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An Analysis of Some Tamil Nadu Data

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MADRAS INSTITUTE OF DEVELOPMENT STUDIES

79, Second Main Road,

Gandhinagar, Adyar,

MADRAS 600 020

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I

The discussion of the impact of the scale factor in
agricultural performance goes back at least to the early
sixties when on the basis of the data from the Farm Mana-
gement Studies a lively discussion ensued on what came
to be referred to as the "size-productivity relationship".
A finding that received considerable attention at that
time was the alleged inverse relationship between farm size
and productivity per acre which led to many writings about
its theoretical and policy implications.[1] There was then a
lull for a while, but the debate was reopened towards the
end of the decade when Ashok Rudra questioned the empirical
regularities assumed in the debate and stated that the
relation between yield and farm size is spurious.[2] About
the same time a new dimension was added to the discussion
in terms of the impact of the new technology introduced
into Indian agriculture during the period of the "green
revolution".[3] Whereas the central issue in the first phase
of the discussion was scale in relation to production
efficiency, the emphasis shifted to scale in relation to
sharing of benefits in the second phase. More recently
Sen and Rudra who appeared to be on opposite sides of the
debate have come out with a joint paper in which they say:
"The positions taken in the past by the present authors
might have appeared sharply divergent, though the two
authors themselves find that such was not the case, and
that a common statement is possible on many issues involved
in the debate."[4]

A review of the studies of the past indicates that the
major issues debated have been the following:

1. Is there any identifiable relationship between
   size of farms and productivity?

ii. Do production processes of farms vary with
variations in the scale of operations?

iii. If they do, is it because of technological
reasons or because of the differences in
the market conditions that farms of different
sizes confront?

iv. In relation to (iii) are the differences between
farms of different sizes related to size as such,
or to different systems of farming, in particular
between farming based primarily on family labour
and farming based on wage labour?

v. Do farms of different sizes and/or those belong-
ing to different systems of farming as mentioned
in (iv) differ in their "access" to technology
and to inputs?

vi. From that point of view do farms of different
sizes and/or of different farming systems differ
in their adoption of modern technology and
thereby also in the sharing of the benefits
arising from it?

It would appear reasonable to say that the debates
on all these issues remain inconclusive, partly because
of the nature of the data used in the discussion and
partly because of the procedures of analysis. In particular,
the issue raised in (iv) above has not received the atten-
tion it deserves, although the character of the debate on
most of the other aspects is closely related to it and
policy prescriptions also hinge vitally on it.[5]

During the last two decades, therefore, a number of
problems relating to the scale factor in agriculture have
been raised and discussed although many unresolved issues
still remain. But the discussion has been substantially

restricted to static analysis particularly relating to
input utilisation, production patterns and differentials
in the adoption of technology. Even the theoretical
issues that have emerged from the discussion, as for
instance the interlinking of factor markets, have been
confined to static problems.[6] However, the scale factor
may have greater impact on the long-term growth possibility
of farms of different sizes which, in turn, may have wider
implications on the future prospects of agriculture and the
economy as a whole. This set of issues which did not
figure in the discussions of the past deserve attention.
It is also necessary to look at the scale factor in the
wider context of the operations of the economy.

The data contained in the Studies of Economics of Farm
Management (SEFM hereafter) conducted on a sample survey
basis in Thanjavur District in 1967-68 and in 1969-70 and
in Coimbatore District from 1970-71 to 1972-73 make it
possible to explore into some of these aspects of the scale
factor.[7] They also touch upon some of the other questions
listed above. An analysis of the SEFM data to gain better
insight into the scale factor in agriculture is the objective
of this paper. Part II of the paper examines the impact of
the scale factor on farm operations themselves. It emerges
that many farm operations are indeed scale neutral, but
that there are also some identifiable differences that scale
introduces. In particular it is seen that farms of different
sizes differ in terms of the utilisation of basic factors,
owned land and owned labour. This theme is further deve-
loped in Part III and some of its dynamic aspects are
brought out using also data from other sources pertaining
to the State. In Part IV a brief reference is made to the
implications of the findings.

The Thanjavur SEFM were conducted separately for
1967-68 and for 1969-70. Only information pertaining to
the second year is used as the first period was one of
severe drought in the state. The Coimbatore study gives
information on 1970-71, 1971-72 and 1972-73 and the average
of their three years. Unless otherwise specified, the
average figures are made use of in the analysis that follows.

The two studies differ in their size classifications.
In the Thanjavur Study the groups are upto 1.16 hectares,
1.17 to 2.02, 2.2 to 3.05, 3.06 to 5.71 and 5.71 and above. Since
the very large farms have all been clubbed together into
one group the usefulness of the study from the point of view
of the impact of the scale factor is considerably limited.
Altogether only 150 farms (operational holdings) were studied
and their distribution on the basis of size shows that the
lowest three groups account for 22.33 per cent each, the
fourth 16.67 per cent and the top group 13.34 per cent. The
average size of holdings is 3.06 hectares which compares
with 1.23 hectares for the district as a whole as given in
the World Agricultural Census. Table 1 shows the breakdown
of investment in different assets according to size groups.
Land and building put together account for between 80 and
85 per cent in all size groups. The share of major imple-
ments moves up and that of minor implements moves down with
size. Livestock and durable consumer goods as a proportion
is inversely related to size. In the case of financial assets
the proportion moves up till the third size group and then
comes down. Apart from land and buildings livestock consti-
tute the largest item for the first and second groups and
financial assets for the other three.

The distribution pattern of farm implements is shown
in Table 2. Per farm and per hectare also the value of

major improved implements is positively related to size.
The value of major traditional implements also moves up with
size when considered per farm, but there is no such clear
relationship with size when it is considered per hectare.
The highest figure is the case of the smallest size group
and the lowest in the case of the middle group. The value
of major traditional implements per hectare is very low for
the top group as well. Minor improved implements are also
positively related with size on the basis of per farm calcu-
lation, but on the basis of per hectare calculation the
figures do not show any clear pattern and are very close to
one another. Minor traditional implements per farm increase
in value with size but decrease with size when calculated
per hectare. Another matter worth noting is that except in
the case of minor traditional implements the number of farms
reporting implements increases with size although the smaller
farms are larger in number. This is very distinctly seen in
major improved implements and major traditional implements.
In the latter there appears to be some discrepancy because
the number of farms reporting implements in the last two
size classes is larger than the total number of farms in
those groups. The overall picture is that the larger farms
rely on major implements, both improved and traditional but
particularly improved, and the smaller farms depend on tradi-
tional implements both major and minor. The impact of the
scale factor on farm operations is thus very clearly seen.

The differences in inputs according to size are seen
in Table 3. The most striking aspects are that family
labour as a proportion declines with size from 11.37 in the
case of the lowest to 4.79 in the case of the highest that
rent paid on leased in land comes down steeply with size
from 18.81 in the case of the lowest to 1.56 in the case
of the largest and that imputed value of owned land increases
with size. Although there is big difference between size
groups on the basis of family labour, they seem to be more

alike in the use of hired labour. Hired labour constitutes 22.29 per cent of inputs in the first size group, with the second size group showing almost the same proportion, moves up to 28.18 per cent in the fourth group and then comes down to 25.59 per cent in the top group. In terms of the use of seeds and fertilisers also there is not much of a difference between farms of different sizes. Bullock labour as a pro-portion ranges between 4.23 per cent (in the case of the highest group) and 8.04 per cent (in the case of the Second group). But there is no clear size pattern in this matter. Land and labour not surprisingly, account for the two major items in the inputs of all size groups and inter-group differences in these two are not very large. However the farms differ considerably in the input proportions of own labour and own land which must have a bearing on their earnings.

We shall now turn to the studies done in Coimbatore. The operational holdings there are divided into the following size groups:

1st group	:	0.01 to 2.02 hectares
2nd group	:	2.03 to 3.34 hectares
3rd group	:	3.35 to 5.67 hectares
4th group	:	5.68 to 10.52 hectares
5th group	:	10.53 and above

Approximately, the first two groups in the Thanjavur case correspond to the first group in Coimbatore, but the Coimbatore study splits the top group in Thanjavur into two.

The sample in the Coimbatore study also consisted of 150 farms. The average size of the holding is 5.82 hectares, considerably larger than in Thanjavur. The average size of holding in the district as shown in the World Agricultural Census is 2.78 hectares which, as in the case of Thanjavur is much lower than the average size of holding in the sample.

Going into details of the composition of the sample, it is
seen that the first group accounts for 20 per cent of the
holdings and 4.29 per cent of area. The corresponding
proportions in the other group are 22.44 and 10.28 for the
second group, 20.45 and 15.85 for the third group, 22.89
and 30.12 for the fourth group and 14.22 and 39.46 for the
top group indicating the unequal distribution of land among
the different size groups. The breakdown of investment in
different assets of the size groups is shown in Table 4. The
classification of assets is not strictly comparable with
that of Thanjavur. On the average non-farm assets consisting
of dwelling house, other buildings, jewellery, other durables
and cash account for 12.13 per cent and is highest in the
first group. From then it comes down steadily, but moves
up again in the case of the fifth group. Among farm assets
land, naturally, has the predominant position claiming 67.17
per cent of the total assets. The distribution of the
different kinds of assets appears to be fairly even among
the different size groups. The only major exception is that
for the smallest size group farm animals account for a much
higher percentage of total assets than for the other groups.
About the same pattern is seen even in the matter of the
value of tools and machines possessed by the size groups as
shown in Table 5. The average line value of tools is Rs.20.69
per hectare and it is highest for the first size group and
lowest for the third. Implements have an average value of
Rs.107.37 per hectare with the top group showing the lowest
and the third group, the highest. Even in the case of
machinery where the average value is Rs.338.52 per hectare,
the distribution does not show any clear size pattern. The
highest position goes to the second size group and the next
to the fifth group but there is a big difference between the
two. Hence unlike in Thanjavur there does not appear to be
any firm relationships between the size of holdings and agri-
cultural operations to the extent that they can be judged on
the basis of value of agricultural implements.

The similarity of farm operation across size groups is also seen in Table 6 dealing with the break up of share of inputs in cultivation. The cost A1 items (i.e., inputs actually paid for) taken together show a uniformity among size groups (ranging between 54.78 and 57.04 and with an average of 56.57) which is very striking indeed. In fact the only inputs that seem to show any kind of size pattern are rental value of land of which rent on leased in land is very high for the smallest group declining almost steadily thereafter and the rental value of owned land being positively related with size. Similarly the value of family labour, also show a distinct size pattern being as high as 8.79 per cent of the total for the smallest and as low as 0.57 for the biggest size group. The evidence, therefore, is that the scale factor is quite pronounced in terms of the basic inputs, land and labour, but is largely absent in the case of purchased inputs.

Cropping pattern also appears to be scale neutral as can be seen from Table 7. Food crops taken together account for between 62.84 and 65.04 per cent among the different size groups with an average of 64.18 per cent with non-food crops accounting for the rest. Even within the food crop category the variations are not very prominent taking cereals, pulses and other food crops as sub totals. However, when we turn to particular crops differences are noticed, especially in paddy which claims 20.12 per cent in the first size group declining steadily to 6.31 in the fifth size group. Correspondingly, it would appear that the miscellaneous category "other crops" claim a much higher share in the fifth size group than in all the others.

On the basis of the evidence we have, it seems reasonable to conclude that agricultural operations are fairly uniform among the size groups, but they differ in terms of the utilisation of the basic factors, owned labour and owned land.

III

In the light of the findings of Part II we shall probe further into the differential use of basic factors by farms of different sizes.

The SEFM Coimbatore has calculated Farm Business Income which is the gross receipts from farm operations minus the A1/A2 costs. Cost A1 approximates the actual expenditure incurred in kind and cash and includes the following items, hired human labour, owned and hired bullock labour, machine labour, seeds, manures and fertilisers, plant protection chemicals, depreciation on implements, machinery and farm building etc., land revenue, cess, water rates etc., and interest on working capital. Cost A2 is cost A1 plus rental value of leased-in land in the case of tenant operated farms. Thus Farm Business Income (FBI) is the measure of earning of a farmer and his family for management, risk, their labour and capital investment.

Table 8 gives details necessary for an analysis of FBI. It can be seen that FBI increases with size of farm going up from Rs.1,680.68 in the case of the smallest to Rs.9,135.71 in the case of the biggest. This positive association between farm size and FBI is not surprising. But it can be seen that per unit of land FBI is inversely related with size, with the smallest farm showing Rs.1,345 and the largest one Rs.565. On the other hand, per member of the family FBI, again not surprisingly, is positively correlated with size.

Table 9 shows that the return to capital also is highest for the smallest size group and lowest for the largest although the three intermediate groups do not show any definite scale factor.

Thus looking at the smallest and largest groups we have the following evidence. 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 we are only concerned with static efficiency in performance, we have, therefore, to conclude that the small farms are more efficient than the larger ones. But if the main concern is not with efficiency, static or dynamic, but with the implications of the relative performance of the farms on their accumulation and long-term prospects the relevant figure is return per family member. The return per family member in the smallest group is Rs.364.73 per annum or Rs.1.00 per day which is just slightly above the "poverty line".[8] On the other hand, the returns per family member in the two top groups are Rs.1,384.56 and Rs.1,536.16. Even granting that members of larger farms have a higher consumption level than those of smaller farms it is clear that their earnings leave a fairly large surplus. Thus surplus per family will be even larger as the larger farms have more members. (Table 8 gives information on average number of family members per farm and FBI per family member per year. The surplus per family has to be calculated from these two figures.) Hence 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 will increase. 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.

Is this only a conjectural possibility, or has it been actually happening in Tamil Nadu? The evidence that we have on this question is not adequate to arrive at a conclusive answer, and yet the bits and pieces, when put together, seem

to indicate that the pattern of change in rural Tamil Nadu of the ties was of the kind noted above.

There is, first of all, the finding coming from the Census reports of 1961 and 1971 that the share of cultivators in the workforce in the State declined from 42.07 per cent in 1961 to 31.26 per cent in 1971 and that of agricultural labourers increased from 18.42 in 1961 to 30.46 in 1971. There has been considerable discussion about the interpretation of these figures, especially whether they reflect only changes in the census definitions of 'workers' and 'cultivators' or whether they, in fact, refer to what has been happening.[9] The Census authorities themselves made an attempt through a resurvey "to find an adjustment factor employing which the 1961 and 1971 Census and participation rates can be made comparable over time and independent of any effect of the difference in the concepts used at the two Censuses."[10] On the basis of the resurvey it can now be stated that the Census figures can be taken as a true indication of the changes that took place in the State in the sixties.[11]

It is not clear whether the cultivators who ceased to be cultivators also gave up their land. But a comparison of the NSS 17th Round relating to 1961-62 and the 26th Round relating to 1971-72 shows that in rural Tamil Nadu the category of households owning but not operating land increased from 18.10 per cent of the total in the former period to 27.86 per cent in the latter. In 1971-72 households owning less than 5 acres also constituted close to 75 per cent of those leasing out land.[12]

From the Reserve Bank of India's <u>All India Rural Debt and Investment Survey 1961-62</u> and <u>All India Debt and Investment Survey 1971-72</u> it is possible to make a comparison of the asset distribution of cultivator households at the

beginning of the sixties and the seventies. The comparative figures are given in Table 10. Assets in the table include all items owned by the households which have money value such as land, building, livestock, agricultural implements and machinery, non-farm and transport equipments, durable household assets, dues receivable on loans advanced in cash and kind, and all forms of financial assets. The table shows that households with asset value of less than Rs.500 accounted for 11.4 per cent of the households and 0.4 per cent of the total assets in 1961-62. The same category accounted for 4.25 per cent of households and 0.12 per cent of assets in 1971-72. At the top, 7.8 per cent of the cultivator households with an asset of over Rs.20,000 had 44.8 per cent of the assets in 1961-62. After a decade, 13.78 per cent of cultivators were in the top group claiming 52.85 per cent of assets. The Gini Concentration Ratio for the two periods were 0.6249 and 0.5636 respectively which indicates a reduction in inequalities of asset distribution. But in view of the finding that during the decade many cultivators had left cultivation, it is perhaps more realistic to look at the asset distribution of all rural households. This is shown in Table 11. 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 and 25.54 per cent of households and 0.86 per cent of assets in 1971-72. At the top 5.3 per cent of the households claimed 43.3 per cent of the assets in 1961-62 which changed to 8.15 per cent of the households claiming 60.47 per cent of assets in 1971-72. The Concentration Ratio went up from 0.7090 in 1961-62 to 0.7148 in 1971-72.

It has been suggested also that a better appreciation of changes in asset distribution is possible if the inter-class distribution on the basis of the value of assets as given in the RBI studies is changed into a distribution

based on decile groups. The results of fitting a distri-
bution of that kind to the actual data are shown in Table 12.[13]
According to the table, 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 households had average assets worth Rs.37,006 and their
share in assets was 72.57 per cent in 1961-62. These figures
moved upto Rs.59,001 and 77.64 in 1971-72.

The table shows further that the changes observed in
the average value of assets over the decade have the follow-
ing pattern: the decennial growth rate is negative for the
first six decile groups with the rate itself coming down.
From then on the growth rate is positive and is also increas-
ing over the top four groups. The changes in the share in
total assets also follows a consistent pattern. The share
of assets accounted for by each of the first nine decile
groups has declined and the rate of decline itself is
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 for 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 group shows that
the top 1 per cent of the household 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 declined to
22.36 per cent.

IV

The findings of Part III necessitate and make it
possible to have a different perspective on the 'scale
factor'. In the first place the data reveal that the
differences noticed do not arise from the technical aspect
of the size of the production unit in agriculture, but are
related to the different ownership patterns of the small
and large farms. What emerges is that production units
differ in the manner in which they combine owned and hired
resources in the process of production. Because of the
manner in which the data have been compiled it is not possible
to distinguish clearly between the 'pure scale factor' and
the ownership factor associated with it. May be such a
distinction, which is conceptually very valid and significant,
cannot easily be established through empirical enquiries if
it is true that the ownership issue is intimately associated
with the 'pure scale factor' as is usually the case. But
empirical studies specifically designed to sort out between
these two aspects are necessary.

In the meanwhile, it is not particularly helpful to
slur over the distinction between the use of owned factors
and hired factors in production by treating owned factors
"as if" they are hired factors, and that both should be or
could be subjected to the common valuation process of the
market to make comparisons and calculations. This is an
inaccurate procedure as well as a misleading procedure. It
is inaccurate because according to the theory of market prices, [14]
individual commodities or factors of production do not get
priced separately. The market price of a commodity or factor
is a relative valuation; what the market determines is not a
price, but a set of prices, and the set of prices is derived
from specified quantities of resources and a specific manner
in which those quantities are allocated. To pull out a
relative price from such a set of prices and to use it

indiscriminately is a fallacious procedure, although econo-
mists in their eagerness to submit everything to market
valuation do so with considerable sophistication. The pro-
cedure is also misleading because it will lead to conclusions
such as that (small) farms which have a higher productivity
per unit of input are "uneconomical" in terms of imputed
factor prices.

Secondly, if the observed differences between farms of
different sizes are related more to their organisational or
institutional characteristics than to scale of operation per
se, comparisons of their relative "efficiencies" must also
be done with great caution. Two kinds of fallacies are common
here: the first is to abstract completely from the organisa-
tional and institutional factors and to attribute to the
scale factor what are indeed properties of different organi-
sational structures. Thus, to a large number of people all
over the world 'small' has suddenly become efficient and
beautiful! [15] The second fallacy is of the opposite kind,
where particular organisational forms—such as peasant farming
— come to be glorified because of their alleged 'efficiency'
or productivity, or pattern of factor utilisation. Here, as
Sen and Rudra point out, [16] it is necessary to compare diff-
erent sizes of farms within the same organisational forms as
well as different organisational forms of the same size
(for instance, a large capitalist farm is a cooperative farm
of the same size) before one can arrive at any definitive con-
clusions in this regard.

All this would indicate that the usual kind of compa-
risons of farms of different sizes cannot be the sole basis
for formulating policies regarding the organisation of pro-
duction in agriculture. In particular those who are convinced
that small is beautiful must not forget that big is powerful
and that therefore a peaceful coexistence of the two within
the existing organisational forms may not be feasible in the
long run. Hence those who are concerned with policy questions
now must also know what the long term objectives of policy
should be.

Notes:

1. The literature on this subject is now familiar. For
    a critical summary and bibliography see Jagdish N.
    Bhagwati and Sukhamoy Chakravarty, "Contributions
    to Indian Economic Analysis: A Survey" in The
    American Economic Review, Vol.LIX, No.4 part 2, Sept.
    1969, and the extensive bibliography in G.R. Saini,
    Farm Size, Resource - Use Efficiency and Income Dis-
    tribution. Allied Publishers, New Delhi, 1979.

2. Ashok Rudra, "Farm Size and Yield Per Acre", Economic
    and Political Weekly, Special Number, July 1968.

3. See G.R. Saini, Op.cit.

4. Ashok Rudra and Amartya Sen, "Farm Size and Labour Use:
    Analysis and Policy", Economic and Political Weekly,
    Annual Number, February, 1980.

5. This is a point which Rudra and Sen draw attention
    to in their joint paper.

6. See K. Bharadwaj, Production Conditions in Indian
    Agriculture, Cambridge University Press, London,
    1974.

7. Conducted by Ministry of Agriculture and Irrigation - Directorate of Economics and Statistics.

8. Details of the "poverty line" calculations for Tamil Nadu are given in Dynamics of Rural Transformation (as cited in the Acknowledgement).

9. See C.T. Kurien and Josef James, Economic Change in Tamil Nadu - A regionally and Functionally Disaggregated Study, Allied Publishers, New Delhi, 1979.

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

11. For details see V.K. Ramachandran, 'Agricultural Labourers in the Working Population of Tamil Nadu' Bulletin, Madras Development Seminar Series, Vol.X, No.3, March 1980.

12. For fuller documentation see Dynamics of Rural Transformation, Ch. 2.

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

14. See Robert Dorfman, Paul A. Samuelson and Robert M. Solow, Linear Programming and Economic Analysis, Mc Graw-Hill, New York, 1958, Ch. 13.

15. "Small farmers ... were found to be using less capital and fewer purchased non-labour inputs per hectare, but more man-days per hectare than were the larger farm units ... If one has, as a shorter-run objectives, research for the productive use of excess rural manpower which cannot be employed in towns and cities, then labour intensity takes on the virtue of employment generation. Another virtue of labour intensity in

farming is that it can provide an economy with
agricultural products in ways that use up fewer of
those sources which, in developing countries, are
generally more scarce than farm labour: financial
capital, capital goods (often imported) and other
manufactured inputs. In this sense labour intensive
methods may be more efficient overall as a use of
society's resources, even though 'efficient' farming
is normally thought to result from the use of non-
labour inputs to enhance the productive efforts of
the farmer" -- Shlomo Eckstein, Gordon Donald,
Douglas Hortun and Thomas Carroll, "Land Reform in
Latin America, Bolivien, Chile, Mexico, Peru,
Venezuela" - World Bank Staff Working Paper No.275
April 1978 pp.116-117 - Quoted by Veronika Bennloldt -
Thomsen, "Investment on the Poor: Analysis of World
Bank Policy" - Part Two, Social Scientist, 92, March
1980.

16.   Ashok Rudra and Amartya Sen, loc. cit.

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Table 1 : Percentage of Investment in Different

Assets (Thanjavur)

Items	Size of cultivators' Holding (in hectares)					
	Upto 1.16	1.17- 2.02	2.02- 3.05	3.06- 5.71	5.71& above	All Farms
Land	56.47	61.37	63.70	64.73	62.65	62.88
Dwelling House	26.84	21.21	16.21	15.68	19.50	18.63
Other Building	1.76	0.29	2.15	2.61	2.70	2.35
Major Implements	1.19	2.09	2.34	2.35	4.48	3.33
Minor Implements	0.40	0.37	0.27	0.22	0.16	0.23
Livestock	5.29	6.44	4.57	3.84	2.45	3.55
Durable consu- mer goods	3.44	3.22	2.61	3.07	1.95	2.45
Financial Assets	4.61	5.01	8.15	7.50	6.11	6.58
Total	100.00	100.00	100.00	100.00	100.00	100.00

(Source : Studies in the Economics of Farm Management in
Thanjavur (1969-70) p.28.

Table 2 : Value of Implements : Major and Minor
Improved and Traditional-per farm and
per Hectares (in Rs.) THANJAVUR

Type of Implements			Size group in hectares					
			Upto 1.16	1.17– 2.02	2.03– 3.05	3.06– 5.71	above 5.71	All Farms
Major improved	X X X X X	a.	––	1	4	5	8	18
		b.	––	140.06	354.28	612.00	4468.35	813.13
		c.	––	90.11	141.28	144.48	481.53	265.65
Major tradi-tional	X X X X	a.	10	11	19	26	37	103
		b.	67.14	89.14	134.14	336.00	632.00	208.03
		c.	92.27	57.35	53.49	79.32	68.11	67.97
Minor improved	X X X X X	a.	6	10	12	13	13	54
		b.	1.20	2.19	6.37	7.88	17.35	5.90
		c.	1.65	1.41	2.54	1.86	1.87	1.93
Minor tradi-tional	X X X X X	a.	35	35	35	25	20	150
		b.	28.54	38.17	50.20	80.92	176.20	64.26
		c.	39.22	24.56	20.09	19.10	18.99	20.99

(Note : a: No. of farms owning

b: Value per farm

c: Value per hectare)

Source: SEFM, Thanjavur (1969-70) pp 34-35.

Table 3 : <u>Percentage break-up of Total Input</u>
(THANJAVUR)

	Size group in hectare					
	Upto 1.16	1.17– 2.02	2.02– 3.05	3.06– 5.71	Above 5.71	All Farms
Human Labour { Family	11.37	10.23	6.85	7.41	4.79	6.95
Human Labour { Hired	22.29	22.28	27.45	28.18	25.59	25.96
Bullock Labour	6.54	8.04	7.23	6.58	4.23	6.04
Seed	4.32	4.97	4.68	4.26	5.04	4.72
Manure	5.48	3.08	3.58	3.51	2.87	3.47
Fertilizers	8.53	8.02	8.29	9.06	8.58	8.56
Pesticides	0.89	0.55	0.59	0.59	0.36	0.52
Miscellaneous	0.43	0.49	0.54	0.37	0.62	0.51
Dep. on Implements	1.46	1.37	1.60	1.71	3.92	2.44
L.R. & Water Charges	1.60	1.51	1.75	2.21	2.62	2.14
I.F.C.	1.36	1.47	1.62	2.07	3.71	2.46
I.W.C.	0.40	0.39	0.41	0.38	0.67	0.50
Rent Paid	18.81	17.72	13.74	7.50	1.56	8.60
Rental Value	16.52	18.98	21.67	26.17	35.44	27.13
Total	100.00	100.00	100.00	100.00	100.00	100.00

(LR : Land revenue

IFC: Interest on fixed capital

IWC: Interest on working capital

Rent paid refers to the actual rent on leased in land.
Rental value is the imputed rent of owned land)

(Source: <u>SEFM</u>. <u>Thanjavur</u> (1969-70) pp. 70-71.)

Table 4 : <u>Value of Farm Assets per Holding</u>

<u>(Excluding Leased-out Land) Accord-</u>

<u>ing to Major Heads.</u> (COIMBATORE)

Items of Assets	Size group (in hectares)					
	0.01–2.02	2.03–3.34	3.35–5.67	5.68–10.52	10.53 & above	All Farms
Value of land	11714.62 (59.93)	28824.04 (64.13)	40314.18 (63.15)	87999.33 (72.89)	142006.94 (65.80)	57201.34 (67.17)
Cattle Shed, storage etc.	26845 (1.37)	698.46 (1.55)	671.49 (1.06)	1114.57 (0.92)	3390.88 (1.57)	1087.89 (1.28)
Wells & irrigation structure	2507.72 (12.83)	5494.89 (12.22)	9127.12 (14.36)	13207.54 (10.94)	27098.76 (12.56)	10498.42 (12.33)
Tools, implements and machinery	858.30 (4.39)	2464.33 (5.48)	2649.47 (4.17)	3737.38 (3.10)	10942.38 (5.07)	3676.35 (4.32)
Farm animals	853.39 (4.37)	1239.85 (2.76)	2181.81 (3.43)	2985.10 (2.47)	5536.60 (2.57)	2365.23 (2.78)
Total farm operational assets	16199.11 (82.89)	38721.58 (86.14)	54764.08 (86.16)	109043.92 (90.32)	188975.57 (87.57)	74829.24 (87.87)
Dwelling house & other buildings	2051.19 (10.49)	4557.44 (10.14)	5634.96 (8.87)	6732.74 (5.58)	15039.61 (6.97)	6260.96 (7.35)
Jewellery, other durables and cash in hand	1292.05 (6.62)	1670.37 (3.72)	3158.29 (4.97)	4946.13 (4.10)	11786.64 (5.46)	4069.95 (4.78)
Total non-farm operational assets	3343.24 (17.11)	6227.81 (13.86)	8793.25 (13.84)	11678.87 (9.68)	26826.25 (12.43)	10330.91 (12.13)
Total assets	19545.71 (100.00)	44949.39 (100.00)	63557.33 (100.00)	120722.79 (100.00)	215801.82 (100.00)	85160.15 (100.00)

Source: <u>Studies in Economics of Farm Management</u>
Coimbatore (1970-71 to 1972-73)

Table 5 : Number and Value of Tools, Implements
and Machinery per Hectare (COIMBATORE)

| | Size group in hectares | | | | | |
	0.01–2.02	2.03–3.34	3.35–5.67	5.68–10.52	10.53 & above	All Farms
Number per hectare:						
Tools	18.66	12.53	9.14	7.47	5.83	8.21
Implements	3.04	2.17	1.56	1.33	1.05	1.43
Machinery	0.38	0.39	0.36	0.31	0.23	0.30
Value per hectare :						
Tools	42.67	27.68	17.75	18.41	19.21	20.69
Implements	135.50	130.90	140.68	103.81	87.72	107.37
Machinery	535.10	799.19	469.55	406.11	650.76	558.52

Source : SEFM Coimbatore (1970-71 to 1972-73)

Table 6 : Percentage Break-up of Total Input (COIMBATORE)

	Size group (in hectares)					
	0.01–2.02	2.03–3.34	3.35–5.67	5.68–10.52	10.53 & above	All Farms
1. Hired human labour (casual)	13.87	14.60	14.44	15.77	14.80	14.98
2. Hired human labour (permanent)	1.17	1.39	2.44	4.46	4.94	3.68
3. Owned bullock labour	8.21	7.64	6.48	5.32	5.35	6.02
4. Hired bullock labour	1.52	0.83	0.84	0.50	0.11	0.53
5. Machine labour (owned & hired)	0.26	0.92	0.17	0.19	1.81	0.79
6. Seeds (owned & purchased)	8.40	8.75	8.88	9.10	7.79	8.57
7. Farmyard manure	0.94	0.75	1.02	0.70	0.37	6.93
8. Fertilizer	6.76	6.57	7.45	6.21	5.39	--
9. Plant protection	0.43	0.60	0.67	0.82	0.76	0.72
10. Depreciation	3.41	4.05	3.44	3.50	3.99	3.72
11. Land revenue	0.86	0.69	0.87	0.71	0.67	0.73
12. Irrigation charges	6.33	7.10	7.66	7.42	8.07	7.54
13. Interest on working capital	0.94	1.00	1.02	1.06	1.02	1.02
14. Miscellaneous expenditure	1.68	1.32	1.64	1.28	1.19	1.34
15. Cost A1	54.78	56.21	57.02	57.04	56.26	56.57
16. Rent on leased-in land	6.83	1.11	3.10	0.41	0.22	1.29
17. Cost A2	61.61	57.32	60.12	57.45	56.48	57.86
18. Rental value of owned land	26.31	29.96	31.34	36.69	37.22	34.43
19. Interest on fixed capital	3.31	4.63	3.73	3.43	5.73	4.35
20. Cost B	91.23	91.91	95.19	97.57	99.43	96.74
21. Value of family labour	8.77	8.09	4.81	2.43	0.57	3.36
22. Cost C	100.00	100.00	100.00	100.00	100.00	100.00

Table 7 : Cropping Pattern (COIMBATORE)

		Size group (in hectares)					
		0.01–2.02	2.03–3.34	3.35–5.67	5.68–10.52	10.53 & above	All Farms
(a)	Paddy	20.12	13.67	14.75	12.70	6.31	11.38
	Cholam	15.81	15.49	17.40	15.30	19.19	17.03
	Cumbu	4.39	5.13	5.02	5.33	8.18	6.18
	Ragi	2.74	3.19	2.92	2.46	3.80	3.10
	Groundnut	19.52	22.94	20.46	23.46	14.05	19.47
	Sugarcane	3.73	4.01	3.60	4.78	5.75	4.76
	Cotton	7.15	5.12	5.96	6.30	5.58	5.90
	Other crops	26.54	30.45	29.89	29.67	37.14	32.18
	Total	100.00	100.00	100.00	100.00	100.00	100.00
(b)	Cereals	45.62	42.89	45.71	43.18	46.07	44.68
	Pulses	5.55	5.22	4.00	4.39	4.06	4.37
	Other food crops	13.17	14.73	15.33	16.00	14.66	15.13
	Total food crops	64.34	62.84	65.04	63.57	64.79	64.18
	Oil seeds	26.85	31.17	26.96	28.85	26.13	27.79
Other non–food crops		8.81	5.99	8.00	7.58	9.08	8.03
Total non–food crops		35.66	37.16	34.96	36.43	35.21	35.82
Total		100.00	100.00	100.00	100.00	100.00	100.00

Source : FMS Coimbatore pp. 26-32.

Table 8 : Analysis of Farm Business Income (COIMBATORE)

	Size group in hectares					
	0.01-2.02	3.03-3.34	3.35-5.67	5.68-10.52	10.53 & above	All Farms
Average size of the farm (in hectares)	1.25	2.67	4.51	7.67	16.16	5.82
Average number of family members per farm	4.61	4.54	5.13	5.92	6.00	5.19
FBI per farm	1680.68	2370.98	4250.30	7887.93	9135.71	4798.39
FBI per hectare	1344.54	888.01	942.42	1028.41	565.33	824.47
FBI per family member (per year)	364.74	531.31	828.54	1384.56	1536.16	927.12

Source: SEFM Coimbatore (1970-71 to 1972-73) p.20 & p.83.

Table 9 : <u>Percentage of Return on owned Capital</u>

<u>Investment per farm (Excluding Land)</u>

COIMBATORE

	Size group in hectare					
	0.01- 2.02	3.03- 3.34	3.35- 5.67	5.68- 10.52	10.53& above	All Farms
Value of owned fixed and working capital excluding land	5202.96	11013.80	17849.25	25571.06	69577.11	22807.79
Net income + interest on owned fixed capital + interest on working capital	766.92	420.83	1426.69	2968.83	1114.81	1350.58
Percentage return to capital	14.74	3.82	7.99	11.61	1.60	5.92

Source: SEFM Coimbatore (1970-71 to 1972-73) p.87

Table 10 : Percentage distribution of cultivator
households according to value of assets
and share of each asset group in the
total value of assets.

Asset Groups	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/- to 20000/-	11.1	17.83	21.4	22.93
20000/- & 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
Investment Survey 1961-62 and All India Debt
and Investment Survey 1971-72.

Table 11 : Percentage distribution of All Rural
Households according to value of
assets and share of assets

Asset Groups	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	3.69
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/- & above	5.3	8.15	43.3	60.47
All asset groups	100.00	100.00	100.00	100.00

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

Table 12 : 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, K.R. Ganapathy and YUK Sarma:
"Shifts in pattern of Asset Holdings of
Rural Household, 1961-62 to 1971-72" Economic
and Political Weekly, March 19, 1977.