

The Concept of Economy of Scale in Agricultural Extension Program of Thailand

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Abstract

Thailand agriculture sector has made up by the large proportion of small scale land holding farmers which is 90% of the farm population with less than 1 rai (0.16ha) according to the Land Reform Network of Thailand. The high proportion of small holder farmers is contributing to the agricultural production. Efficient Production from agriculture is becoming one of the main goals of Thailand government for achieving higher export from farming and its products. The concept of “Economy of Scale” came into effort in Thailand with the Agricultural Extension Program which is so called the “large Land”. The production from agriculture is enhanced by obtaining cost advantages which could be achieved by increasing size of farm, output, and scale of production. The costs are spread over more units of output. This concept was adopted in the agricultural extension program of Thailand and implemented in selected townships with major agricultural production. The primary objective of this program is efficient production by cost advantages. The other goals include reduction of rice growing area with the aim of reducing amount of water used in the dry season and substituting rice with other alternative crops. The program itself shows several potentials for achieving efficient production and cost reduction but there can be the dark side of it. Monitoring and Evaluation of the extent to which how this program could be successful in the targeted area are needed.

Keywords: Small-holders, Economy of Scale, Efficient Production, Cost Advantages, Thailand

Introduction

The Agricultural Sector of Thailand involves roughly half of the total population. The country gained the comparative advantage in Agriculture due to its abundant land. The agricultural land per worker was 3.31 rai, which is higher than Myanmar (1.88 rais), Philippines (1.25 rais), and Vietnam (0.75 rais). Consequently, land-intensive crops such as rice, field crops, and permanent trees such as rubber make Thailand gained comparative advantages. The paddy lands contributed for the largest share of agricultural land as shown in the figure 1. However, their share has shown a steady decline in the last five decades. Rice crop is grown almost every region of Thailand. Northeastern region is the largest rain-fed rice growing region. The majority of irrigated land, which located in Central and North are utilized for rice and vegetables planting. The upland regions are used normally for field crops which are cassava and sugarcane. Rubber trees, oil palm, fruit trees are generally grown in the southern part of Thailand. (Poapongsakorn N, 2008)

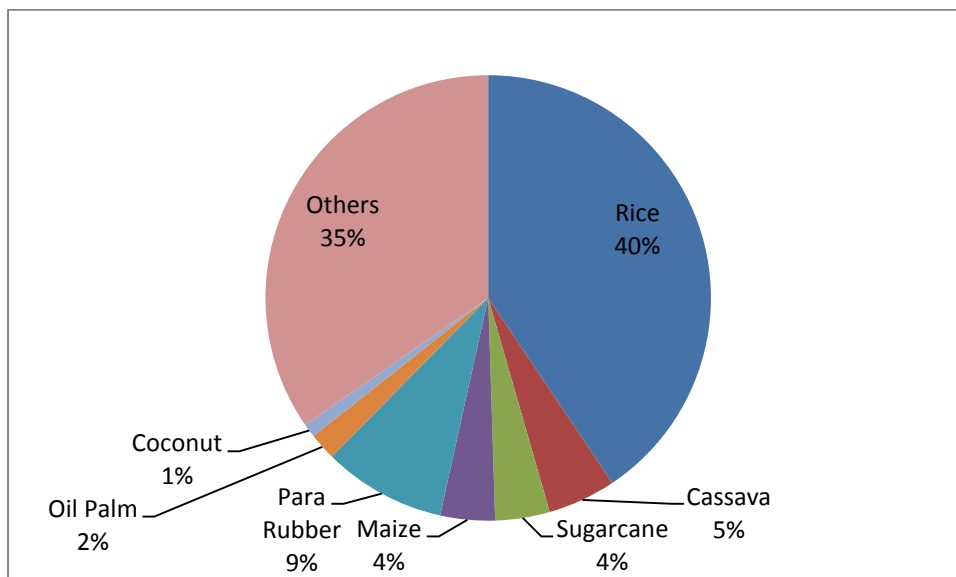


Figure 1: Utilization of Agricultural Land per Crop in Thailand

Source: OAE, 2013

The commercial farmers who are producing on large scales contribute to agro industries and export markets whilst the small-scale farmers who own 2.5 to 3 ha of farmland have been growing their crops on subsistence level for household consumption and domestic markets. (Jitsanguan T, 2000)

The vast majority of landholdings in Thailand are reported to be small in size. In the agricultural census (2001) almost 95% of land holdings are smaller than 59 rai which is less than 10 ha. The Land Reform Network of Thailand reported that 90 percent of the population in Thailand owns the farm land smaller than 1 rai which is 0.16 h and only 10 percent owns the area larger than 100 rai which is 16 ha. (as shown in figure 2)

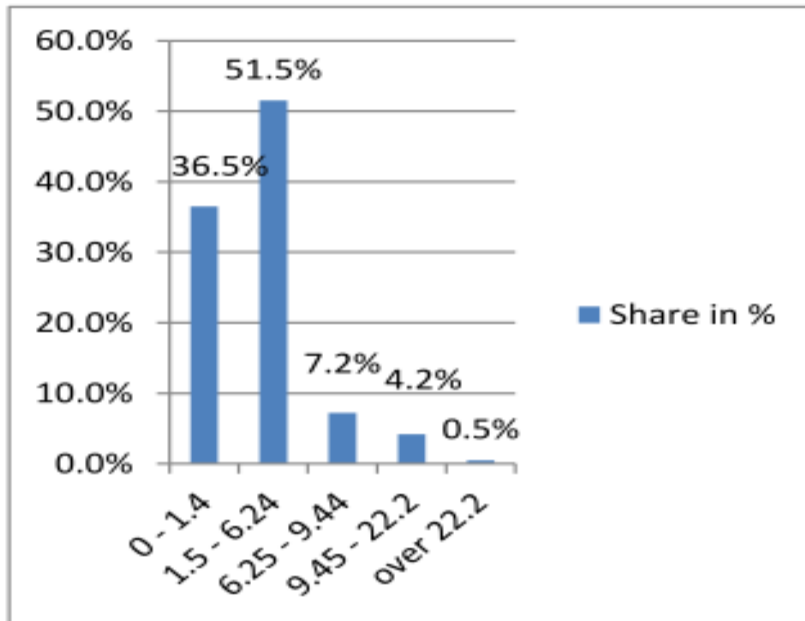


Figure 2: Distribution of landholdings / size (ha) according to Agricultural Census 2001.

Source: Dallinger J., 2013

Small-scale subsistence farmers are normally residing in the rain-fed regions where there are scarce resources, less opportunities, and limited market access. The population of small scale farmers are estimated about 8 million households which are using 25 million rais of land within the country. (Jitsanguan T, 2000)

Some of these small scale farmers once used to be commercial farmers doing monoculture system in their past and suffered losses due to increasing input prices and reduction in production. This makes them leave commercial farming and become subsistence farmers.

The study of Jitsanguan T., (2000) pinpointed that the agricultural development targeting at small-scale farmers should have four characteristics as follows;

- 1) Food security should be set as the first priority
- 2) Cost minimization have to be the main farm objective
- 3) Diversification of crops to minimize risks
- 4) Farming should be performed as a way of life not as the ordinary occupation.

The investment opportunities for agricultural sector have started to be opened up and it leads to the large-scale investments and land competition. The concept of “Economies of Scale” has emerged for agriculture and it would be capable of enhancing the competitiveness of them by eradicating biases against smallholders.

Small farms are generally family farms measured in terms of farm size; many sources defined it as those with less than 2 hectare of farm land. Some stated the small farms as those with subsistence orientation aimed primarily at household consumption (Hazell et al., 2007)

The “Economy of scale” is defined as the ability of a farm to reduce its production cost by increasing scale of production. The concept of economies of size means that the average cost per unit of production decreases as the size of the farm increases. The economies of scale can occur when a farm is able to obtain volume discounts for inputs such as seed or fertilizer. The Agricultural production shows the L-shaped average cost curve which means the production costs are lower in the initial stage and reach to a point where no profit is not gained finally. Thus the spreading of fixed costs, bulk purchases and marketing power are the main benefits that can be obtained from applying the economy of scale and the reasons for doing it. (Duffy M., 2009)

In Thailand, his Majesty of the king initiated the philosophy of self-sufficiency for the agricultural sector. It was laid out in the way that small-scale farming households should make emphasis on farming household consumption first. Thereafter, these small farmers within the country should be gathered into the groups or cooperatives for enhancing production and marketing efficiency by exchanging goods and services. (Jitsanguan T, 2000)

Likewise, the concept of “Economy of scope” which is performing different farm activities complementing to each other can minimize unit cost. A typical example of it can be seen in the form of integrated farming which is producing multiple complementary products, gaining higher benefits than other monoculture farms. (Jitsanguan T, 2000)

In Thailand, the government has implemented the Agricultural Extension by Program named “Large Land” in 2014. The underlying reasons for the implementation of “Large Land” agricultural extension program are as follow;

1. The government will be able to transfer the technology and other forms of assistance to the groups of farmers cooperated under this program.
2. Working together and Cooperation of small farmers is considered to show results in higher efficiency.
3. The farmers in this program will have higher power in the market.
4. The cost of production will be lowered by increasing production scale by cooperation of small scale farmers.
5. Large production scale means easier to perform evaluation than managing small farms separately.
6. This kind of agricultural extension by integrations of small farms proved to have positive impacts in the previous cases.

The government of Thailand has initiated projects under this “large land agricultural extension” program. The primary objective of this project is to achieve effective production and farming by cost reduction. Another major plan under this project is to reduce rice growing area in the dry season when the water shortage has been threatening for farming. Thus, in the place of rice farms, the sugarcane crops, and other alternative crops are planned to be grown so as to reduce water usage in the dry season. In this way, the government will be able to avoid the high cost of using limited amount of water for rice in the dry season. (Pongsrihadulchai A., 2014)

This project is implemented for rice growing area reduction particularly in four types of rice varieties, namely White Rice, Hom Pathum, Hom Mali, and Sticky rice. In the first variety of rice, named White Rice, the target area includes 45 districts in 17 provinces. The expected area to be accomplished in 2015 is 15 districts in 11 provinces and 30 districts in 14 provinces in 2016. The project has targeted to reduce overall 0.24 million rais of rice growing area in the dry season. The purposes were set for 1). Cost Reduction, 2). Increasing Yield, 3). Improving Crop Quality, and Value Addition.

Likewise, for the rice variety named Hom Pathum, 15 districts in 4 provinces are under this project. In 2015, 5 districts in 4 provinces will be covered and in 2016, the additional 10 districts in 4 provinces will be included. The area of Hom Pathum rice will be reduced by 0.2 million rais as a total.

In the case of the third type of variety named Hom Mali, the project will cover total 60 districts in 10 provinces. The total rice area of 0.17 million rais will be reduced and replaced with other alternative crops which are less water consumptive than rice in the dry season. The sticky rice is another type of rice that will be under this project of large land agricultural extension, and the area growing it will be reduced by 0.15 million rai and 0.2 million rai of sugarcane will be substituted in the place of these rice farms. (Pongsrihadulchai A., 2014)

In this regard, the excess supply of rice will decrease while its demand will increase. New equilibrium of rice with both demand and supply side will be occurred in the year 2019 (figure 3).

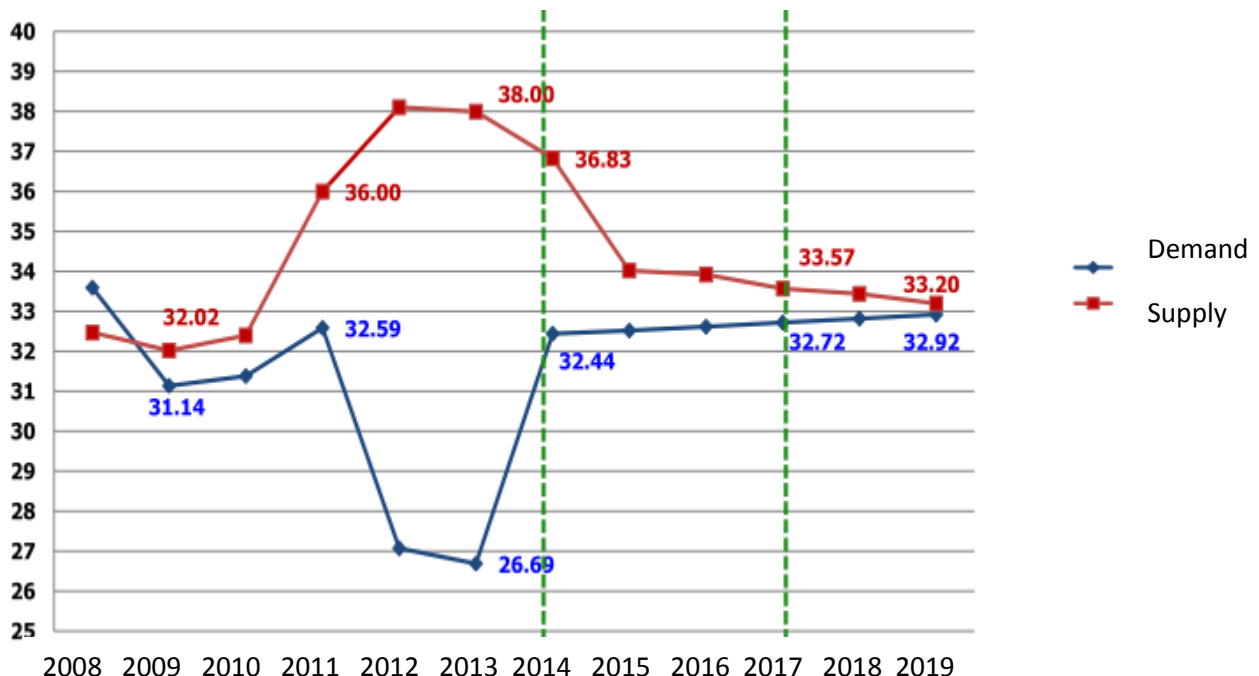


Figure 3: The Projected Demand and Supply Curves of the Domestic Rice Production for the Selected Four Rice Varieties under the” Large Land” Agricultural Extension Project

Source: Pongsrihadulchai A., 2014

All in all, the economy of scale means the effective production in the mean that the firms can obtain cost advantages by increasing size, output, and scale of production with the cost per unit of output decreasing with increasing scale since the fixed costs are shared and spread over the more units of output. The Concept of Economy of Scale is the core concept of Large Land Agricultural Extension Program in Thailand. Theoretically, the concept of Economy of Scale aims to make efficient production by cost reduction in the way that small scale farmers are working together for a single combined unit of production. The cost of production and inputs will be reduced by increasing the units of production. For instance, in the case of mechanization the group of farmers might be able to share huge cost of machines needed for farming. The government will find it easy to provide supports to a single unit of production where the field manager will further arrange for the equitable share of support.

Practically, there might be some difficulties existing in effective cooperation of small-scale farmers who are known to be heterogeneous regarding different interest, crops, etc. These will hinder the successful implementation of large land program in Thailand. In a similar way, managing the farm of very large units might be tough and less successful than small unit in some cases. There is a limit in the economy of scale where the average cost per unit production will stop decreasing and started to increase over a period of time. There is a need for proper management to grab the full advantages of the economy of scale.

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