

DIMINISHING PROFIT OF PADDY PRODUCTION

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SUMMARY

Statistics on paddy production indicate an upward trend in production during the past decade. The increase, however is neither parallel with the income of paddy farmers nor with their standard of living. The objective of this paper is to examine the profitability of paddy production in Sri Lanka because such change may be directly related to the profit margins. The methodology applied in this paper was the calculation of gross margin and the analysis of, trend in percentage gross margin using the data of past seventeen seasons. The result reveal that the profit margins as well as the income received by farmers show a downward trend, mainly due to low paddy prices and high input costs. The cost of labour is the main factor which determines the total cost of production. It is suggested that steps should be taken to implement suitable price policies and other incentive schemes to improve the living standards of paddy farmers to prevail it from declining.

INTRODUCTION

Rice occupies a position of overwhelming importance in Sri Lankan agriculture. It is the primary dietary staple and occupies nearly 7,81,500 ha. of land, which represents 33% of the total cultivated area (Central Bank of Sri Lanka, 1987). Nearly

70% of the dry zone and a considerable part of the wet zone are under paddy cultivation. Paddy farming is the main source of livelihood for several thousand families in Sri Lanka. About 80% of the total extent of paddy is cultivated by small farmers. As much as 50% of the total paddy land area is farmed in small units below one hectare (Agricultural Implementation Programme, 1986). Due to lack of foreign exchange and because rice is the main dietary staple, after independence, successive governments have considered self sufficiency in rice as the major goal in agricultural development (Farmer et. al. 1977, Agricultural Implementation Programme, 1986).

The objectives of such programme would be to increase domestic food supplies, to contribute to domestic savings and capital formation and to save foreign exchange earnings. Thus, irrigation schemes such as Mahaweli, Gal Oya and Uda Walawe, subsidy schemes eg. fertilizer subsidies and guaranteed price schemes are implemented. As a result of these attempts, paddy extent sown and yield per ha. have increased considerably over the years (Table 1). The table reveals that the paddy production in 1977 was about 1,677,000 M.T. increased upto 2,128,000 M.T. in 1987. This is a 26.89% increment.

It is clear that low living standards are highly dependent upon profit margins earned by paddy farmers. Therefore the main objectives of this study are :-

1. To examine the level of gross margin in paddy farming and
2. To investigate the main factors affecting the level of gross margins over the past decade.

DATA AND STUDY METHODOLOGY

Secondary data on input costs and output prices have been taken from the various published sources, such as Cost of Cultivation Records published by the Department of Agriculture, Annual reports and Social and Economic Statistics Records in Sri Lanka published by the Central Bank of Sri Lanka. It is needless to say that the validity of the conclusions are contingent upon the accuracy of the data available for this analysis.

The methodology applied in this paper is the calculation of gross margin by subtracting total variable cost (TVC) from the total revenue (TR) per bushel of paddy. The total variable cost is considered as the cultivation cost excluding the fixed cost, and total revenue is considered as the gross income earned by paddy farming per unit of produce. The income of the paddy farmers will be computed using the average yield per ha. and it will be expressed as income per land unit. The income is calculated in this manner mainly due to non availability of reliable information with regard to income and output of individual cultivators.

The trends in prices were initially presented in graphs and tables. The compound growth rate of percent-

age gross margin, output prices and cost of cultivation were calculated by least square technique of fitting the regression equations for each of the variable in linear form, that is $Y = a + b * X$

Where Y = Variable for which the growth rate is calculated

X = Time variable

a = Intercept

b = Regression coefficient

In this case the percentage gross margin was calculated as follows.

$$\text{Percentage gross margin} = \frac{9TR - TVCO}{8100} \cdot 100 / TVC$$

Two types of output prices are observed

- i) Cost of production including family labour [COP (i.f.1)].
- ii) Cost of production excluding family labour [COP (e.f.1)]

The family labour is considered as an important factor in determining the cost of production. But some researchers have argued that labour should not be considered as a cost to the paddy farmer not as an income. In this analysis both views have been taken into account.

Thus four types of percentage gross margins are observed.

- i) $[GP - COP (i.f.1)] / COP (i.f.1)$
- ii) $[GP - COP (e.f.1)] / COP (e.f.1) *$
- iii) $[OMP - COP (i.f.1)] / COP (i.f.1)$
- iv) $[OMP - COP (e.f.1)] / COP (e.f.1) *$

* In these cases the cost for family labour is considered as income to the farmers.

RESULTS AND DISCUSSION

1. PROFIT MARGINS

The average of all district data were taken as the national average figures. Kalutara and Anuradhapura

districts were considered as the representative districts for the Wet zone and Dry Zone respectively.

1.1. THE DRY ZONE

Fig. 1 and Fig. 2 explain the trend in open market price (O.M.P.), guaranteed price (G.P.) cost of production including family labour (C.O.P. (i.f.1.) and cost of production excluding family labour C.O.P. (e.f.1.). In 1978/79 O.M.P. and G.P. has the same value that is Rs. 40.00 and in 1987 the O.M.P. is 76.79 where as the G.P. is Rs. 70.00 This shows an increase of Rs. 30.00 and Rs. 36.94 for G.P. and O.M.P. respectively. The change in C.O.P. (i.f.1) is 64.27 and C.O.P. (e.f.1.) is 39.28 (table 2)

The most important information for any production process is not the c.o.p. or market prices but the profit margins. Therefore the percentage change in profit margins were calculated. The gross margin with respect to G.P. expressed as a percentage of c.o.p. (i.f.1.) is 125% in 1978/79 and - 14% in 1987, thus showing a drastic reduction. The gross margin with respect to G.P. expressed as a percentage of c.o.p. (e.f.1) is 164% in 1978/79 and 24% in 1987. This also shows a reduction in profit margins over the years. The same computations were made for other gross margins. The gross margin with respect to O.M.P, expressed as a percentage of c.o.p. (i.f.1.) is 125% in 1978/79 and - 6% in 1987. The gross margin with respect to O.M.P. expressed as a percentage of c.o.p. (e.f.1.) is 163% in 1978/79 and 36% in 1987. These findings also show a diminishing gross margin over the years (Table 2).

Since the complete information presented in figure 2 and 3 regarding the gross margin fluctuate, the trend equations were fitted for the same data to get the overall trend. The results are summarized in table 3.

Highest trend is observed for C.O.P. (i.f.1) which is 2.921 and lowest trend is observed for C.O.P. (e.f.1.) which is 1.840. They are 2.134 and 1.856 for O.M.P. and G.P. respectively. This is obviously due to inflation. Negative slopes of the trends in profit margins are crucial factors in the investigation. They do not have inflationary effects because each year profit margin was calculated using the same year's total revenue and total variable cost. Almost in all cases a decrease in percentage gross margin is shown and trend equation slope is around - 0.05. These results are graphically presented in Fig. 2 and Fig. 3

1.2. WET ZONE

Some computations were carried out for the Wet zone of Sri Lanka taking Kalutara as the representative district. The increase in O.M.P. over the study period is Rs. 35.00 and increase in C.O.P. (i.f.1.) is Rs. 47.07. This district also shows a decrease in gross margin which is from Rs.13.02 in 1978/79 to Rs.0.99 in 1987, when it is calculated using O.M.P. and C.O.P. (i.f.1.). The similar decrease was observed for other gross margin parameters (Table 2.). The percentage change in gross margin has decreased drastically from 40.71% to 1.25% (gross margin calculated using G.P. and C.O.P. (i.f.1.) It is reduced from 25.07% to - 11.4% when it is calculated using O.M.P. and C.O.P. (i.f.1.). The results are presented in table 2. The overall trend equation for the district reveals a negative trend, that is around - 0.03 in all 4 types of gross margins (table 3. Fig. 5 through 8)

1.3 NATIONAL AVERAGE DATA

National average data (table 2) also shows the similar pattern which is represented by fig. 9 through 11. The profit margin calculated using C.O.P. (i.f.1.) is Rs.15.00 in 1978/79 and Rs.9.81 in 1987. A stagna-

tion in profit margin was shown when it is calculated using C.O.P. (i.f.1.) It is 18.00 Rs. in 1978/79 and Rs.17.52 in 1987.

The trend equation for percentage profit margin indicate a downward slope (table 3). This pattern is also observed for percentage profit margin, which is 58% in 1987/89 and 12% in 1987 when it is calculated using O.M.P. and C.O.P. (i.f.1.). This reduction is much higher in other types of gross margins and it is presented in table 2.

2. COST COMPONENTS

2.1 LABOUR COST

Labour cost which contributes approximately 60% of total C.O.P. is the most important cost item. The family labour component represents about 20% of total C.O.P. (table 4). Since the labour cost shows the highest percentage the increase in wage rate for different farming activities has a substantial effect on the profit margin. Table 1 shows the wage rate for some farming operations over the past 8 years. According to the average wage rate items (Such as ploughing, sowing, transplanting, manuring, spraying, weeding, harvesting, threshing and winnowing) are Rs.16.86 / man day in 1979 and Rs.42.14 / man day in 1986. The trend equation shows a steady increase in Rs.3.6 / year. This trend was calculated without deflating the data and therefore should not be confused with the analysis of profit margins.

2.2 INPUT COST

Those input cost such as cost for fertilizer, weedicides, and pesticides account less than 30% of the total cost. The input costs also increased rapidly over the past 8 years and the increase is presented in table 5. The payment for the hiring of tractors and other implements have also me

increased tremendously over these years.

3. INCOME

The income per hectare was calculated using profit margins and average yield per ha. The income values were deflated by dividing those values by the Colombo Consumer Price Indices. In all four cases reductions in income were observed. It was 0.1368 for income with respect to the open market prices. The figure 0.00072 for income with respect to open market prices and C.O.P. (e.f.1) It is 0.50241 (0.087114) for income with respect to G.P. and C.O.P. (i.f.1.) and 0.36627 (0.100494) for income with respect to G.P. and C.O.P. (e.f.1.).

4. PADDY PRODUCTION IN THE RURAL ECONOMY

The growth in paddy production over the last two decades can be largely explained by the increase in yield per acre and gross extent shown. The increase in yield per acre is mainly due to the possible results of green revolution, even though Herath (1981) argues the green revolution did not succeed in Sri Lanka. But Abeygunawardena and Bessler (1989) have shown that the green revolution in Sri Lanka is a continuous and yield increasing process.

This yield or productivity increase due to the introduction of high yielding varieties was, the use of agrochemicals and fertilizers, and other inputs. However this cannot be taken as an indicator of the income levels or overall welfare of the farmers in this country. The results of this study shows clearly that the income of the farmers' decreased in the period of 1978 to 1987. It can be argued that the increase in yield per ha. would compensate the reduction in profit margins. Consequently farmers' income would have either remain constant or might even have in-

creased. However we do not believe in the validity argument of the trend equation fitted for the income levels gives a negative slope making clear that not only profit margins but also income of the paddy farmers' was decreasing.

This is a crucial issue that has to be analysed carefully. As shanmugathnum (1985) shows, this could be the first step of creating a circle of pauperization. If this process continues some of the peasants will become landless labourers, Further more, since the demand for labour is high only during the peak periods such as transplanting and harvesting, the small farmers are incapable of benefitting from the high wage rates since they have to be in their fields at that times. Thus under these circumstances farm labourers might be better off compared to the marginal paddy producer. However this might have contributed towards the present social unrest in the rural areas of the country.

According to the results of this study cost of production of paddy increased substantially over the years. The cost of labour is the most important (highest) item of cost of production. Though the cost of labour has increased tremendously the physical use of labour in paddy farming had remained more or less constant over the years, despite the influence of the green revolution. It was not an objective of this study to examine reasons for such stagnation in labour utilization in paddy production in the country. However we feel that it is an important task. Abeysekera to (1989) examine the labour employment pattern and labour displacement as a result of mechanization of some aspects of paddy farming in the country.

Despite the fact that there are no trade unions or as organized labour movement in the rural areas, the urban wage rate is somewhat reflected in these areas of the country.

Thus it is important to examine the relevant dynamics behind the changes in the wage rates in the rural economy. Marxists and Neo-Marxists argue that the wage rate in the rural sector is determined by the production cost of labour or labour subsistence levels, and not by the supply and demand interaction. Thus as increase in the cost of living may influence rural wage rates. But this cannot be regarded as adequate explanation to the situation and further investigations are needed in this regard.

Another important school of thought is the dependency school of Gunder Frank, Saméon Ammeen etc. According to dependency theory developing countries have problems of finding the necessary capital and technology etc. mainly due to the interferences by transnational or multinational companies, in developed countries or western financial organizations. In other words the multinationals exploit the labour resources and thus undermine the capitalist development in developing countries (Todaro [1985]). Some have argued that the paddy sector in Sri Lanka is highly dependent upon the multinational activities. The major problem in this sector is the exploitation by these companies and as a result paddy farming has become stagnant and will remain poor.

Disaggregating of the cost structure of paddy farming clearly indicates that more than 60% of the cost of production of paddy goes to the labour component (table 4). Therefore it is important to re-evaluate such arguments and to see for better and new ways of understanding the problems of paddy economy in Sri Lanka.

Abeysekera (1989) argues that even though non labour and non local input cost account only about 25 - 30% of the total cost of production it is substantial enough to give paddy production activities a bias towards

western countries. As a result paddy farmers are often directed to use more tractor power, more chemicals, more fertilizer etc. Therefore the peasant is not allowed to break the vicious cycle of poverty which dominates his whole life.

Based on the above discussion, two observations can be made on the

- i) increase in real wages in the peasant sector and
- ii) creation of new proletariat in the rural economy.

Capitalization of agriculture is increasing at a pace specially in settlement schemes. Further more due to increase in wages some farmers are substituting agrochemicals, irrigation water or mechanization for hired labour. This is specially in the case of the enterprise oriented farmers. Others may substitute family labour for hired labour. This may have led to a negative trend (-1.1190) in the use of hired labour and the positive trend in the use of family labour (0.3631) in paddy production as shown in our study.

What is the reason for the increase of wages in a rural sector despite the acute problem of unemployment. How can a rural and urban wage rates have similar dynamic without the existence of a strong, organized labour movement.

CONCLUSION

In conclusion, we would like to point out that the critical problem in paddy farming is not only the decreasing profit margins but also the decreasing income trends. We should also investigate why after 40 years of effort we have still not being able to achieve self sufficiency in rice. Despite the decreasing income and profit margins some farmers have not given up paddy farming yet. This may be due to reasons such as less cash is required for paddy growing in comparison with the other crops, possibility of paddy yielding better returns to land and labour compared

with some of the other capital intensive crops, or simply because paddy is the main dietary staple food item for the most of the rural people in this country. However policy makers will be taking a great risk if they trends in the paddy economy to continue. Non of the above reasons are sufficient or necessary for paddy sector to be independent and continue to contribute to the economic development of the country. Therefore, more distribution oriented policies need to be implemented. The proposed changes (i.e. removal of fertilizer subsidy, withdrawal of extension services) are not consistent with such a goal.

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