Efficiency of Marketing Channels of Small Scale Rubber Producers in Kalutara District

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Abstract

Smallholders contribute significantly to natural rubber production in Sri Lanka. However, at present, they do not get optimum benefits from their holdings. Inefficiency of marketing channels and consequent less income is one of the main reasons for not reaping potential benefits. Hence, this study conducted to examine the efficiency of different rubber marketing channels of smallholders in Kalutara district, one of the major rubber growing areas in Sri Lanka. The results showed that the average profit efficiency in smallholder rubber farmers was 64% implying that around 36% improvement in efficiency could be achieved without increasing the cost. The farmers who sell latex showed comparatively higher level of efficiency (73%) than the RSS (Ribbed Smoke Sheet) producers (62%) and USS (Un Smoke Sheet) producers (54%). Further, the farmers who sell their latex to the mobile collectors (82%) and company agents (84.5%) showed the highest efficiency among all marketing channels observed. The major determinants of efficiency of marketing were the holding size, experience of farmers, type of labor used for tapping and money transaction of marketing channels. Age of cultivation, distance to market, non- agricultural share of income, farmer's education, type of output, accessibility of marketing channel and input given by marketing channel were found non-significant determinants of the efficiency although these determinants received expected signs.

Keywords: profit efficiency, marketing channels, rubber, smallholders

Introduction

Frequent studies are necessary to capture the dynamics of the marketing channels of rubber. Thus, this study is based on the analysis of profit efficiency of different rubber marketing channels of smallholders in Kalutara district. Farmers choose what to produce and sell through analyzing their profits and choose suitable market outlets through analyzing benefits of each and every market outlets.

Economic efficiency is achieved when the amount and types of output that have the highest attainable total value are produced to society under limited resources available. Production is technically efficient if the opportunity cost of creating a given amount of output is minimized or the amount of output produced from given amount of resources is maximized (Byrns and Stone, 1984). Increasing profit efficiency is based on highest market prices of products and lowest input cost. Other than that profit efficiency is controlled by several socio-economic factors of smallholders.

Improper marketing system is one of the major constraints that faced by smallholder rubber farmers in Sri Lanka (Edirisinghe *et al,*. 2010). Hence, farmers can't reach the optimum benefits from rubber farming. Because of lower price, farmers are discouraged and consequently proper management practices are not applied. Thus, present research determine efficiencies of rubber marketing channels at small scale rubber producer's level. There are previous researches on efficiency of small holder rubber sector in Kalutara district. Edirisinghe *et al.* (2010) found that profit

efficiency of small holder rubber farmers in Kalutara district is 62.8 % based on the input and output prices in year 2007. However, the profit efficiency of small holders can chang with time and it is also based on the marketing channel which use by rubber farmers. Thus, there is a need to examine profit efficiency in different rubber marketing channels in Kalutara district. Therefore, the main objective of the study is to examine the profit efficiency of different rubber marketing channels of small holders in Kalutara district.

Methodology

The data collection was through a pre-tested questionnaire with a sample of 200 farmers who own mature rubber cultivations in 10 Divisional Secretariat (DS) divisions in Kalutara district. Number of farmers from each DS divisions was randomly drawn proportionate to the total number of farmers on each division.

In addition to the descriptive statistical tools employed, the data were analyzed using the stochastic frontier production function. Frontier 4.1 software was used to analyze data. Using a profit frontier, the economic efficiency can be directly studied as the ability of the farmers to achieve the potential maximum profit, given the level of fixed factors and prices faced by the farmer (Abdulai and Huffman, 2000).

To run the profit frontier, price of fertilizer (Rs/kg), price of chemicals (Rs/l), wage rate for tapping and fertilizing (Rs/Man day) were considered as price information. Farmer and farm specific factors considered in the production function were extent of land, age of cultivation, experience of farmer, distance to market, non-agricultural share, education of farmer, recommended clone, type of labor used, type of output, marketing channels, facilities and money lending procedure of marketing channel.

Results and Discussion

The farmers in the study area produce three types of outputs; Ribbed Smoke Sheets (RSS), Un Smoked Sheets (USS) and raw latex. Out of the total number of farmers in the sample 62% of smallholder rubber producers sell their outputs to town dealer whereas 23.5% of smallholder sell their products to village dealer. Nearly 10% of smallholders sell their products to mobile collectors. About 2.5% of smallholders sell their products to company agents. About 80.4% of RSS producers sell their products to town dealers and 17.5% of producers to village dealers. Therefore, large amount of RSS (97.9%) were brought by village and town dealers. Nearly 76% of USS producers sell their products to smoke house owners. Other 23% of USS producers go to the village dealer. This analysis shows

Table 1. Maximum likelihood estimates of Cobb- Douglas production frontier

Model terms	Estimate	Std.error	T ratio
Constant	4.288	0.197	21.765**
EXTENT	0.531	0.101	5.227**
PRICEFERTI	-0.0125	0.02	-0.615
PRICEACID	-0.009	0.017	-0.558
WAGETAP	-0.002	0.018	-0.131
WAGEFERT	-0.031	0.019	-1.711*
σ^2 (Total variance)	0.976	0.267	3.64**
γ (Variance ratio)	0.724	0.104	6.95**
LR test of the one-sided error	41.78		
N	197		

*Significant at 10%   ** significant at 0.1%

that small holder farmers spent a remarkable effort to transport their small amount of production to the urban marketing centers as there are no efficient and reliable marketing channels at village level. The mobile collectors (85.7%) and company agents (14.5%) contribute to the collection of latex.

The estimation of the Cobb-Douglas production function is shown in Table 1. The fixed input (EXTENT) showed the expected significant positive sign. The wage rate of fertilizing (WAGEFERT) returned a significant negative estimate and wage rate of tapping (WAGETAP), price of acid (PRICEACID) and price of fertilizer (PRICEFERTI) showed non-significant negative signs.

The profit efficiency levels of the studied sample had a mean efficiency of 64%. This suggests that 36% of the potential maximum profit is lost due to inefficiencies of marketing channels of smallholder rubber farmers in Kalutara district.

Farmer and farm specific factors were simultaneously estimated with the profit frontier to find the reasons for inefficiency. The extent of the land (EXT) is significant with negative sign, which suggests that higher the inefficiency while lower the extent. The ages of the plantation (AGELAND), experience of farmer (EXPEFAR), distance to market (DISMARK), the non – agricultural share of family income (NONAGRI) are non-significant with expected positive sign. The education dummies (DAL and DOL) are non–significant with expected negative sign.

The dummies for recommended clones (RECLONE) were non – significant with expected negative sign. The type of labor used for tapping (TAPLAB) is significant with expected negative sign proposing that those who tap their own land have higher profit efficiency (69.7%). The dummy for type of output was found as non –

significant with negative sign. Hence, types of output don't make a significant impact on efficiency of farmers in Kalutara district. However, the efficiency of latex producers recorded as 73%, while it was 62% for RSS producers and 54% for USS producers.

When considering the market channels (MARKCH), it was significant with expected negative signs. This means farm visited market channels shows higher efficiencies. About 61% of profit efficiency was recorded smallholders who sell RSS for both village dealers and town dealers and when a mobile collector involved shows higher efficiency (77%) for RSS. The profit efficiency was 63% when smallholders sell their RSS for company agents. The marketing channels for USS shows the lowest efficiency (54%). Smallholders who sell USS to smoke house owner recorded 48% efficiency and efficiency of 56% is recorded when USS is sold to village dealer. The highest efficiency (84.5%) was recorded when latex is sold to company agent. Profit efficiency is slightly lower (82%) when latex is sold to mobile collector.

Conclusions

The average efficiency of smallholder rubber farmers in Kalutara district was 64%. Therefore, it can be depicted that 36% of the possible maximum profit is lost due to inefficiencies of marketing channels of smallholder rubber farmers in Kalutara district. The extent of land, experience of farmer, type of labor used and money transaction of marketing agent were found as significant variables that increase the profit efficiency.

Production of RSS showed a significantly lower efficiency compared to directly selling latex because of low cost of producing latex. Therefore, it can be suggested that forming clusters of small scale latex producers and selling the output as latex will be

beneficial to increasing the efficiency of rubber production in small holder sector.

References

Abdulai A and Huffman W 2000 Structural adjustment and economic efficiency of rice farmers in northern Ghana Economic Development and Cultural Change 48 (30):504.

Byrns RT and Stone GW 1984 Economics, Scott, Foresman and company : 13-14

Edirisinghe J Wijesuriya W Bogahawatte C 2010 Profit efficiency of smallholder rubber farmers in Kagalle, Kalutara, Ratnapura districts. Journal of the Rubber Research Institute of Sri Lanka : 64-77