in the case of those owning between 7.5 and 15.0 acres and Rs.416.7 for farmers above that size. On this basis, the per acre governmental credit among the size classes in

ascending order was seen to be Rs.54.5, Rs.52.9, Rs.81.2 and Rs.18.6. This appears quite "fair" but the pattern was seen to change substantially with respect to cooperative credit. Per farmer credit from the cooperatives in ascending order of size classes was Rs.67.2, Rs.579.2, Rs.1160.3 and Rs.5172.2 and per acre in the same order Rs.44.7, Rs.123.4, Rs.110.9 and Rs.231.1.[18] Thus it is seen that the operation of the credit mechanism had a clear size bias enabling the larger farmers to get more credit (possibly also when credit is needed) which along with their own resources would have conferred special advantages on them to go in for new methods of cultivation and to benefit from the increase in output resulting from it.

We can examine what implication all this will have on the relative performance of farms of different sizes. The Coimbatore Farm Management Study gives a great deal of material to probe into this area.[19] It can be seen that per unit of land and per unit of capital the performance of the small farms is much better than that of the big farms. This is specially true in the case of capital. If one is only concerned with static efficiency in performance one has, therefore, to conclude that the small farms are more efficient than the larger ones, thus confirming the findings of the Farm Management Studies of the mid fifties. On the other hand, if the main concern is with the implication of the relative performance of the farms on their accumulation and long-term prospects one must take into account the return per family member. It is seen that the return per family member in the small farms will put them just above the official "poverty line" and in the top groups, it is three to four times as high. Even granting that members of larger farms have a higher consumption level, it is clear that their earnings can leave a surplus. Thus the annual returns from farm operations enable the members of the small farms at best to survive whereas they help the large farms to continue their process of accumulation so that in subsequent periods the gap between the small and the large in terms of assets will increase. This is exactly what we have noticed in rural Tamil Nadu and is the key

to the understanding of rural transformation. If we relate this process to operational efficiency also, what happens is that the more efficient will just survive or even disappear over time, while the less efficient ones will continue to grow and prosper.

Non-farmers:

We may now turn to the impact of the rural transformation on the non-farmers. It has already been indicated that the real wages of non-farmers engaged in farming operations have come down between 1951-52 and 1973-74. From this we cannot arrive at any definite statement regarding the total earnings of non-farmers, for that will depend also on the availability of employment in farm operations as well as earnings from non-agricultural occupations. On all of these the information we have is very sketchy indeed. However, it is possible to piece together material from different sources and arrive at some conclusions, however tentative they may have to be.

The main sources of information to arrive at figures on earnings of non-farmers, particularly agricultural labour households are the reports of the Agricultural Labour Enquiries, the All-India Rural Labour Enquiry and the more recent rounds of the National Sample Survey. Table 14 brings together information on man-days worked and wage rate per day for selected years between 1950-51 and 1970-71. It is seen that generally there was an increase in the average man-days worked of agricultural workers, particularly male. For males the average annual full days of wage paid employment in agriculture was 168 days in 1950-51, 193 days in 1956-57 and 194 days in 1964-65. For females there was an initial fall from 148 days in 1950-51 to 135 days in 1956-57. But it moved upto 146 in 1964-65. In the case of children the corresponding figures were 199 in 1956-57 and 209 in 1964-65. Non-agricultural employment, however, has not been steady.

For 1970-71 the annual average full days of wage paid employment has been estimated from the NSS twenty-fifth round. It has been calculated from the table of percentage distribution of estimated number of man-days spent in a week under different

types of economic and other activities by persons belonging to various age-sex groups. The percentage man-days per week has been converted into average annual full days for different groups. Persons below 15 have been treated as children.

It is difficult to say whether the 1970-71 figures on employment are strictly comparable with the earlier figures. The figures for employment in agriculture are lower in the case of all three groups, strikingly so in the case of females and children. Taking agricultural and non-agricultural employments the figure for males in 1970-71 does not appear to be much lower than in 1964-65. But there is no adequate explanation for the big fall in the case of females. The reduction in employment for children may be partly a reflection of increased number of days spent in school calculated as 94 days in a year.

Using the employment and wage rate figures shown in Table 14 estimates are made of annual earnings of agricultural labourers. For male labourers annual earnings from both agriculture and non agriculture show a striking increase going up from Rs.180.47 in 1950-51 to Rs.520.52 in 1970-71. The figures, of course, are in current prices. For females also there is a substantial increase in total earnings although earnings from agriculture are seen to be somewhat erratic. In the case of children total income increased up to 1964-65. The figure for 1970-71 shows a big fall.

The Agricultural Labour Enquiry and the Rural Labour Enquiry have also gone into the question of the earnings of agricultural labour households from various sources. The estimates of average annual earnings of agricultural labour households for 1950-51, 1956-57 and 1964-65 are given in Table 15. From these sources we also have information on the average size of the agricultural labour households for 1956-57 and 1964-65, 4.1 for the former year and 4.0 for the latter. On this basis per capita annual income for agricultural labour in Tamil Nadu was Rs.88.30 in 1950-51, Rs.91.92 in 1956-57 and Rs.165.00 in 1964-65.

No figures are available for subsequent periods on earnings of agricultural labour households. But an estimate

can be made for 1970-71 based on employment and wage rate figures given in the NSS twenty-fifth round (see table 14) supplemented by information on number of earners per family. The Labour Enquiries have shown that there were slightly more than one (1.0, 1.04 and 1.05 for 1950-51, 1956-57 and 1964-65 respectively) male earners per family and slightly less than one (0.9, 0.85 and 0.94 for the above respective years) in the case of females. It seems reasonable therefore to work with one male earner and one female earner per household for calculating household earnings for 1970-71. On this basis, and relying on the NSS information, the annual wage earnings from agriculture and non-agriculture of an agricultural labour household would work out to Rs.670. An upward revision of this figure would be required to arrive at the total earnings of the agricultural labour households because as seen in Table 15 these households also have some income from "other sources". For the three years shown in Table 15, income from other sources can be seen to be going up from 8 per cent in 1950-51 to close to over 15 per cent in 1964-65. Based on this trend we can make a liberal assumption that from other sources agricultural labour households earned 25 per cent of their total income in 1970-71. Total earning of a household in 1970-71 would thus become Rs.893 (Rs.670 from agricultural and non-agricultural employment, Rs.233 from other sources). The NSS twenty-fifth round showed the size of the family to be 4.5. Hence per capita earnings in 1970-71 would turn out to be Rs.198.00.

"Poverty line":

With the help of the figures we have arrived at as the earnings of the poorer sections in the rural parts of Tamil Nadu (of small farmers at the end of section IV and of agricultural labour households above) it is possible to examine where they stand in relation to the "poverty line". We shall use the two standard indicators for arriving at the poverty line, viz. nutritionally adequate diet (a per diem intake of 2400 calories which cost around Rs.15.00 per month in 1960-61 prices taking into account the consumption habits in the State) and a minimum level

of living (i.e., nutritionally adequate diet plus some non-food items, costing in all Rs.21.00 per mont , in 1960-61 prices.[20]

Using these two norms and making use of the NSS data on consumption patterns we have estimated the percentage of rural population coming below the poverty line. The findings are reported in Table 16. It is seen that at the beginning of the period, slightly over 50 per cent of the rural population and at the end of the period slightly below 50 per cent of the rural population come below the poverty line (col.3). What is perhaps more interesting is that there was a tendency for the incidence of poverty to decline from the mid fifties to the early years of the sixties with 1961-62 showing the lowest figure of 36.04per cent. Since then, however, the percentage of population below/poverty line has been steadily increasing reaching 48.63 per cent in 1969-70. Column 5 of the table shows the percentage of population below the poverty line in terms of the minimum levels of living norm. It was over 74 per cent in 1957-58, went up to nearly 80 per cent towards the end of the decade and then steadily declined to 64 per cent in the mid sixties. But as in the case of the nutritionally adequate diet the percentage of population below the poverty line in terms of the minimum level of living norm also went up in the late sixties, reaching in 1969-70 almost the same figure as in 1957-58. The picture that emerges, then, is one of a fall and then a rise in the proportion of population below the poverty line. The maximum reduction in the proportion of the poor was reached in the early 1960s; thereafter poverty increased steadily, even dramatically. Between 1961-62 and 1969-70 the proportion of people with a nutritionally inadequate diet increased from 36.0 to nearly 49.0 per cent of the rural population. Admittedly this proportion still was lower than in the later 1950s, but there was alarming retrogression throughout the 1960s. Using the more generous norm of Rs.21 per month (in 1960-61 prices) the same general pattern is seen. Indeed the proportion of rural population living below this poverty line was virtually the same in 1969-70 as it had been in 1957-58. Given the increase in the size of the rural population that had occurred in the intervening years,

the number of poor people had of course increased substantially.

It should not be difficult to identify who the poor are in the rural areas. The calculations above have shown that the per capita annual income of agricultural labourers in rural Tamil Nadu was Rs.88.30 in 1950-51, Rs.91.52 in 1956-57, Rs.165.00 in 1964-65 and Rs.198.00 in 1970-71. Table 15 indicates that those with a per capita expenditure of Rs.160.44 in 1959-60, Rs.238.56 in 1964-65 and Rs.335.16 in 1969-70 would have been below the poverty line in terms of even the nutritionally adequate diet norm. It is thus evident that the earnings of the agricultural labourers in all these years were way below what was necessary to be above the poverty line.

It is more difficult to say what proportion of small cultivators, whose annual earnings have also been calculated above, come below the poverty line. The Coimbatore FMS indicated that the farm business income per member of the family in the case of the smallest group of farmers was about Rs.365 per annum. This is only slightly above Rs.335 that was required to be above the poverty line in 1969-70 in terms of nutritionally adequate diet, and considerably less than Rs.463 per annum if the poverty line is drawn in terms of minimum levels of living. So the members of this group could not be claimed to be above the poverty line. Similarly it has been calculated that net earnings from 1 hectare of dry land was about Rs.540 in the early 1970s. If this is taken to be the earning of a family of 4 to 5 members, the per capita earning would be between Rs.135 and Rs.110 per annum. At this rate even farm families with 3 hectares of dry land or 1 hectare of wet land would have to be considered to be living below the poverty line. According to Table 15 therefore, close to 50 per cent of farm families in rural Tamil Nadu must be taken as being below the poverty line.

These figures highlight one of the implications of the kind of transformation that rural Tamil Nadu experienced in the post-Independence period. A phenomenal increase in output of practically all produce in the rural areas, in particular foodgrains, has left a vast proportion of the population even

without a nutritionally adequate diet, not to speak of any tolerable level of living.

The Hidden Transformation:

We have characterised the rural transformation in Tamil Nadu as growth without major structural changes. But in another sense a quiet structural transformation has been going on in rural Tamil Nadu. The main feature of this transformation is the tendency of small farmers to leave land and farming to join the ranks of the rural proletariat. In fact, the evidence we have shows that there is not much of a difference between the very small farmers and the agricultural labourers both in terms of occupational characteristics and earning capacity.

The twenty-fifth round of the NSS concentrated on the problems of the "weaker sections" in the rural areas. The weaker sections identified for this purpose comprised two strata of the population, viz., the "small cultivator households" and the "rural non-cultivating wage-earner households". Small cultivator households were defined as the lowest 10 per cent of the households having some cultivated land during the reference period, July 1969 - June 1970, and non-cultivating wage-earner households were defined as households having no cultivated land whatsoever during the same reference period.

The time disposition of the small cultivators in rural Tamil Nadu shows some interesting features. It was seen that the small cultivators work in their farm only 6 to 8 per cent of the total man-days (compared with the all-India figures of 10 to 12 per cent, and 22 to 30 per cent in a State like Punjab). The small cultivators of Tamil Nadu were seen to spend 17 to 28 per cent of the man-days as paid workers in other farms, which was only a little lower than what the non-cultivating wage-earner households were doing. It was seen also that the non-cultivating wage earners generally had lower unemployment than small cultivators. In terms of earnings, the small cultivators were seen to have larger earnings than wage earners only during the slack seasons (April to September) whereas during the busy agricultural seasons (October to March), the non-cultivators, both male and female

had a higher earning than the small farmers.

These findings lend further support to the argument put forward in section II and apart from the census definitional changes, there must have been a decline in the number of cultivators in Tamil Nadu and an increase in agricultural labourers. Such a change of course does not take place all of a sudden and can only be fully documented with much larger information about the ownership and utilisation of land.

The quiet transformation that is going on in the rural areas is not confined to the occupational changes referred to above. The twentyfifth round of the NSS also probed into the willingness of the weaker sections to give up not only traditional occupations, but also places of work. Some 24 per cent of the small cultivator households expressed willingness to take up other work within the village (almost 50 per cent of them for less than Rs.1000 per annum), 26 per cent to take up work outside the village if there was guaranteed regular employment (almost 40 per cent of these expecting only less than Rs.1000 per annum and 80 per cent only less than Rs.2,000 per annum), and another 4 per cent was willing to accept employment outside the village even without guaranteed employment. In the case of wage earners also, 51 per cent of the households reported willingness to take up non-agricultural work, 20 per cent within the village, 21 per cent outside the village, if regular employment was guaranteed and 10 per cent outside the village even without guarantee of regular employment.

V

A few concluding observations about the rural scene in Tamil Nadu are in order. The first thing that strikes us is the fact that the rural scene is far from static. Over the past quarter of a century the rural areas have experienced a new dynamism unknown in the days of the past--substantial increase in output, major changes in production techniques and in organisational patterns. We have no evidence to support the frequently repeated allegation that rural areas resist

change for whatever reasons it may be. Secondly the changes in the rural areas have been induced changes. Frequently the changes came as a result of decisions taken outside the rural areas. Thirdly, some of these changes have moved in desired directions. Extensive cultivation through the use of major irrigation schemes, intensive cultivation through the use of modern implements, increase in output and systematic production patterns, and more organised efforts through cooperatives and the like were all as they were intended to be.

But these processes have also created some changes that were not desired. The pressure on small farmers to leave their land and to become agricultural labourers is one of them. The decline in the real wages of the agricultural labourers is another. And the tendency of mass poverty to continue and increase is yet another.

Thus the development processes of the past have generated growth and affluence for the few and poverty and insecurity for the many. These must then be taken as two sides of the same coin.

We have documented these processes without fully analysing them. One thing, however, is worth noting. The totality of changes that we have observed have been brought about essentially through a transformation into modernity of traditional agriculture via technological innovation. But technology has had differential impact on different sections in rural society. The problem however, has not been of technology itself. Making water available, increasing the productivity of land through better farming practices etc. are in themselves beneficial. We have seen also that the technology adopted in Tamil Nadu was essentially scale neutral. The problem really is that technology is seldom socially neutral. Bertrand Russell said that technology brings benefit to Man, but which particular men it benefits depends on the social system. In this sense technology has what may be called a

"refraction effect" which is determined by the productive system into which it comes. In the Tamil Nadu case what we have observed is that scale neutral technology conferred differential advantage on the richer sections because of their ability to benefit from the complementarities of modern inputs and farm processes which the smaller farmers could not take advantage of. Apparently, not only physical technology, but even social technology - the market forces, for instance - was in favour of the rich and against the poor. An era of rising prices led to the growing accumulation of assets by a few and the deterioration of the real wages of the many.

What are the social and economic forces that enable the few who are rich to benefit from all the measures undertaken for the improvement of "society as a whole" and what are the socio-economic forces that prevent the many who are the poor from taking advantage of even measures specially designed for them? This is the clue to the understanding of rural transformation.

Notes

1. The analysis of the growth rates of NSDP is taken from Celine D'Souza's unpublished work "Economic Trends in the Planning Era."

2. During the census of 1961 every individual was asked if he was engaged (i) in cultivation (ii) as agricultural labourer (iii) at household industry and (iv) in any other work, in that order. A person who was basically an agricultural labourer even if he cultivated just a couple of cents of land in his backyard could declare himself first as a cultivator and then as an agricultural labourer. This procedure led to inflate the cultivator figures in the 1961 census. But in the 1971 census the procedure adopted for the occupational classification of workers was to go by main activity. Hence some who would be treated as cultivators in 1961 would be classified as agricultural labourers in 1971. Unfortunately there is no easy way of assessing the extent of this change.

3. For a more detailed analysis of this aspect see C T Kurien and Josef James: "Urbanisation and Economic Change: A Pre-theoretic investigation of Tamil Nadu" Economic and Political Weekly, Feb. 22, 1975

4. The concentration Ratio used here is the following:

$$CR = \sum_{i=1}^{n} P_{i-1}Q_i - \sum_{i=1}^{n} P_i Q_{i-1}$$

where P_i refers to the cumulative percentage of households of the i^{th} group and Q_i to the cumulative percentage of area owned by the i^{th} group.

5. R P Pathak, K R Ganapathy and Y U K Sarma: "Shifts in pattern of Asset Holdings, 1961-62 to 1971-72" Economic and Political Weekly, Mar.19, 1977.

6. "Paddy" refers to both paddy and rice. Where production and productivity figures are given in tonnes and kilograms the reference is to rice.
7. Government of Madras, Committee on Agricultural Production 1966, p.7
8. Government of Tamil Nadu, State Planning Commission, Report of the Task Force on Agriculture, Vol. II, p.65
9. Committee on Agricultural Production p.89
10. Ibid p. 89
11. For details of land reforms in Tamil Nadu see K S Sonachalam, Land Reforms in Tamil Nadu (New Delhi, Oxford and IBM Publishing Co. 1970) and G Venkataramani, Land Reform in Tamil Nadu (Madras, Sangam Publishers 1973).
12. Pranab Bardhan in "Trends in Land Relations" Economic and Political Weekly Annual 1970 points out that the sub-division of land through inheritance by itself will lead to an increase in the share of land in the lowest classes over time.
13. The figures are from NSS 17th and 25th rounds.
14. NSS 25th round
15. Farm Management Studies conducted on sample survey basis in Thanjavur in 1967-68 and in 1969-70 and in Coimbatore from 1970-71 to 1972-73.
16. Techno-Economic Survey of Madras, p.85
17. Studies in the Economics of Farm Management in Thanjavur (Tamil Nadu) 1969-70 Table 3.37 p.58
18. Reported in R K Sampath and Jayalakshmi Ganesan Economics of Dry Farming in Tamil Nadu. (Madras, Sangam Publishers, 1972)ch.4
19. Studies in the Economics of Farm Management in Coimbatore (Tamil Nadu) (1970-71 to 1972-73 p.20 and p.83).
20. For details see C T Kurien "Rural Poverty in Tamil Nadu" working paper, World Employment Programme Research, International Labour Office, Geneva Sept. 1976.

TABLE 1

Classification of Rural households of Tamil Nadu

Description of households	1961-62	1971-72
1. Now owning	24.20	17.01
2. Not operating	39.98	41.95
3. Owning and operating	57.70	55.13
4. Not owning but operating	2.32	2.92
5. Owning but not operating	18.10	27.86
6. Neither owning nor operating	21.88	14.09
3+4+5+6	100.00	100.00

NSS Nos. 144(17th Round) and 215(26th Round).

TABLE 2 (I)

Distribution of Ownership Holdings

Size class of household ownership holding(acres)	Estd.No.of households(000)		Estd. area owned (000 acres)		Average area owned (acres)	
	59-60	71-72	59-60	71-72	59-60	71-72
Upto 0.99	3540	3528.0	408	473.4	0.12	0.13
1.00 - 2.49	1001	1041.6	1638	1675.8	1.64	1.61
2.50 - 4.99	664	663.7	2349	2319.3	3.54	3.48
5.00 - 7.49	266	277.7	1607	1693.9	6.04	6.08
7.50 - 9.99	150	115.9	1278	983.1	8.52	8.48
10.00 - 14.99	110	116.9	1320	1380.9	12.00	11.80
15.00 - 19.99	70	41.7	1147	715.3	16.39	17.14
20.00 - 24.99	19	16.0	424	345.5	22.32	21.60
25.00 - 29.99	12	9.0	330	237.7	27.50	26.42
30.00 - 49.99	17	12.7	621	473.2	36.53	37.26
50.00 & above	10	5.5	784	324.8	78.40	59.08
All sizes	5859	5828.7	11906	10622.9	2.03	1.83

Source: National Sample Survey Reports No.66 (Table 7.3)

159(Table 1.8), 215 Vol.I (Rural Table 2).

Contd.

TABLE 2(II)

Size Class of household ownership holding(acres)	Percentage of Households		Percentage of Area owned	
	59-60	71-72	59-60	71-72
Upto 0.99	60.42	60.53	3.43	4.45
1.00 - 2.49	17.09	17.87	13.76	15.78
2.50 - 4.99	11.33	11.39	19.73	21.84
5.00 - 7.49	4.54	4.76	13.50	15.95
7.50 - 9.99	2.56	1.99	10.73	9.26
10.00 -14.99	1.88	2.01	11.09	12.99
15.00 -19.99	1.20	0.72	9.64	6.73
20.00-24.99	0.34	0.27	3.56	3.23
25.00 -29.99	0.20	0.15	2.71	2.24
30.00 -49.99	0.27	0.22	5.21	4.46
50.00 & above	0.17	0.99	6.58	3.05
All sizes	100.00	100.00	100.00	100.00

Contd.

TABLE 2 (III)

Size class of household ownership holding(acres)	Cumulative Households		Percentage of area owned	
	59-60	71-72	59-60	71-72
Upto 0.99	60.42	60.53	3.43	4.45
1.00 - 2.49	77.51	78.40	17.19	20.23
2.50 - 4.99	88.84	89.79	36.92	42.07
5.00 - 7.49	93.38	94.55	50.42	58.02
7.50 - 9.99	95.94	96.54	61.15	67.28
10.00 - 14.99	97.82	98.55	72.24	80.27
15.00 - 19.99	99.02	99.27	81.88	87.00
20.00 - 24.99	99.36	99.54	85.44	90.25
25.00 - 29.99	99.56	99.69	88.21	92.49
30.00 - 49.99	99.83	99.91	93.42	96.95
50.00 & above	100.00	100.00	100.00	100.00
All sizes	--	--	--	--

Source: National Sample Survey Reports No.66(Table 7.3). 159(Table 1.8), 215 Vol.I (Rural Table 2.)

TABLE 3

Concentration of Ownership holdings

Size class of household ownership holdings (in acres)	Inter-class concentration		Weights	Chi square
	59-60	71-72		
Upto 0.99	5.67	7.35	0.32	0.4978
1.00 to 2.49	80.51	88.30	0.16	0.7537
2.50 to 4.99	174.14	191.75	0.16	1.7808
5.00 to 7.49	297.40	335.08	0.10	4.7740
7.50 to 9.99	419.14	465.33	0.06	5.0902
10.00 to 14.99	589.89	646.26	0.07	5.3867
15.00 to 19.99	803.33	934.72	0.05	21.4897
20.00 to 24.99	1047.05	1196.30	0.02	21.2746
25.00 to 29.99	1290.48	1493.33	0.01	31.8859
30.00 to 49.99	1796.55	2027.27	0.03	29.6300
50.00 & above	3870.58	3388.89	0.02	59.9459
	Weighted Chi-square			4.7130

Table 4 : Percentage distribution of rural households according to value of assets and share of each asset group in the total value of assets.

Asset Groups	Cultivators percentage share in			
	Households		Total Assets	
	1961-62	1971-72	1961-62	1971-72
Less than Rs.500/-	11.4	4.25	0.4	0.12
500/- to 1000/-	10.6	6.06	1.01	0.41
1000/-to 2500/-	21.0	16.59	4.8	2.63
2500/-to 5000/-	19.7	19.34	9.8	6.47
5000/-to 10000/-	18.4	22.15	17.8	14.60
10000/-to20000/-	11.1	17.83	21.4	22.93
20000/-to & above	7.8	13.78	44.8	52.85
All asset groups	100.0	100.00	100.00	100.00

Source: Reserve Bank of India. All India Rural Debt and Investment Survey 1961-62 and All India Debt and Investment Survey 1971-72.

Contd.

Table 4 (II)

Asset Groups	Non-cultivators percentage share in Households 1961-62	Households 1971-72	Total Assets 1961-62	Total Assets 1971-72
Less than Rs.500/-	60.4	51.97	6.8	6.53
500/- to 1000/-	13.9	20.68	6.0	8.21
1000/- to 2500/-	12.4	15.28	11.9	13.63
2500/- to 5000/-	6.8	6.46	15.1	12.97
5000/- to 10000/-	4.0	3.26	17.1	12.86
10000/- to 20000/-	1.3	2.34	11.5	45.79
20000/- to & above	1.2		31.5	
All asset groups	100.00	100.00	100.00	100.00

Contd.

Table 4 (III) i.....

Asset Groups	All rural households percentage share in			
	Households		Total Assets	
	1961-62	1971-72	1961-62	1971-72
Less than Rs.500/-	29.5	25.54	1.2	0.86
500/- to 1000/-	11.8	12.59	1.6	1.30
1000/- to 2500/-	17.8	16.01	5.6	3.89
2500/- to 5000/-	15.0	13.59	10.4	7.22
5000/- to 10000/-	13.1	13.72	17.7	14.40
10000/- to 20000/-	7.5	10.40	20.2	11.86
20000/- to & above	5.3	8.15	43.3	60.47
All asset groups	100.00	100.00	100.00	100.00

TABLE : 5

Average value of assets and percentage share in the aggregate value of each decile group of rural households.

Decile group	Average value of assets Rupees			Percentage share in the aggregate amount		
	1961-62	1971-72	Growth rate	1961-62	1971-72	Growth rate
0-10	41.79	27.31	-34.65	0.08	0.04	-50.00
10-20	130.59	102.40	-21.59	0.25	0.15	-40.00
20-30	255.95	218.45	-14.65	0.49	0.32	-34.69
30-40	438.77	395.94	- 9.76	0.84	0.58	-30.95
40-50	705.16	662.18	- 6.10	1.35	0.97	-28.15
50-60	1123.03	1099.08	- 2.13	2.15	1.61	-25.12
60-70	1849.08	1877.30	1.53	3.54	2.75	-22.32
70-80	3254.18	3467.89	6.57	6.23	5.08	-18.46
80-90	6534.47	7413.64	13.45	12.51	10.86	-13.19
90-100	37906.21	53001.41	39.82	72.57	77.64	6.99
all rural households	5223.40	6826.56	30.69	100.00	100.00	--

Source: R P Pathak, KR Ganapathy and Y U K Sarma: "Shifts in pattern of Asset Holdings of Rural Households, 1961-62 to 1971-72" Economic and Political Weekly, March 19, 1977.

TABLE 6

Percentage of Gross Cropped area (GCA=100 per cent) under cultivation of major crops.

	1951-52	1955-56	1960-61	1965-66	1968-69	1973-74
Paddy	28.14	32.15	34.39	35.41	37.07	35.35
Cholam	11.28	10.99	10.57	10.74	10.12	8.38
Cumbu	8.45	8.25	6.68	5.66	6.61	5.24
Ragi	5.24	5.05	4.97	4.66	4.35	3.44
(Total Cereals)	62.09	64.73	63.86	63.23	61.76	57.54
Total Pulses	7.41	6.52	5.82	5.63	6.35	8.67
Groundnut	12.27	10.56	11.90	13.52	13.47	14.85
Sugarcane	0.80	0.71	1.11	1.43	1.76	2.43
Cotton	3.10	3.68	5.41	4.54	3.99	3.91
Other Crops	14.33	13.80	11.90	11.65	12.67	12.60
Total	100.00	100.00	100.00	100.00	100.00	100.00
Total gross cropped area (in '000) hectares	6,357	6,867	7,321	7,066	6,914	7,650

Source: Season and Crop Reports and Tamil Nadu - An Economic Appraisal(various issues)

TABLE 7

Area under major crops in '000 hectares

Year	Paddy	Cholam	Cumbu	Ragi	Groundnut	Sugarcane	Cotton
1951-52	1789 (100)	717 (100)	537 (100)	333 (100)	779 (100)	51 (100)	197 (100)
1955-56	2208 (123.4)	755 (105.3)	567 (105.6)	347 (104.2)	724 (92.9)	49 (96.1)	253 (128.4)
1960-61	2518 (140.7)	774 (107.9)	489 (91.1)	364 (109.3)	871 (111.7)	81 (158.8)	396 (201.0)
1965-66	2502 (139.9)	759 (105.9)	400 (74.5)	329 (98.8)	955 (122.4)	101 (198.0)	321 (162.9)
1968-69	2363 (132.08)	700 (97.6)	457 (85.1)	301 (90.4)	931 (119.4)	172 (337.3)	276 (140.1)
1973-74	2704 (151.1)	641 (89.4)	401 (74.7)	263 (79.0)	1136 (145.6)	186 (392.2)	299 (151.8)
1975-76	2689 (150.3)	538 (75.0)	459 (85.5)	311 (93.4)	1083 (139.0)	154 (302.0)	260 (132.0)

(figures within brackets show indices with 1951-52 = 100)
Source: Season and Crop Reports and Tamil Nadu - An Economic Appraisal (various issues)

TABLE 8

Production of Major Crops in '000 tonnes

Year	Paddy	Cholam	Cumbu	Ragi	Groundnut	Sugarcane	Cotton+
1951-52	2129 (100.0)	461 (100.0)	265 (100.0)	305 (100.0)	782 (100.0)	322 (100.0)	292 (100.0)
1955-56	3002 (141.0)	486 (105.4)	235 (88.7)	335 (109.8)	840 (107.4)	340 (102.4)	311 (106.5)
1960-61	3559 (167.2)	631 (136.9)	301 (113.6)	360 (118.0)	1057 (135.2)	686 (206.6)	374 (128.1)
1965-66	3524 (165.5)	513 (111.3)	285 (88.7)	292 (95.7)	823 (105.2)	955 (287.7)	301 (103.1)
1973-74	5595 (262.8)	563 (122.1)	297 (112.1)	287 (94.1)	1163 (148.7)	1373 (413.6)	341 (116.8)
1975-76	5867 (275.6)	465 (100.9)	342 (129.1)	473 (155.1)	1271 (162.5)	1478 (445.2)	386 (132.2)

(figures within brackets show indices with 1951-52 = 100)

+ Production of cotton is in thousand bales of 180 kgs each.

Source: Season and Crop Reports and Tamil Nadu - An Economic Appraisal (various issues)

TABLE 9

Productivity of Major Crops in Kilogram per hectare

Year	Paddy	Cholam	Cumbu	Ragi	Groundnut	Sugarcane	Cotton
1951-52	1190 (100.0)	645 (100.0)	493 (100.0)	916 (100.0)	1002 (100.0)	6500 (100.0)	148 (100.0)
1955-56	1360 (114.3)	643 (99.7)	417 (84.6)	966 (105.5)	1158 (115.6)	6934 (106.7)	123 (83.1)
1960-61	1413 (118.7)	816 (126.5)	616 (124.9)	989 (108.0)	1217 (121.5)	8454 (130.1)	167 (112.8)
1965-66	1409 (118.4)	675 (104.7)	588 (119.3)	889 (97.1)	860 (85.8)	7363 (113.3)	169 (114.2)
1968-69	1502 (126.2)	707 (109.6)	629 (127.6)	972 (106.1)	857 (85.5)	8813 (135.6)	163 (110.1)
1973-74	2035 (171.0)	995 (154.3)	1025 (207.9)	1191 (130.0)	1050 (104.8)	9205 (141.6)	202 (136.5)
1975-76	2182 (183.4)	864 (134.0)	745 (151.1)	1521 (166.0)	1174 (117.2)	9597 (147.6)	265 (179.1)

(figures within brackets show indices with 1951-52 = 100)

Source: Season and Crop Reports and Tamil Nadu - An Economic Appraisal (various issues)

TABLE 10

USE OF AGRICULTURAL IMPLEMENTS IN TAMIL NADU -

From 1950-51 to 1974-75

Year	Ploughs	Carts	Tractors	Oil Engines	Electrical pumps
1951	2,963,464	684,528	327	13,388	14,751
1956	2,928,071 (-0.24)	639,805 (-1.31)	822 (30.28)	29,761 (22.71)	23,968 (12.50)
1961	3,430,102 (3.43)	664,544 (1.77)	934 (2.73)	36,832 (4.75)	98,481 (62.18)
1966	3,771,672 (1.99)	627,768 (-1.11)	2180 (26.68)	42,852 (3.27)	208,485 (22.39)
1974	3,677,359 (-0.31)	594,873 (-0.66)	7107 (28.25)	234,416 (55.98)	680,705 (28.31)

Figures in brackets show the annual growth rates over the previous period.

Source: Quinquennial Livestock Census and Tamil Nadu - An Economic Appraisal.

Table 11 : Money Wages (Annual average rate of daily wages paid to agricultural labourers(in Rs.)

Years	Field Labourers		
	Men	Women	Non-adults
1951-1952	1.55	0.94	0.74
1952-53	1.47	0.80	0.61
1953-54	1.35	0.78	0.67
1954-55	1.29	0.73	0.66
1955-1956	1.28	0.71	0.62
1956-57	1.20	0.70	0.59
1957-58	1.28	0.74	0.63
1958-59	1.24	0.76	0.63
1959-60	1.30	0.84	0.60
1960-1961	1.37	0.91	0.73
1961-62	1.48	0.95	0.82
1962-63	1.51	0.96	0.82
1963-64	1.48	1.06	0.86
1964-65	1.80	1.22	1.06
1965-1966	1.95	1.29	1.09
1966-67	2.23	1.50	1.32
1967-68	2.40	1.61	1.52
1968-69	2.61	1.67	1.61
1969-70	2.71	1.85	1.72
1970-1971	2.73	1.80	1.71
1971-72	2.76	1.81	1.74
1972-73	2.97	1.91	1.78
1973-1974	3.48	2.24	1.96

Source: Annual Wage Rate Series Constructed by the Agro-Economic Research Centre of the Madras University.

Contd.

ble 11 (II)

Years	Herdsmen		
	Men	Women	Non adults
1951-1952	1.13	0.87	0.61
1952-53	1.07	0.69	0.47
1953-54	1.13	0.76	0.53
1954-55	1.13	0.70	0.51
1955-1956	0.97	0.61	0.53
1956-57	0.55	0.59	0.47
1957-58	0.91	0.55	0.49
1958-59	0.77	0.59	0.45
1959-60	0.84	0.70	0.56
1960-1961	1.08	0.79	0.66
1961-62	1.23	0.80	0.76
1962-63	1.27	0.75	0.85
1963-64	1.33	0.95	0.88
1964-65	1.45	0.92	0.89
1965-1966	1.51	1.06	0.98
1966-67	1.58	1.10	1.10
1967-68	1.57	1.08	1.05
1968-69	1.67	1.15	1.17
1969-70	2.05	1.43	1.27
1970-1971	2.05	1.34	1.32
1971-72	1.77	1.42	1.33
1972-73	2.14	1.59	1.47
1973-1974	2.19	1.57	1.57

Contd.

Table 11 (III)

Years	Other Agricultural Labourers		
	Men	Women	Non-adults
1951-1952	1.34	0.90	0.75
1952-53	1.58	0.90	0.66
1953-54	1.32	0.76	0.60
1954-55	1.17	0.71	0.54
1955-56	1.14	0.65	0.56
1956-57	1.06	0.62	0.47
1957-58	1.11	0.66	0.47
1958-59	1.12	0.66	0.48
1959-60	1.21	0.81	0.61
1960-1961	1.25	0.87	0.70
1961-62	1.45	0.95	0.83
1962-63	1.43	0.97	0.80
1963-64	1.47	1.03	0.82
1964-65	1.72	1.16	0.90
1965-1966	1.83	1.17	0.93
1966-67	1.99	1.30	1.11
1967-68	2.23	1.50	1.25
1968-69	2.48	1.54	1.41
1969-70	2.57	1.57	1.50
1970-71	2.54	1.59	1.52
1971-72	2.53	1.55	1.53
1972-73	2.83	1.73	1.72
1973-1974	3.22	1.99	2.01.

Table 12 : Distribution of Monthly per capita expenditure on major items of consumption in Rural Areas of Tamil Nadu from 1960-61 to 1970-71 (in current prices in Rs. and as per centage of total expenditure.

Items	1960-61		1961-62	
	Rs.	%age	Rs.	%age
Cereals, grams & cereal substitutes	7.81	42.06	9.03	41.63
Pulses & Products	0.57	3.07	0.74	3.37
Milk & Products	0.53	2.85	0.59	2.72
Other food items including oil, meat, egg, fish & vegetables	3.97	21.38	4.74	21.85
All food items	12.88	69.36	15.09	69.57
Clothing	1.53	8.23	1.37	6.32
Fuel & light	1.13	6.09	1.49	6.87
Other non-food items	3.03	16.32	3.74	17.24
All non-food items	5.69	30.64	6.60	30.43
Total consumer expenditure per person	18.57	100.00	21.69	100.00

Source : From various NSS rounds.

Contd.

Table 12 (II)..

Items	1963-64		1964-65	
	Rs.	%age	Rs.	%age
Cereals, Grams & cereal substitutes	8.75	37.41	10.65	43.38
Pulses & Products	0.93	3.98	1.03	4.20
Milk & Products	0.75	3.20	0.75	3.05
Other food items including oil, meat egg, fish and vegetables	5.19	22.19	5.34	21.75
All food items	15.62	66.78	17.77	72.38
Clothing	1.96	8.38	1.45	5.91
Fuel & light	1.68	7.18	1.80	7.33
Other non-food items	4	17.66	3.53	14.38
All non-food items	7.77	33.22	6.78	27.62
Total consumer expenditure per person	23.39	100.00	24.55	100.00

Contd.

Table 12 (III)

Items	1968-69		1969-70		1970-71	
	Rs.	%age	Rs.	%age	Rs.	%age
Cereals, grams & cereal substitutes	14.59	50.96	15.47	47.09	12.79	45.89
Pulses & Products	--	--	--	--	0.97	3.48
Milk & products	1.09	3.81	1.46	4.44	0.65	2.33
Other food items including oil, meat egg, fish & vegetables	6.69	23.27	8.29	25.24	6.64	23.83
All food items	22.37	78.13	25.22	76.77	21.05	75.53
Clothing	1.03	25.22	1.38	4.20	2.23	8.00
Fuel & light	1.98	1.38	2.18	6.64	1.68	6.03
Other non-food items	3.25	2.18	4.07	12.39	2.91	10.44
All non-food items	6.26	21.87	7.63	23.23	6.82	24.47
Total consumer expenditure per person	28.63	100.00	32.85	100.00	27.87	100.00

TABLE : 13 Per Capita Consumption Expenditure

Year	In current prices(Rs.)	In constant (1960-61) prices (Rs.)
1959-1960	211.34	216.07
1960-1961	222.84	222.84
1961-1962	260.28	249.36
1963-1964	280.68	252.00
1964-1965	294.60	226.08
1968-1969	343.56	195.72
1969-1970	394.20	215.28
1970-1971	339.12	167.23

Source: From various NSS rounds.

TABLE:14

Average annual full days of wage-paid employment of agricultural labour households and their average earnings per day.

Year	Workers	Agricultural employment		Non-agricultural employment		
		Number of Man-days worked in a year	Average earning per day	Number of Man-days worked in a year	Average earning per day	Total Man-days worked in a year
1950-51	Males	168	0.97	17	1.03	185
	Females	148	0.59	7	0.44	155
	Children	-	0.59	-	0.33	-
1956-57	Males	193	0.84	20	0.91	193
	Females	135	0.44	7	0.48	142
	Children	199	0.39	26	0.55	225
1964-65	Males	194	1.39	14	1.53	208
	Females	146	0.85	3	1.18	149
	Children	209	0.70	10	0.74	219
1970-71	Males	147	2.38	48	3.52	195
	Females	81	1.50	14	2.02	95
	Children	16	1.04	7	0.85	23

Source: Second Agricultural Labour Enquiry 1956-57 (1950-51 and 1956-57).

All-India Rural Labour Enquiry 1964-65 (1964-65)

National Sample Survey 25th Round July 1970-June 1971(197

TABLE : 15

Average annual income of the agricultural labour from different sources. (in Rupees)

	Average income of the household from	1950-1951 1	1956-1957 2	1964-1965 3
1.	Cultivation of land	83.85 (22.6)	10.69 (2.85)	19.45 (3.42)
2.	Agricultural labour	230.02 (62.0)	312.64 (83.31)	424.44 (76.90)
3.	Non-agricultural labour	27.08 (7.3)	18.92 (5.04)	28.81 (5.22)
4.	Occupations other than farming	--	--	17.82 (3.23)
5.	Non-manual labour (wages and perquisites)	--	--	5.78 (1.05)
6.	Other sources	30.05 (8.1)	33.01 (8.80)	56.63 (10.08)
	Total	371.00 (100.00)	375.26 (100.00)	551.93 (100.00)

Figures in brackets are percentage to total.

Sources: Col.1 & 2 Second Agricultural Labour Enquiry.
Col.3, All-India Rural Labour Enquiry 1964-65.

TABLE : 16

Estimates of rural population below the "Poverty Line"

Year	Nutritionally adequate diet (Norm: 2400 Calories per day)		Minimum levels of living (Norm: Rs.21 per month in 1960-61 prices)	
	Cost per month in current prices	Percentage of population below the poverty line	Cost per month in current prices	Percentage of population below the poverty line
	1	2	3	4
1957-1958	13.37	53.10	18.48	74.10
1959-1960	14.92	53.79	20.62	79.21
1960-1961	15.30	47.89	21.11	69.82
1961-1962	15.90	36.04	22.00	66.49
1963-1964	16.99	38.98	23.47	64.36
1964-1965	19.88	45.81	27.46	72.45
1969-1970	27.93	48.63	38.58	73.98

Source: Calculated from various NSS rounds.