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DEFICIT PADDY FARMING IN SRI LANKA[1]

By

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Introduction

There appears to be a widespread impression that all paddy farmers produce enough rice to feed their families and earn some cash, and that in consequence increases in the market price of rice are beneficial to all paddy farming households.[2] As research has shown,[3] this is not always true in Sri Lanka. Many paddy farmers do not even produce enough rice to feed their own families ; they depend on purchase in the open market and/or rice rations. There appear however to be no estimates of the incidence of this phenomena, which may be termed 'deficit paddy farming'. This is quite understandable, since a large number of factors affect whether or not a particular cultivating household produces adequate rice for its own needs. The more important are mentioned below. To collect the necessary information by survey would be a very large undertaking, and would involve many problems of reliability of response. It does however seem possbile to use available statistics to produce estimates which give an adequate indication of general magnitude of the phenomenon.

Methodology, Analysis and Results

The results and some of the date used for the estimation are given in the table. The basic conceptual steps involved are very simple. They are as follows:-

1. Estimate annual average per acre paddy production.
2. Estimate the proportion of production available for consumption by the cuiltvator's family after paying the *ande* share to the landlord (if any) making payments in kind to harvest labourers (if any), and allowing for wastage and seed.
3. Estimate how much rice the cultivator requires to feed his family each year.

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1. The author is extremly grateful to Miss T. Sanmugam for her comments on an earlier draft, which both revealed a computational error and exposed the unclarity of the presentation. Henry Lucas was responsible for the interpolation estimates.

The author must also express responsibility and regret for a computational error which crept into an earlier published estimate of the incidence of deficit paddy farming (Moore and Wickremasinghe, 1930, p. 27). This resulted in a gross underestimate. Those earlier figures are entirely superseded by the present ones.

2. For example, when talking of an increase in the GPS paddy price and of measures to improve paddy marketing in his 1977 Budget speech, the Minister of Finance and Planning stated "Nearly one million persons in this country are paddy cultivators and it is they and their families, amounting to about five million persons, whom the present policies are first designed to benefit." (See *Ceylon Daily News*, November 16th 1977, p.6).
3. e.g. Ranatunga and Abeysekera, 1977, p. 52.

4. Estimate, from the previous figures, the acreage of paddy land required to feed the cultivator's family.

5. Compare this latter figure with the actual distribution of paddy holdings.

The problems met in doing these estimates are not conceptual ; they derive rather from the inadequacies of the available data series. Some series are out-dated, while almost all are aggregated at the district level. In one or two cases no data are available at all. In order to do the calculations and arrive at an estimate of deficit farming - the figure in column E of the table - the following procedures and assumptions were employed :

1. Production data for the 1976-7 agricultural year were used. This was a fairly 'typical' year over most of the Island : harvests were higher than in the drought years of the first half of the decade but lower than in the bumper year following. In particular, harvests were very near average in the areas of high concentration of deficit farming, especially the first four districts in the table. Localised poor harvests in Anuradhapura and Puttalam districts result in estimates of the incidence of deficit farming which are a little on the high side.

Table 1:

District	*Data Given*[1]			*Statistics Estimated*[2]	
	Cropping intensity (harvested area) (1976—7) (*A*)	*Yield (bushels) per gross harvested acre per season* (1976—7) (*B*)	*% of paddy under ande tenure* (1962) (*C*)	*Asswedumised acreage required to feed an 'avearge' family* (*D*)	*Proprotion of paddy holdings smaller than (D)* (1962) (*E*)
Colombo	1.57	32	37	1.83	84
Kalutara	1.68	24	33	2.23	87
Galle	1.68	24	36	2.27	82
Matara	1.68	32	57	1.95	74
Ratnapura	1.80	36	53	1.58	76
Kandy	1.81	48	39	1.07	63
Kegalle	1.86	37	40	1.36	82
Kurunegala	1.52	40	32	1.47	58
Puttalam	0.81	33	22	3.15	83
Matale	1.29	53	39	1.36	61
N. Eliya	1.60	58	42	1.02	44
Badulla	1.27	44	31	1.59	79
Moneragala	0.93	44	16	1.99	65
Jaffna	0.99	29	13	2.79	74
Vavuniya	0.79	41	15	2.50	15
Mannar	0.54	61	4	2.32	19
Anuradhapura	0.81	53	17	1.91	25
Polonnaruwa	1.70	59	9	0.78	5
Trincomalee	1.26	44	4	1.38	7
Batticaloa	0.82	42	3	2.21	15
Amparai	0.94	48	5	1.71	10
Hambantota	1.31	49	53	1.59	41
Sri Lanka	1.22	42	25	1.67	61

1. These data were kindly provided by the Department of Census and Statistics, Colombo.
2. For method of estimation see text.

2. It was assumed that, within each district, such factors as yields, incidence of *ande* tenure, household size and cropping intensity were the same in all size classes of holdings and in all areas.

3. It was assumed that the data from the 1962 Census of Agriculture relating to individual land *operators* could be used as if they related to *operating households*.

4. It was assumed that the information given in the 1962 Census of Agriculture on both size distribution of paddy holdings and incidence of *ande* tenure[4] remains true for the mid - 1970s.

   It was necessary to use this information because the responses obtained at the 1973 Census of Agriculture are manifestly far less accurate than in 1962.

5. The estimation procedure employed the assumption that the "average" paddy farming household cultivated owned and tenanted land in the same proportion as that of owned to tenanted land in the district as a whole. There do not in fact appear to be major consistent differences in the size of owned and tenanted paddy holdings.[5]

6. It was assumed that all *ande* tenants give a half share of the harvest to the landowner.

7. It was assumed, on a fairly arbitary and impressionistic basis, that the cultivator has available for consumption only 80% of his *net* share of the harvest, the remainder going to pay labourers in kind, for wastage, storage losses and seed.

8. It was assumed that the size of the average cultivator's family is the same as the 1969-70 national (and rural) average of 5.8 persons.[6]

9. No allowance is made for the rice ration . The proportion of deficit producers would have been appreciably less than the figures given here when almost the entire population was eligible for the rice ration. Since it is unlikely that many household with paddy holdings receive food stamps under the existing system, the estimate can be considered applicable to the current food supply situation.

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4. *Census of Agriculture*, 1962 Volume 3, Table 2.

5. In 1946 paddy owner cultivators and *ande* tenants on average farmed almost identical sized holdings. (*Census of Ceylon* 1946, Volume 1, Table 69).

6. *The Population of Sri Lanka*, p. 54.

10. Per capita food requirements were estimated as follows. Average food intake is, at the national level, considered to be just about nutritionally adequate on average. This involves the consumption of about 300 pounds of cereals[7], but members of cultivating families are assumed to require an additional 10% because of the hard manual labour involved in cultivation. Using the "official" figure of one bushel of paddy = 31.3 pounds of rice, one finds that the average member of a cultivator's family requires ten and a half bushels of paddy per year. The average family of 5.8 persons thus requires about sixty bushels of paddy per year for consumption purposes.

11. The formula used to calculate the average required to feed an 'average' family was as follows, where A,B,C and D refer to data in the columns in the table:-

$$D = \frac{60}{0.8 \left[(A \times B) \times \left(1 - \frac{C}{100 \times 2}\right) \right]}$$

12. E, the proportion of deficit paddy holdings, was derived from D by interpolation (using cubic splines) from the published data as the size distribution paddy holdings.

Conclusion

There is scope for refining the estimate of the incidence of deficit farming given in the table. However from the policy point of view it is the general orders of magnitude which are important, It appears that, on a national level, about sixty per cent of paddy cultivating households do not produce adequate paddy to meet their cereal needs. There will be a further proportion who are just self-sufficient and have little or no surplus for sale

The regional distribution of deficit paddy producers is perhaps of as much significance for policy as the national average figures. Deficit producers are concentrated in the south western coastal lowlands, especially the districts of Puttalam, Colombo, Kegalle, Kalutara and Galle. These areas generally combine high population densities - and thus low average size of paddy holdings-with low yields and cropping intensities which are low in comparison with the up-country wet zone districts. The areas of deficit paddy production are, almost by definition, areas where the rural population is heavily involved in non-agricultural income-earning activities, as

7. See Food Balance Sheet in the *Statistical Abstract*, 1977, Table 116.

well as production of non-paddy crops[8]. Any change in the real price of rice affects the inter-regional distribution of income. In the rice deficit areas the majority of households do not anyway own or cultivate any paddy land[9]. Of those who do cultivate, the great majority are deficit producers, thus only a tiny minority of the rural households of these areas benefit from an increase in the price at which paddy may be sold. The majority are worse off. This is in clear contrast to the main paddy-producing areas of the dry zone, where the majority of cultivators are sellers of surplus produce.

References

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8. A survey of a sample of paddy producers in the Colombo district found that only 27% of their incomes were derived from paddy (Agrarian Research and Training Institute, 1975, p. 30). Detailed discussion of the high dependence of low country wet zone villages on non agricultural incomes can be found in Moore and Wickremasinghe, 1980.)

9. This can be estimated from the preliminary results of the 1973 Census of Agriculture.