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A REVIEW OF THE CONCEPTUAL FRAMEWORK OF LAND HOLDINGS SURVEYS*

S. K. Sanyal†

The appropriateness of a particular conceptual framework lies in its workability in the field as also in its ease with which results can be interpreted. The involved nature of the framework may bring in investigator biases on the one hand, while being liable to be misconstrued into interpretational errors on the other. The existing conceptual framework for the land holdings surveys, canvassed by the National Sample Survey in the 8th Round (1954-55), 16th and 17th Rounds (1960-62) and the 26th Round (1971-72) has been examined in this paper in the background of the wide divergence revealed between the Agricultural Census (1970) and the 26th Round survey results and the vast evidence of a somewhat erroneous use of the published results.

THE EXISTING FRAMEWORK

By structure of land holdings, we generally are concerned with two basic distributions at the same time—one, the distribution of owned land and second, that of operated (or cultivated) land. The total land owned by a household (the ultimate unit of sampling) constitutes the 'household ownership holding,' the size distribution of which we henceforth designate as $F(x)$. As regards land operated, the Food and Agricultural Organization (FAO) concept of operational holding[1] has been adopted in all the three sample surveys, the methodology being to enumerate the operational holdings of the sample household. We get, therefore, the distribution of land operated in terms of 'Operational holdings' and not 'households.' This distribution, we designate as $\phi(y)$. It may be of relevance to indicate that the operational holdings may be either individually operated by the sample household or jointly operated and also that a sample household may have more than one operational holding.

In order, therefore, to get the distribution of land operated in terms of 'households' from the data on operational holdings, an approximate procedure is adopted. The definition of land operated by the sample household is computed as :

$$\text{Land operated by the household} = \sum_i a_i + \sum_j \frac{a_j}{p_j}$$

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1. "All land used wholly or partly for agricultural production, being operated or managed by a 'person' without regard to title, size or location and if consisting of two or more parcels, forming part of the same technical and economic unit."

where, a denotes the area of the operational holding, i standing for the individual operational holdings of the household and j for the joint ones. p_j denotes the number of partners in the jth joint operational holding of the household.

This aggregate is referred to as the household operational holdings.   We henceforth denote the distribution of households by size classes of household operational holding as $0(z)$.

Whereas the three distributions $F(x), \phi(y)$ and $0(z)$ more or less describe the conceptual framework of the land holdings surveys, we note down below some of the properties of this framework and also the changes in the concepts over the rounds.

Properties

A. $\phi(y) \sim 0(z)$, exclusive of the 'Zero' class under the following conditions :

(*i*)   each household has got only one operational holding and

(*ii*)   there are no joint holdings.

B.   The 'owned and operated' component in land operated excludes leased-out area, while the same is included in land owned.   In a simultaneous use of $0(z)$ and $F(x)$, this point has special significance.

C.   The 'Zero' class of F (x), designated as 'landless' may figure in 'Zero' class of 0 (z) or other size classes, depending upon the area leased in.

D.   The 'Zero' class of $0(z)$ comprises of absentee landowners plus the landless not taking any land on lease, the households having land solely put to non-agricultural uses, etc.

E.   The particulars of operational holdings, *i.e.*, extent and terms of area leased in, land utilization, farm servants, etc., are available only by size classes of operational holding and not by household operational holdings, whereas the ownership of livestock and implements, etc., are available only by household operational holding (because of the provisions in the schedule of enquiry).

Changes in the Concepts

We deal with the coverage of the two central concepts of 'ownership' and 'operational holding' over the three rounds (17th Round taken as a staggering of the survey of the 16th Round).

Item	8th Round	16th and 17th Rounds	26th Round
1. Ownership of land	Land held with the right of permanent and heritable possession.	Besides pure ownership of 8th Round, it also included* land held in owner-like possession, *e.g.*, land held on long-term lease, etc.	Same as in the 16th and 17th Rounds.
2. Operational holding	(*i*) All holdings** of the sample households whether put to agricultural use or not	(*i*) Only holdings put wholly or partly to agricultural production were covered.	(*i*) Same as in the 16th and 17th Rounds.
	(*ii*) No geographical restriction provided the parcels formed the same technical unit.	(*ii*) All parcels within the State will constitute a holding provided they formed the same technical unit.	(*ii*) Same as in the 8th Round.

*This gives an exaggerated picture of the decrease in the proportion of the landless during the period 8th—17th Rounds.

**Agricultural holdings were, however, obtained at the tabulation stage on the basis of land utilization particulars of the operational holdings by discounting the purely non-agricultural holdings. A comparison, therefore, with the later rounds is possible.

THE CONCEPT OF OPERATIONAL HOLDING VIS-A-VIS SURVEY METHODOLOGY

The data on ownership holdings were obtained only through the sample surveys. The first ever Agricultural Census (1970) coinciding with the 26th Round sample survey limited itself to a complete enumeration of the operational holdings in the country through a retabulation of existing land records, thereby providing an opportunity to examine the suitability of the concept of operational holding with respect to the survey methodology. Although the ambitious nature of the concept with respect to the interview method had earlier been pointed out,[2] it was left to the first complete enumeration, *i.e.*, Agricultural Census 1970 to demonstrate the fallibility of this concept[3] as regards the particular method of retabulation.

Interview Method and the Concept

Even though an investigator is given a thorough training in the concepts and definitions before the survey is launched, the task remains of explaining this difficult concept to the interviewee, who has little knowledge of what constitutes a technical or economic unit. The following example, culled from the correspondence of the field personnel with the technical staff of the National

2. S. K. Sanyal, S. K. Sinha, and R. P. Saha: Some Suggestions for Agricultural Census 1960, NSS Working Paper No.9, 1959 (mimeo.).

3. S. K. Sanyal and S. K. Sinha, "Methodological Problems in Large Scale Sample Surveys— Experiences from National Sample Survey" presented in the Symposium on Recent Developments in Survey Methodology, Indian Statistical Institute, 22-27 March, 1976.

Sample Survey during the 16th Round survey would indicate the amount of intelligence, comprehension and discretion needed in an investigator to do justice to the collection of data.

Example: In lieu of his services, an employee has been given a parcel of land by his employer out of his holding. Three possibilities may arise :

(*i*)   The employee cultivates with the technical unit of the employer but he is free to utilize the land according to his own choice.

(*ii*)   The employee cultivates with his own technical unit but he is not free to utilize it according to his own choice.

(*iii*)   The technical unit used for operating the land is shared between the employer and employee (livestock by employer and implements by the employee). The employee retains the choice of utilizing the land.

Between the employer and employee, how many operational holdings exist in each case ?

The twin criteria of "the distinctiveness of the technical unit" and "the identification of the 'person' who manages or operates" have to be taken into account in each case. It will be seen that in all the three cases, formation of two operational holdings is indicated—the first and third being cases of two different managements and the second being that of two distinct technical units.

Again, there may be examples of plural holdings in the sense of more than one technical unit under the same management in which case too, discretion by the investigator has to be exercised.

Procedure of Retabulation from Land Records and the Concept

From the above example, it is obvious that there was no scope for going into so much of technicalities in the Agricultural Census resorting to a retabulation by the *patwari* from the different registers, mainly the *Khasra* register. The procedure was to note down the name of the cultivator against each and piece together the survey numbers/sub-numbers cultivated by the same cultivator. In some States, a list of owner cultivators was first drawn up and to that were added the names of cultivators not owning land to form the list of operational holdings. Furthermore, the very fact that a cultivator might possess parcels of land outside the village or tehsil, led to delimiting of the holding to tehsil. Whenever the parcels within a tehsil were scattered over the different *patwari* circles 'part' holdings were formed which were subsequently consolidated at the tehsil level.

The above procedure is not compatible with the FAO concept, involving the twin criteria mentioned earlier and hence for all practical purposes a cultivator's holding formed the central concept in the Agricultural Census.

Divergence between Agricultural Census and 26th Round Results

The conceptual differences, as pointed out, are enough to set at rest any controversy regarding the wide divergence between the two sets of data, apart from the difference in the coverage of the two enquiries. Even so, we proceed to show the possible drawbacks of the particular methodology of retabulation. In an earlier paper[4] we have observed that in the Agricultural Census, there had been a possible (*i*) over-enumeration of small holdings, (*ii*) over-emphasis on the phenomenon of joint operation and (*iii*) under-recording of tenancy.

The three surmises are explained, if we analyse the data thrown up by the Agricultural Census. Let us consider the mixed type of holding which consists of both 'owned' as well as 'leased-in' areas.

TABLE I—PERCENTAGE OF "MIXED" HOLDINGS AND "ENTIRELY LEASED-IN" HOLDINGS AND PERCENTAGE OF OPERATED AREA LEASED IN FOR SOME STATES : AGRICULTURAL CENSUS 1970 AND 26TH ROUND LAND HOLDINGS SURVEY

States	Percentage of holdings						Percentage of operated area leased-in	
	Mixed		Entirely owned		Entirely leased-in			
	26th Round	Agri-cultural Census	26th Round	Agri-cultural Census	26th Round	Agri-cultural Census	26th Round	Agri-cultural Census
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Andhra Pradesh ..	20·95	6·57	78·34	87·76	0·71	5·66	9·01	7·02
2. Assam	7·83	8·54	75·27	75·90	16·90	15·57	19·59	15·63
3. Bihar	39·05	0·18	60·22	99·60	0·73	0·22	14·50	0·17
4. Haryana	33·73	6·64	62·65	81·42	3·62	11·94	23·26	17·36
5. Jammu & Kashmir	13·78	20·70	85·78	56·04	0·44	22·76	8·06	30·69
6. Karnataka	22·83	4·61	71·19	88·82	5·98	6·57	15·90	7·85
7. Kerala	9·93	3·35	82·68	88·46	7·39	8·19	8·59	13·15
8. Madhya Pradesh ..	15·74	1·17	78·95	97·94	5·31	0·89	7·46	0·89
9. Maharashtra ..	11·16	5·08	88·07	91·86	0·77	3·06	6·15	5·09
10. Orissa	27·69	4·91	67·76	91·52	4·55	3·01	13·46	4·48
11. Punjab	48·21	6·15	47·01	80·81	4·78	13·04	28·01	10·47
12. West Bengal ..	31·28	12·12	65·44	85·76	3·28	2·12	18·73	8·17

Note:—The results for other States could not be computed in this form because the Agricultural Census results were given in a different format.

4. Sanyal and Sinha, *op. cit.*

We will observe that the phenomenon of mixed holdings has not been revealed by the Agricultural Census (Table I) to that extent as by the sample survey, excepting in Jammu & Kashmir. In this connection, if we refer back to the procedure of retabulation adopted by the Agricultural Census, it will be seen that the formation of the list of owner cultivators may lead to the 'leased-in' area of the mixed holdings being overlooked or accounted for as 'owned,' thereby under-reporting the proportion of tenancy. This might have particularly happened in the States of Bihar, Madhya Pradesh, etc., where the proportion of pure tenant holdings was just about the same or it was higher in the sample survey. In States like Punjab and Haryana, where too the sample survey estimates a higher proportion of tenancy, the Agricultural Census has come out with a higher proportion of pure tenant holdings. This leads us to the surmise that over and above the 'leased-in' area being accounted for as 'owned' there is the additional possibility of mixed holdings having been split up into 'entirely owned' and 'entirely leased-in' ones [see the wide divergence in col. (2) and col. (3)]. This feature, when considered alongside the fact that leasing-in is more prominent in the lower size classes of holdings, gives a substantive evidence of over-enumeration of small holdings in the Agricultural Census, attributable mainly to the methodology adopted.

TABLE II—PERCENTAGE OF JOINT OPERATIONAL HOLDINGS IN SMALLER SIZE-GROUPS OF OPERATIONAL HOLDINGS FOR A FEW SELECTED STATES : AGRICULTURAL CENSUS 1970

Size class of operational holding (hectares)	Percentage of joint holdings in each size class					
	Haryana	Jammu & Kashmir	Madhya Pradesh	Punjab	Rajas-than	Uttar Pradesh
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Below 0·5	25·30	47·12	20·31	22·94	23·62	35·01
0·5 — 1·0	28·29	42·59	22·79	24·49	20·46	36·88
1·0 — 2·0	30·70	41·66	24·37	25·79	19·82	39·39
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
All sizes	33·60	45·16	27·22	27·55	23·63	38·0 1

It will be seen that joint operation, which has been shown by the NSS results over the rounds as insignificant, appears to be a phenomenon by itself (Table II) according to the Agricultural Census. The high proportion of joint holdings in lower size classes is a clear indicator of the particular methodology tending to over-enumerate the joint holdings, for obviously such small holdings could hardly be jointly operated, except perhaps in a few cases.

SOME OBSERVATIONS ON USE OF LAND HOLDINGS DATA

The results of the reports on land holdings pertaining to 8th Round, 16th and 17th Rounds have been immensely used in analytical studies as well as for policy prescription. Proper attention was not, however, paid to the subtleties of the conceptual framework, indicated earlier, sometimes to the detriment of the analysis itself. In the background of the properties of the existing framework, the pitfalls in the use of data are indicated in the following paragraphs.

1. *Usages of 'Operational Holding' and 'Household Operational Holding'*

There are numerous instances of using interchangeably the words 'operational holding' and the 'household operational holding,' much worse of using interchangeably the distributions $\phi(y)$ and $0(z)$. Property A indicated earlier will reveal that if the incidence of joint holdings and plural holdings is ignored, $\phi(y) \sim 0(z)$, exclusive of the 'Zero' class. There is no report on land holdings which gives land utilization by size classes of household operational holdings or number of households by size of operational holdings.[5]

2. *Limitations in Simultaneous Use of $F(x)$ and $0(z)$*

(a) While the surplus land to be released by the application of the ceilings law forbidding x' acres or more, is computed from $F(x)$, in the redistribution of land, $0(z)$ is utilized to give the benefit to the lowest operators,[6] on the basis of their owned area. As noted in Property B earlier, it is of significance in this context that the 'owned' component of these operators is exclusive of leased-out area. There being, further, the incidence of leasing-out in smaller groups with the incidence of mixed holdings, redistribution of land, in the absence of the exact, 'owned' area (*i.e.*, taking into account the leased out portion) makes the exercise slightly approximate. The implicit assumptions are that (*i*) the extent of leasing-out by these small operators may be ignored, (*ii*) no household in the upper size classes of land ownership is figuring among the small operators (this is important because there may be big landowners who operate only small areas, while leasing-out other areas in their holding).

(b) In the context of levy and procurement on operational holdings above a certain size, say y', the problem of finding the marketable surplus was done[7] in the following way :

5. Table II in the report on Availability, Procurement and Distribution of Food, prepared by a Working Group comprising S. Pillai, T. Moitra, Nikhilesh Bhattacharya, Sitangsu Bhattacharya of the Indian Statistical Institute, Asok Sen and Boudhayan Chatterjee of the Department of Economics, Burdwan University.

6. B. S. Minhas, "Rural Poverty, Land Redistribution and Development Strategy : Facts and Policy," *Indian Economic Review*, Vol. V (New Series), No.1, April, 1970 reprinted in T. N. Srinivasan and P. K. Bardhan (Eds.): Poverty and Income Distribution in India, Statistical Publishing Society, Calcutta, 1974, pp. 397-400.

7. Working Group on Availability, Procurement and Distribution of Food, *op. cit.*

(i) Equalise the rice land after size y', yielding P per cent of sur-
plus rice land, which on the assumption of equal productivity
yields p per cent of rice production as marketable surplus in the
hands of operators of size y' and more.

(ii) Since these holders must have leased out some land on share-
cropping, the share accrued from the lessees, say p' per cent
(an arbitrary fraction of leased-out area) should be added to
get at the real marketable surplus as (p + p') per cent.

In respect of (ii), it must be noted that the operators of size y' or more, deri-
ved as they have been from $0(z)$ [or ϕ (y)] may not be the same as the owners
of size y' in the distribution of $F(x)$. The two distributions are distinctively
different. It is true that the computation was done on the basis of leased-out
area and not on the basis of the operators, the underlying assumption is that
the big operators are also the lessors. A two-way classification of households
by land owned and land leased in may reveal that even a holder owning in
fact 2.50 acres leases in another 7.50 acres to become a big operator,[8] thus
pointing to the fact that the class of big operators may consist of not only the
big owners but also small and medium ones apart from the fact that some
big owners who have leased out their land may be among the operators with
land less than y'.

3. *Composition of the Class of "Households Not Operating" in $0(z)$*

$0(z)$ having been derived from the data on operational holdings, the 'Zero'
class, *i.e.*, the class of households not operating any land has a direct relation
with the concept of operational holding, a fact which is more often ignored
by the analysts. The concept of operational holding implies that even if a
part of the holding is put to agricultural production, the whole area of the
holding constitutes the operational holding. So those households who do not
operate are either landless or do not 'operate' in the sense the operational hold-
ing is defined. The two classes are, therefore, (i) households neither owning
nor operating, (ii) households owning but not operating. It is of relevance to
point out that (i) does not include the full set of 'landless' households (a land-
less household being defined as one not owning any land or land less than
0.005 acre), because some of the landless may figure in various size classes in
$0(z)$ as pure tenants.

The second component (ii) includes the households who have leased out
their land fully, *i.e.*, the absentee landowners, those who own land solely put
to non-agricultural uses or forests or culturable wastes and also those who have
leased out that part which has been put to agricultural production (see Pro-
perty D).

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8. S. K. Sanyal, "Household Holdings in Punjab—An Analysis," *Economic and Political Weekly*,
Vol. V, No. 34, August 22, 1970.

(a) These components of the 'Zero' class are not available for the 8th Round survey. The comparison, therefore, of pure rentiers[9] of the 17th Round, as measured by the households owning but not operating with the "households leasing out land fully" from the 8th Round distribution F(x) to find out the increase is not valid. Pure rentiers form only a part of the second component.

(b) In any exercise for redistribution of surplus land, obviously it should not be our objective to give land to the absentee landowners. Inclusion[10] of the whole class of households not operating land along with small cultivators, say cultivating land below y' for purposes of redistribution is, therefore, not justified.

4. Use of F(x), φ(y) and O(z) in Determining Inequality

Three distributions F(x), φ (y) and 0(z) are made available by the results of the NSS land holdings surveys for determining the inequality in distribution. While the inequality in the distribution of land owned can be measured by the concentration ratios of the land owning households or by including landless, of the total population, this analysis with respect to 0(z), *i.e.*, the household operational holding is not meaningful for the total population, again, because of the composition of the 'Zero' class discussed in the preceding paragraphs. There exists households who do not operate, although they own, along with some who own only land put to non-agricultural uses and hence determining inequality by considering such households has little meaning. For determining inequality in the distribution of farming units, it is the operational holdings distribution, *i.e.*, φ(y) which should be used.

Further in the choice between F(x) and φ(y) for finding any association with poverty, the use of F(x) may be more relevant, for φ(y) is a resultant distribution of F(x) due to the interplay of leasing-out and leasing-in, bringing about an equalisation in the distribution itself. It is because of this fact that results like lack of any association between poverty and distribution of operational holdings are obtained.[11]

The concentration ratios of operational holdings are sometimes compared with those of other characteristics, for example, that of milk production.[12] It has particularly to be seen whether the distribution chosen can be compared at all. The 8th Round distribution of operational holdings will always give a very high Lorenz ratio, if care is not taken to exclude the non-agricultural ones.

9. P. K. Bardhan, "Trends in Land Relations in India: A Note," *Economic and Political Weekly*, Vol. VI, Nos. 3, 4 and 5, Annual Number, January, 1971.

10. V. M. Dandekar and Nilakantha Rath : Poverty in India, Indian School of Political Economy, Poona-4, 1971, p. 81.

11. I. Z. Bhatty, "Inequality and Poverty in India," in Poverty and Income Distribution in India, *op. cit.*, pp. 323-324, where a rank correlation of 0·003 between Poverty coefficient and the Gini coefficient of operational holdings is revealed.

12. A. Vaidyanathan, "Some Aspects of Inequalities in Living Standards in Rural India," in Poverty and Income Distribution in India, *op. cit.*, footnote to p. 223.

SUGGESTIONS

We have seen from the earlier sections that the concept of operational holding is ambitious for the interview method, unrealistic for the retabulation approach and rather dubious for the analyst. For the sample survey approach, where the household is the ultimate unit of sampling, let us assume it to be the ultimate unit of observation too and accordingly collect particulars of land owned (exclusive of leased out), land leased out and land leased in by the household in detail for the different plots held. Furthermore, even though the Agricultural Census has come out with the result that one out of every six holdings is a jointly operated one, we ignore the incidence of joint holdings and plural holdings (by doing away with the distinctiveness of technical unit and identification of 'person,' etc.)

Then the distribution of households with x = (land owned + land leased out), as classificatory character will yield F(x) and with y= (land owned + leased in) will yield $\phi(y)$. The merit of such a scheme, besides being very simple for the field staff, lies in its being less susceptible to fallacies at the analysis stage. In $\phi(y)$, we get the distribution of operational holdings which can be construed in terms of 'holding' or 'household' without any ambiguity. Further, by tabulating (i) the 'landless' who have not taken land on lease, (ii) small owners who operate or cultivate and (iii) pure tenants, i.e., the landless who have taken some land on lease, we are able to identify the beneficiaries in any scheme of redistribution of surplus land.

STRUCTURAL CHANGES IN THE SIZE DISTRIBUTION OF HOLDINGS—A MACRO VIEW

Harpal Singh*

The Objective

It is the objective of this brief paper to review the structure of farm size distribution at the national level during the last fifteen to twenty years and identify the pace and direction of change, if any.

The Distribution of Land Holdings

Although the results of the first Agricultural Census, 1970-71[1] have become available, the non-availability of comparable data on distribution of holdings according to size for the earlier periods precluded the use of this important

1. I. J. Naidu: All-India Report on Agricultural Census, 1970-71, Ministry of Agriculture and Irrigation (Department of Agriculture), Government of India, 1975.