Impacts of Institutional Arrangements on the Profitability and Profit Efficiency of Organic Rice in Thailand

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Abstract

This study assesses the performance of organic small farmers in Thailand under different institutional arrangements and over time. It was found that while organic farmers were significantly more profitable and profit efficient than conventional farmers, the level of profitability varies under different intermediaries. Farmers organized by NGOs on degraded marginal land showed a pattern of increasing profit and profit efficiency over time, after the transition period. On the other hand, farmers organized by a private sector firm on newly opened forest land exhibited a pattern of stable profit and increasing yields over time. The results showed that farmers under non-profit NGOs received the highest level of profit, followed by farmers under the private firm and finally the for-profit NGO. These findings suggest that while organic agriculture can increase the economic performance of small farmers, institutional arrangement is an important factor in realizing the broader benefits of organic agriculture for poverty reduction.

Introduction

It is becoming clear to small farmers, NGOs and governments alike that the Green Revolution has led to stagnating yield, ecological degradation and worsening rural socio-economic conditions, particularly in marginal areas. Increasingly, countries such as Thailand are promoting organic agriculture (OA) to reverse these negative effects and reduce poverty. Although there is abundant anecdotal evidence of the broad benefits of OA, empirical evidence to support these claims is limited. To fill this gap, this study assesses the profitability and profit efficiency of OA farms over time and under different institutional arrangements, using household survey data from small farms in Thailand.

Data and Methodology

The 2002 survey covered 445 rice farms (223 organic and 222 conventional farms) in the Northeast and North regions. The organic farmers are under contract farming arrangements and are categorized based on contract partner (Table 1). The OA farms contracted by the non-profit and profit-oriented NGOs are located on degraded land in the Northeast region and practiced conventional agriculture (CA) until OA was

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introduced in the 1980s. In contrast, OA farms contracted by the private firm were organized on newly opened forest land in the North region.

The OA farms are also categorized into three groups according to stage of certification. 'Certified' farmers are certified according to international certification standards. 'Initial' farmers have one to two years experience in OA, while 'transitional' farmers have two to four years experience in OA and in principle should not use agrochemicals.

Recognizing the importance of institutional arrangements in contract farming (Glover, 1984; Vellema, 2005), this study employs profit frontier methodology to assess the extent of their impact. This method is used extensively in efficiency studies in agriculture to portrays the maximum variable profit obtainable by a farm given the prices of inputs, outputs and production technology (Bravo-Ureta and Pinheiro, 1993; Setboonsarng et al, 2006).

Tab. 1: Characteristics of sample farms

	Private Firm	Profit-oriented NGO	Non-profit NGO	Total Organic	Non-contract/ Conven-tional
No. of farms	83	52	88	223	222
Age of household head (years)	48.2	47.8	49.2	48.5*	50.8
Education of HH head (years)	2.72	3.13	2.83	2.86*	2.36
Land allocated to rice (ha/farm)	2.20	2.37	1.99	2.15*	1.71
Chemical fertilizer (kg/ha)	50	0	0	19*	179
Organic fertilizer (kg/ha)	840	2,31	3,04	2,05*	803
Pesticides/herbicides (kg/ha)	60	0	0	22*	72

* indicates difference between total organic and conventional is significant at $p<0.05$

Results and Discussion

The profitability and profit efficiency are summarized in Table 2. OA farmers had a significantly higher profit over cash costs in the overall sample, generating US$434 per hectare, compared to US$287 per hectare for CA farmers.

Table 2 also shows the profit and profit efficiency of farmers under different contract partners, suggesting the strong impact of institutional arrangement. OA farmers facilitated by the non-profit NGO were the most profitable, followed by farmers organized by the private firm and farmers under the profit-oriented NGO.

Tab. 2: Profitability and profit efficiency of rice farming in sample farms

	Contract Partner (region)	Yield (kg/ha)	Profit (US$/ha)	Profit Efficiency
Organic	Private Firm (N)	2,940*	420*	0.76
	For-Profit NGO (NE)	2,316	400*	0.70
	Non-profit NGO (NE)	2,169*	468*	0.69
	All Organic	**2,492**	**434***	**0.72***
Conventional	Conventional (N)	2,862	356	0.76
	Conventional (NE)	2,138	244	0.56
	All Conventional	**2,415**	**287**	**0.64**

* indicates difference with total conventional is significant at p<0.05

There is considerable profit inefficiency among the sample farmers, as shown in Table 2. Profit efficiency is defined as the ratio of the observed profit to the potential maximum attainable profit. Although on average farmers could increase their profit by more than 30%, organic farmers were significantly more profit efficient than conventional farmers, as contract partners provided inputs and training to OA farmers. OA farmers organized by the private firm on newly opened land in the North (N) were more profit efficient than organic farmers on degraded land in the Northeast (NE). However, farmers under NGOs in the NE experienced dramatic gains in efficiency over time, as farmers in the certified group are significantly more profit efficient than the initial OA farmers and conventional farmers. This may be attributed to increasing yields and lower labor inputs over time as ecosystems are restored.

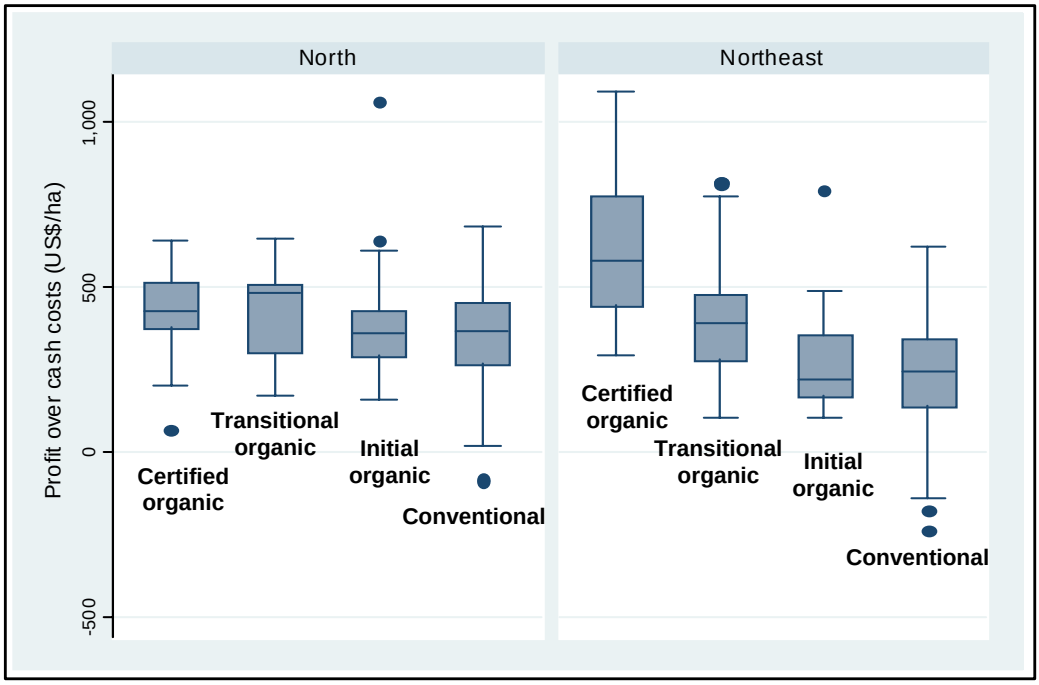

Figure 1: Profitability by Organic Status (US$/ha)

Figure 1 shows the levels of profit in different stages of transition. While levels of profit of OA farmers on newly opened land in the North were similar overtime, the level of profit increased dramatically among OA farmers in degraded land of the NE. It is

interesting to note that initial OA farms in the NE are less profitable than CA farms due to the immediate drop in yield after stopping agrochemical use. This profitability pattern can also be explained by the price premiums provided by the different contract partners. The private sector firm offered a fixed margin of US$0.02 above the market price rice at harvesting time, while the NGOs offered a price premium based on negotiation with the farmers, ranging from US$0.03 to $0.09 above market price. The rice price for certified OA in the NE was higher than the price for transitional and initial OA, and nearly double the price for CA. It is noted that while there was no report of agrochemical use under NGO contracts, some farmers under the private firm reportedly used agrochemicals, due in part to ineffective monitoring by the firm (Table 1).

Conclusions

The study shows a distinctive development path under different institutional arrangements in different agro-ecosystems. Under NGOs on the degraded land of the NE, OA profit was initially low but increased dramatically over time as ecosystems restored themselves. As non-profit NGOs aim to achieve both social and financial goals, they offer a better price and more training and monitoring to farmers. Made possible by assistance from donors, these institutional supports effectively kept the farms chemical-free during the transition years, allowing them to become more profitable in the long run. Under the private firm on new forest land in the North, OA farms had higher profits than CA farms; however, price differentiation was minimal, as OA practices are not strictly enforced and the system does not effectively reward farmers who followed strict OA practices. Although the NGOs and private firm export rice at similar prices, it appears that farmers under the non-profit NGO receive a larger share of the organic price premium and benefit more financially and socially than farmers under the private firm or profit-oriented NGO. This analysis suggests that institutional arrangement is an important factor in the success of organic agriculture development and poverty reduction. While organic farming can be an effective mechanism to enhance the profitability of small farmers, its potential economic, environmental and health benefits are likely to be greater under an arrangement which has broad social objectives rather than a narrow financial focus. The findings of this study suggest that external supports to farmers are crucial during the initial and transitional stages of OA, and that non-profit NGOs appear to be the most effective institutional partner to facilitate OA adoption. This successful model should be adopted by governments and donors as a strategy to scale up OA development to achieve both environmental restoration and poverty reduction.

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