

FACTORS AFFECTING AGRICULTURAL CO-OPERATIVES PERFORMANCE IN MALAYSIA

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ABSTRACT

Malaysia targets co-operatives sector to be the third engine of economic development in the 9th Malaysian plan and to increase its contribution from 1% of Malaysian GDP in 2008 to 5% in 2013. This study investigates factors that affect performance of agricultural co-operatives in Malaysia. Production function is used as a guide to measure how much input (farm size, share capital, labor and energy cost) is needed to produce goods and services (sales). The panel data analysis or random effect model in particular is used to measure economic efficiency of agricultural co-operatives, using the secondary data obtained from annual financial report of Malaysian agro-based and farmers' co-operative from 2004-2007. There are four variables (energy cost, share capital, workers salary and farm size) estimated to determine the sales of co-operative, however the result indicates that only workers salary is significant in determining sales of co-operatives.

Keywords: Agricultural co-operative, performance, efficiency

INTRODUCTION

A co-operative can be defined as a business that is owned and controlled by the people who use its services and whose benefits are shared by the users on the basis of use (USDA, 2002). In rural areas, co-operatives enable local people to organize and improve their conditions collectively compared to private enterprise and government. Co-operatives encourage and sustain entrepreneurial development, generating productive employment, increasing income levels and helping to reduce poverty while enhancing social inclusion, social protection and community-building. Thus, even though co-operatives directly benefit their members, they also provide positive externalities for the rest of society and have a transformational impact on the economy (United Nations, 2009).

There are many differences between co-operatives in developed and developing countries. For example in agricultural co-operatives, differences can be observed in changing farm demographics, consumer preference, effectiveness of the Board and organizational management (FFTC, 2006). This argument is supported by Sharma (1991) who argues that as agricultural co-operatives in Asia do face many problems relating to organizational structure, management, indifference of members, inter-co-operative relationship, business operations and finances. The scenario that can be observed from Bangladesh, Pakistan and Philippines is that if agricultural co-operatives want to serve total needs of farmers and extend benefits of advanced technology, competent management is inevitably required.

In Malaysia, co-operatives originally are initiated in 1922 as an alternative socio economic system to the capitalistic structure in rural economy. Before the existence of co-operatives, loan was given to farmers by individual loaners, where they tended to use their economic power to the disadvantage of farmers. The co-operatives first started took form as credit and marketing type entity. Later, different functional forms were encouraged as the co-operatives also help in eliminating rural poverty. The marketing co-operatives gained control over the flow of commodities to the market in the sense that by collectively marketing their products, resulting in higher market prices and profit rather than depending on a middleman (Abdul Hamid, 1977).

In the 20th century, co-operatives are still viewed as one of the main actuating institutions for agricultural sector, mainly among small producers. A good reformation on these co-operatives is able to improve the life of fishermen and small entrepreneurs. Micro management aspect is important as it upgrades the role of co-operatives in development of agricultural industries, especially among small farmers and Small Medium Industries (SMI). In May 2007, the government of Malaysia approved a bill of Malaysian Co-operatives Commission 2006 (Malaysia, 2007). This bill was claimed to ensure a good development of co-operatives that comprises of agricultural and fisheries co-operatives. In 2010, there were 1,362 (18.9%) agricultural co-operatives from 7,215 co-operatives in Malaysia. The government has also put aim into declaring co-operatives sector in Malaysia as the third engine of economic development of the nation and targeted that co-operatives should increase its contribution from 1% of Malaysian GDP in 2008 to 5% in 2013.

However, few studies have shown that a large number of agricultural co-operatives are facing multi-dimensional problems that limit their performances and efficacies.

Besides insufficient capital, the main problem that they face is inefficient management and business/marketing orientation (Shenoy and Mohamed Sulaiman, 1996, and Chamhuri Siwar et al., 1999).

Development of agro-based co-operatives started because agriculture is the main economic activity Malaya before and after independence. Farmers are often hit by the shortage of cash and credit bond chains with a “middle men” or intermediaries. Farmers have no access and were unable to borrow from banks. So it is not surprising if the initial development of co-operatives in Malaysia was started in rural areas and focus on agricultural credit and marketing co-operatives. The 1950s and 1960s showed the growth of the co-operative sector with the number of co-operatives increased from 1,948 (in 1955) to 2,977 (1965) and the number of members rose by 2.2 million to 3.9 million people in the same period.

After independence, the government has implemented a program of “industrial co-operatives” to promote co-operative organizations engaged in activities such as processing of rubber, coconut, rice mills and fisheries (Shenoy and Mohamed Sulaiman, 1996). Several macro-economic developments have changed the direction of the national agricultural co-operative. Among these is the establishment of farmers’ associations based on the Companies Act 1958. In 1950 there were 119 Farmers’ Association, rose to 510 (1963) and then increased 778 (1966). Membership has increased from 27,500 (1963) to 40,413 (1966).

To enhance the effectiveness of farmers’ associations, the Farmers’ Association Act was gazette in 1967. Department of Agriculture is authorized to farmers and fishermen associations. Among farmers and fishermen associations goal is to provide extension services, to help the production, marketing and improving efficiency and productivity (The Farmers’ Association Act, 1967).

The scope of activities of farmers’ associations is very similar to the activities of co-operatives, but each under the purview of the different departments. Namely, agro-based co-operatives regulated by the Department of Co-operative Development and farmer associations supervised by the Department of Agriculture, under one roof the ministry, the Ministry of Agriculture and Fisheries. This situation raises issues of serious bureaucratic rivalry between the two departments and also competition on the fund, although each has functions similar direction (Ahmad Sarji, 1973, and Frederick, 1986).

Duplication of functions between the two institutions has pushed the government to find ways to avoid wasting resources and focus on the development of the agricultural community. The move is to integrate all the functions of both institutions (farmers and fishermen's associations) to include development, credit, marketing, input supply, transport, wholesale and processing.

In 1970, Department of Co-operative Development has implemented a thorough study of the co-operative movement (a total of 3,000 co-operatives studied). This study suggests that a new approach is implemented through the merger of co-operatives or co-operatives in terms of restructuring and administrative structures. The effect of this new approach, the number of agro-based co-operatives has declined and the emergence of co-operatives with a variety of purposes including credit co-operatives, marketing, processing and supply of consumer goods (Chamhuri et al., 1999).

Agro-based co-operatives (KAT) are defined as any society whose primary function is associated with agricultural production, agricultural credit, processing/marketing, trade and business activities (Kularajah, 1980). In 1973, there were 1,808 KAT of various types of co-operatives and agro-based activities (Ahmad Sarji, 1973).

With the developments in agro-based and farmers co-operatives, the regulatory responsibility of society has been distributed to various government agencies by type of economic activities of co-operatives. Oriented organizations and co-operatives of agro-based and farmers respectively supervised by the LPP, while urban, non-agricultural co-operatives and farmers' co-operatives under FELDA and FELCRA are supervised by Department of Co-operatives. For Sabah and Sarawak, the Department of Co-operatives is responsible for all categories of society. On the other hand, the fisherman co-operatives are supervised under Malaysian Fisheries Development Board (LKIM). In the period 1973-74, these three bodies (LPP, LKIM and DCD) has supervised over 2,584 co-operatives and organizations / associations (with a total regulate LPP 58.1%, LKIM by 2% and 39.9% by DCD) (Shenoy and Mohamed Sulaiman, 1996).

After the reforms in terms of distribution regulation in the early 1970s, the LPP and LKIM regulate 1,553 (or 60.1%) of the agriculture co-operatives in Malaysia and DCD share is only 40%. However, by the end of 2007, DCD regulates more than 86.1%. The same pattern observed in membership, capital and assets.

Besides facing serious bureaucratic competition, agro-based, farmers and fishermen co-operatives are also facing marginalization under the auspices of LPP and LKIM. This situation has caused the decline and backwardness KAT from various angles.

KAT does not receive direct assistance from the LPP. According Chamhuri et al. (1999), marginalization of KAT is due to the absence of provision, resulting in LPP inability to channel development assistance to the KAT. Another factor leading to the backwardness KAT is the level of management education, management and poor financial administration and business activities and a weak supply chain (Chamhuri et al., 1999).

Apart from the internal problem, KAT is also affected by the hampering macro scenario in the country as the country go through changes in economic structure in which the agricultural sector contracted for the rapid industrialization that occurred from 1980 to present. In terms of activities, a large number of KAT has shifted from agro-based co-operatives and agribusiness to the multi-purpose co-operatives. For example, 29% of KAT is a multi-purpose co-operative in the year 1973-74, but in 1999, almost 77% of the sample is a multi-purpose co-operative Chamhuri et al., (1999). Among the activities undertaken by the co-operative business is like savings services, manufacturing, housing, education, distribution, stock investment, insurance, etc.

Othman and Kari (2008) discussed roles that the Federal Land Consolidation Authority (FELCRA), Federal Land Development Authority (FELDA) and the Rubber Industries Small Holders Development (RISDA) played for agricultural co-operatives. As there are many settlers in these land schemes, the government encourages settlers to set up agricultural co-operatives to encourage cooperation, improve socio economic condition and discover business opportunities among them.

The agricultural co-operatives own oil palm estates, palm oil mills, refineries, kernel crushing plants, rubber factories, manufacturing plants and several logistic and bulking installations nationwide and overseas. Through its R&D subsidiary, the co-operative is also the largest producer of planting materials, supplying approximately 15% of the local palm oil market. There were 318 co-operatives in FELDA, 165 co-operatives in FELCRA, 69 co-operatives in RISDA, 19 co-operatives in KEDA and 8 co-operatives in KESEDAR as at December 2007. An important issue raised by Othman and Kari (2008) was the efficiency of co-operatives, as they acted as an agent of social and economic change for the masses of the poor people. In this study, efficiency was measured by profitability ratio, where slightly over 50 per cent of co-operatives were generating profits based on the co-operatives financial and organizational information.

Past studies also have shown that there are various methods in assessing organizational performance in co-operatives, including size and types of co-operatives. Torres-Lara (2000) supports this by segregating independent variables that influence fishermen's co-

operative in Yucatan, Mexico. The independent variables are operational rules, adaptive ability and market position. Gray and Stevenson (2008) also support the argument that size and types of co-operatives will influence co-operative performances. The findings indicate socio-economic, social-psychological and co-operative organizational perspectives influence performance especially in medium size co-operatives. Another important variable to consider is operating cost. Harigoya (2004) found that failure of agriculture co-operatives in Tri Valley Growers, California can be attributed to co-operative's inability and unwillingness to evolve in changing environment, which includes high operating cost. Investment and return on equity are also crucial in determining co-operatives efficient performance. Plunkett (2005) in his case study of agricultural co-operatives in New Zealand (Fonterra and Missouri) and United States (Illinois), found that an important factor is risk assessment within members of co-operatives as some members prefer to expand farm while other prefer to invest in co-operative investor asset.

There are several measures used to determine performance of co-operatives. Operating profit is often used as a proxy to measure performance; other important determinants used are liquidity and profitability. However, some co-operatives have been operating at a loss instead of profit. Hence, sales are deemed as better measures to determine performance.

Sterner (1990) used a frontier production function to estimate measures of technical efficiency and effects of ownership on multinationals, domestic firms, and workers co-operatives in Mexican cement industries. The findings showed that there were considerable differences in effects of ownership among the companies in each group. Workers' management showed efficiency in heavy industry. The dedication, loyalty and skill of the workforce appeared to be an important asset explaining the good performance of co-operatives.

Meanwhile, literature shows there are several methods were used to measure performance of co-operatives. Cross (2004) used ordinary least square (OLS) and maximum likelihood method (MLE). However, taking into account the heterogeneity of activities that co-operatives practice, a panel data method is chosen to be method of this study.

The aim of the study is to investigate factors that affect performance of agricultural co-operatives in Malaysia. It is important to investigate these factors as to ascertain the underlying determinants of performance of co-operatives and to discover the issues is important in effecting the performance of co-operatives. This study will also bring benefit for future research as there is limited quantitative research found on this topic

particularly in Malaysia. Other decision makers such as the Malaysia Co-operatives Commission, Federal Agriculture Marketing Authority, Farmers Organization Authority and other related government agencies can also gain additional information on co-operatives.

METHODOLOGY

Following Sterner (1990), a simple firm production function has been used to estimate the performance of co-operatives as follows:

$$Y_{it} = f(x_{it}, \lambda_i, u_{it})$$

where y_{it} = Output

X_{it} = Inputs (capital, labour, materials, etc)

λ_i = Unobservable firm-specific effects that is not included in the regression (entrepreneurial or managerial skills)

u_{it} = varies with firms and time (usual disturbance in the regression)

In this study, panel data is employed. A panel data is commonly used in studying firms or company data, consisting of a time series of cross sections, with data on the same individuals (countries, states, firms, or etc.), across time. There are many advantages in using panel data as compared to using time series data. Among the advantages are there are more variability and information in the data and there are less collinearity among the variables.

In the preliminary test, sales are estimated against the independent variables using pooled ordinary least squares. Breusch Pagan Lagrange Multiplier and Hausman test is conducted to measure whether pooled ordinary least squares (OLS), random or fixed effects model is suitable for the data.

In this model, error term (λ_i) is uncorrelated with x_{it} . The model is applicable if the panel data comprise n individuals drawn randomly from a large population, which is the typical approach in household panel studies, such that the λ_i (the individual specific constant terms) are randomly distributed across cross-sectional units.

There are 11 agro-based and farmers co-operatives from Perlis, Perak and Selangor involved in this study. Each co-operative has data from 2004 to 2007. The sample size is 44. The co-operatives were selected based on the availability of data of sales, energy cost, share capital, worker's salary and farm size.

RESULTS AND DISCUSSION

Table 1 describes the output and input of the production function of co-operatives. On output side, sales in value term are used to describe the performance of co-operatives. Higher sales value would reflect the higher performance of the co-operative. There are 4 variables in the input side that contributes to sales, which are share capital, farm size, workers salary and energy cost. Share capital and farm size are seen as factors that captured capital part of the production function. On the other hand, workers and energy cost are seen as variable cost of the co-operatives.

Table 1: Definition of variables

Variables	Definitions	Proxy
EC_t	Energy cost of co-operatives	Expenses on electric, water and telephone bills (RM). Data sources: Annual co-operatives income statement (2004-2007).
SC_t	Share capital	Share capital (RM). Data sources: Annual co-operatives balance sheet (2004-2007).
WS_t	Workers Salary	Workers Salary (RM). Data sources: Annual co-operatives balance sheet (2004-2007).
FS_t	Farm size	Net book value on land (RM). Data sources: Annual co-operatives balance sheet additional notes (2004-2007).
S_t	Sales	Sales (RM). Data sources: Annual co-operatives income statement additional notes (2004-2007).

A panel data consisting of 44 observations is used in this study. There are 11 co-operatives of 4 year data in this panel analysis. All observations are converted into natural log to harmonize the unit of variables.

Table 2 shows the results of the regression analysis. The first step of regression is to estimate sales against the independent variables using pooled ordinary least squares. Breusch Pagan Lagrange Multiplier test is conducted to measure whether pooled OLS is suitable for the data. The test concludes that the calculated value of 57.6 exceeds the tabulated chi-squared value, leading us to conclude that the random effect model is more appropriate than OLS (pooled model). In other words there are country-specific effects in the data.

Hausman test is conducted to measure whether random or fixed effects model is appropriate for the data. The test shows that the p-value for the test is $0.72 > 0.05$ (not significant), indicating that the random effects model is appropriate.

Table 2: Random effect model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.530007	2.281725	1.985343	0.0542
LEC	0.006677	0.044429	0.150288	0.8813
LSC	0.181761	0.217539	0.835536	0.4085
LWS	0.591825	0.230519	2.567359	0.0142
LFS	0.060131	0.065260	0.921407	0.3625
R-square 0.37				
Prob (F-statistics) 0.00				

Table 3: Summary of results

Model/ Independent Variables	Pooled OLS	Random Effect	Fixed Effect
C	2.929333 (2.61)**	4.530007 (1.98)*	-
LEC	-0.041733 (-0.32)	0.006677 (0.15)	-
LSC	0.080968 (0.49)	0.181761 (0.84)	-
LWS	0.793585 (4.81)***	0.591825 (2.57)**	-
LFS	0.153156 (1.13)	0.060131 (0.92)	-

Note: number in bracket is t-stat and * represents result is significant at 10%,

** represents result is significant at 5%, and *** represents result is significant at 1%

The random effect model in Table 2 shows that only workers salary is significant in explaining sales of co-operatives. That is for every RM0.59 increase in workers salary, sales will increase RM1. Assuming salary per worker is constant RM590 and there is no increment from 2004-2007, for every labor employed sales of co-operatives will increase RM1000. This ratio indicates there is evidence of shortage of labor to manage the co-operatives business. Meanwhile, other variables such as energy cost, share capital and farm size is not significant in explaining changes in sales of co-operatives.

Among the principal activities of farmers co-operatives that contributes to sales are undertaking short-term contracts from FELCRA or FELDA on harvesting and

transporting the fresh fruit bunches of oil palms, working on rubber plantations, undertaking of palm oil plantations on leased land area, delivering crude palm oil, securing rubber-tapping contracts, supplying pesticides and fertilizer, herding cattle, milling paddy and renting buildings, carrying out of construction and building roads contracts, working on livestock projects, servicing farm machinery and other activities. In addition, the co-operative is also engaged in retail trade of mini-markets, mist blower, dealing with Shell petrol station, managing the marketing of rice, plantations, technical projects, investments and property, working on an oil palm plantation, retail business, marketing of palm oil, leasing palm oil plantations, credit services to members of the breeding project and receive rent from the property, palm oil estate and rental, printing shop project, leasing of land, truck transportation activities, buying scrap and tent rental, and truck rental permit.

It is evident from the findings that most co-operatives depend on FELCRA to give them contract on whether harvesting and transporting fresh fruit bunches palm oil contract, irrigation contract and others. Co-operatives would then charge commission for these services. Most co-operatives are working on FELCRA or FELDA owned farm rather than co-operatives owned farm, and this explains why farm sizes variable is not significant in explaining sales of co-operatives. Share capital is also not needed in generating sales since co-operatives depend on FELDA or FELCRA contract. Energy cost that is expenses on electricity and water is also not significant in explaining sales since most work is harvesting which is done on the farm or transporting which is done in a vehicle.

CONCLUSION

The study shows that labor is an important element in determining co-operatives sales. The governance of co-operatives can act on this by allocating some fund on workers' management (to increase worker's salary) to attract more labor and to spend money on training activities to improve workers skills. There might be other variable that is more important in explaining sales such as amount spent on petrol. Findings from the survey also showed lack of labor in co-operatives is attributed to the younger generation are losing interest in agricultural co-operatives. One of the main reason of the lost of interests is because of migration of youth from rural to urban areas attributed to transformation from agricultural to industrial development and the creation and growth of new towns (Razani, Stillwell and Rees).

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