



Factors Affecting the Business Operational Income of Agricultural Cooperatives in Kalasin Province, Thailand

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Abstract

The research objective was to examine the factors affecting the business operational income of Agricultural Cooperatives in Kalasin province, Thailand. The secondary data were collected from the Cooperative Auditing Department database from 2010 to 2023 of 44 Agricultural Cooperatives. The total numbers accounted for 572 observations. The data were analyzed by econometric methodology to examine the factors affecting the business operational income of Agricultural Cooperatives in Kalasin Province, Thailand. Multiple linear regression analysis with the remove technique. The findings were factors that had a positive influence on business operational income which comprised of 4 factors, cash and bank deposits, net short-term receivables, net long-term receivables, and total funds of the cooperative. On the other hand, factors that had a negative influence on business operational income comprised of 8 factors, inventories, other current assets, long-term investment, other non-current assets, trade accounts payable, other cooperative deposits, long-term loan, and share capital. Agricultural Cooperatives in Kalasin province would take their consideration all 4 factors that would lead to an increase in their business operational income. Since business operational income expressed a financial status.

Keywords: Business Operational Income, Agricultural Cooperatives, Kalasin Province

Introduction

Kalasin is a province with abundant fertility in the northeastern region of Thailand. Archaeological evidence suggests that it was once inhabited by the Lawa tribe, which prospered culturally around 1600 years ago. Historically, it became a city during the reign of Rattanakosin. It is located on the left bank of the Mekong River (www.wordpress.com).

In the overall economic scenario and Gross Domestic Product (GDP) of Kalasin province in the year 2022, it was noted that the average income per capita was \$ 1222. The primary source of income stemmed from agriculture constituting 23.37 percent, with a calculated value of \$289 million (www.wordpress.com).



Agriculture is the main source of income for the people of Kalasin province, Thailand. Farmers gathered them to form their business operation as “Agricultural Cooperatives” which has been encouraged and supported by the Cooperatives Promotion Department, The Ministry of Thailand. Agricultural cooperatives are formed by a group of individuals engaged in agricultural activities who come together, register as a legal entity with the cooperative registrar, and aim to collectively conduct activities and provide mutual assistance. The primary objective is to address challenges in the members' professional pursuits, fostering collaborative efforts to enhance the well-being and living standards of the cooperative members (www.cpd.go.th).

Agricultural cooperatives operate to promote collaborative business activities among members, providing mutual assistance and collective support. They strive to uphold principles of morality and ethical conduct, rooted in the fundamental values of humanity, aiming to generate benefits for both individual members and the collective. The goal is to enhance the overall quality of life for members, encompassing improvements in both economic and social aspects (www.cpd.go.th).

According to the Cooperative Promotion Department (2023), establishing agricultural cooperatives is crucial due to various significant challenges farmers commonly face in their professions, as stipulated in cooperative regulations: 1) Price Volatility, Farmers often encounter uncertainties in agricultural commodity prices, leading to potential losses or financial distress. Cooperatives can help mitigate this instability by collectively selling products or purchasing inputs in larger quantities to enhance the economic well-being of their members, 2) Access to Capital: Forming cooperatives assists farmers in accessing the necessary capital quickly. Members pool resources to fund various activities collectively, facilitating the smooth operation of their agricultural ventures, 3) Knowledge and Technology Gap: Agricultural cooperatives serve as platforms for the exchange of knowledge and technology among farmers. This fosters the sharing of experiences and the development of skills within the profession, 4) Operational Complexity: Some farmer groups may struggle to manage complex business activities independently. Cooperatives efficiently handle intricate operations, promoting effective and streamlined business practices, 5) Market Considerations: Market dynamics significantly impact agricultural product prices. Cooperatives play a vital role in helping farmers analyze markets, enabling them to plan production that aligns with market demands. Also, the establishment of agricultural cooperatives is a beneficial measure to address challenges and promote sustainability in agricultural activities (Cooperative Promotion Department, 2023).

According to the Cooperative Promotion Department (2023), addressing the general challenges faced by farmers, as mentioned earlier, is a complex task for individual farmers.



The successful resolution of these issues requires collaborative efforts, and one effective approach is for farmers to join forces by forming cooperatives and registering them following the Cooperatives Act of 1999. This is because cooperatives can assist in solving various problems, including:

1) Purchasing Business: Through cooperative efforts, farmers can collectively procure agricultural materials and equipment, such as fertilizers, pesticides, seeds, and essential supplies. The cooperative, after assessing the members' needs, becomes the entity responsible for procuring and supplying these items. Collective purchasing in large quantities allows for lower prices, and any profits at the end of the year can be distributed back to the members (Cooperative Promotion Department, 2023).

2) Sales or Harvest Collection Business: Establishing a cooperative for the sale or collection of produce empowers farmers in negotiation. This ensures that the agricultural products are sold at fair prices, and members are not exploited by traders in terms of weighing, measuring, or pricing. The formation of agricultural cooperatives provides a practical avenue for farmers to collectively address and resolve challenges. It enables them to pool resources, negotiate better terms, and create a more sustainable and equitable agricultural environment (Cooperative Promotion Department, 2023).

3) Financial Business (Credit) of (1) Loan Services: Agricultural cooperatives, when farmers come together as a cooperative, can build trust with financial institutions, government agencies, and the public. The cooperative can secure low-interest loans for its members to invest in agriculture. The cooperative evaluates loan requests based on members' business plans or utilization plans. For instance, loans may be provided to members for purchasing agricultural materials, essential family expenses, land improvement, or acquiring agricultural land. This is particularly beneficial for members who do not own sufficient land for farming. (2) Deposit Services: To promote financial awareness and encourage capital accumulation within the cooperative, the cooperative accepts deposits from its members. There are two types of deposits: savings deposits and fixed deposits. The cooperative pays interest at rates comparable to commercial banks, aiming to demonstrate the benefits of saving. (3) Occupational Promotion and Cooperative Services Business, the cooperative may establish a dedicated team of experts in agriculture to provide knowledge and advice on agricultural practices. Alternatively, collaboration with other government agencies can be sought to offer consultation services. This aims to ensure that members have a good understanding of new agricultural techniques and can plan their production to meet market demands. Additionally, the cooperative may promote supplementary income-generating activities for household groups, empowering them to enhance their family income (Cooperative Promotion Department, 2023).



4) Education and Training: The cooperative will organize educational and training programs for its members, the cooperative board, and staff consistently. This initiative aims to ensure that stakeholders are informed about the principles, methods, rights, duties, and responsibilities within the cooperative. By providing knowledge and skills, the cooperative contributes to improving the quality of life and well-being of farmers within the community or society. It aspires to create a happier society where the children and grandchildren of the cooperative members receive higher education and enjoy better health due to the improved living standards of the farmers (Cooperative Promotion Department, 2023).

According to the Cooperative Auditing Department database from 2010 to 2023, there are 44 Agricultural Cooperatives in Kalasin province, Thailand expressing their business operational income in Table 1:

Table 1: The Business income, Growth Rate and Trend from 2010 to 2023

Year	Business Operational Income (\$)	Growth Rate (%)
2010	1,046,686.33	
2011	787,327.74	-24.779
2012	1,347,419.21	71.138
2013	1,505,908.96	11.762
2014	1,549,812.27	2.915
2015	1,122,000.00	-27.604
2016	973,506.16	-13.235
2017	1,481,996.27	52.233
2018	573,553.52	-61.299
2019	1,132,125.98	97.388
2020	1,653,207.75	46.027
2021	1,588,403.55	-3.920
2022	1,321,935.86	-16.776
2023	1,567,769.19	18.596
Maximum	1,653,207.75	97.39
Minimum	573,553.52	- 61.30
Range	1,079,654.24	36.09
Average	1,260,832.34	11.73
Standard Deviation	330,500.94	44.44

Source: ¹ Cooperative Auditing Department Database, 2023

² Calculation

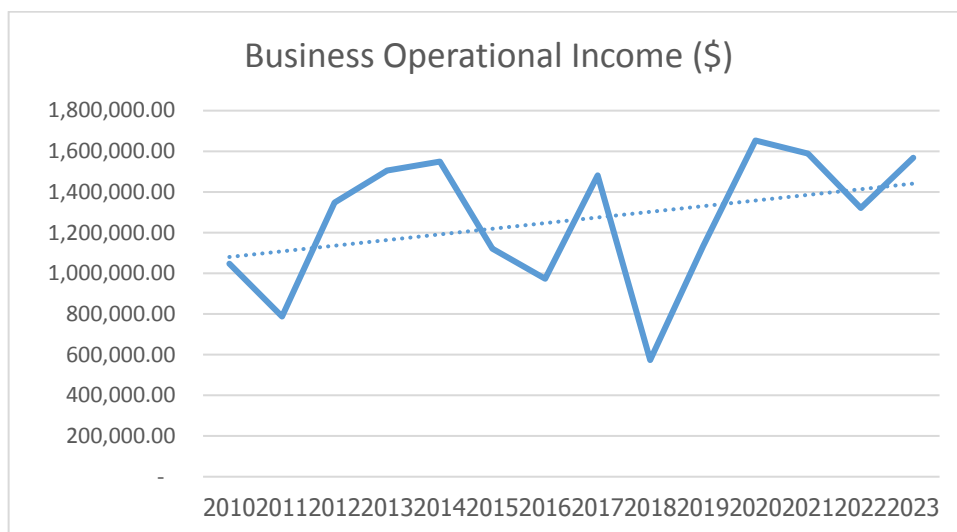


Figure 1: Business Income and Trend of Agricultural Cooperatives in Kalasin Province, Thailand

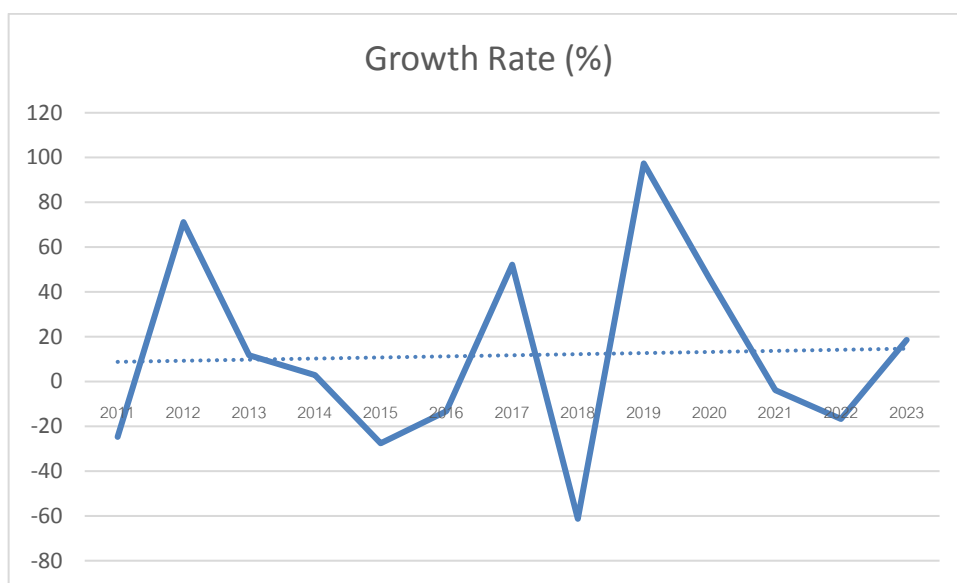


Figure 2: The Growth Rate of Business Income and Trend of Agricultural Cooperatives in Kalasin Province, Thailand

According to Table 1 and figure 1 and 2, from 2010 to 2023, the business income of Agricultural Cooperatives in Kalasin province showed a maximum value of \$1,653,207.75 and a minimum value of \$573,553.52 with a range of \$1,079,654.24. The average and standard deviation of \$1,260,832.34 and \$330,500.94 respectively. It obviously showed that there was a big gap between the maximum and minimum value of business income over 13 years. Also, the growth rate of agricultural cooperatives' business income has been



fluctuating from the maximum rate of 97.39 percent and minimum rate of - 61.30 percent. There has been a big difference in the growth rate of business income in the last 13 years of Agricultural Cooperatives in Kalasin province, Thailand. The business operational income is a vital instrument for business proprietors to evaluate their capacity to generate profits, whether by boosting revenues, reducing costs, or employing a combination of both strategies. Additionally, it offers valuable insights into the effectiveness of the business's implemented strategies at the commencement of a financial period.

In this research work, with the fluctuation of business income of Agricultural Cooperatives, the research addressed this problem and attempted to find out what factors affect the business operational income of Agricultural Cooperatives in Kalasin Province, Thailand.

Literature Review

1. Brief Overview of Cooperatives and Their Historical Significance

Cooperatives are autonomous associations of individuals united voluntarily to meet common economic, social, and cultural needs through jointly owned and democratically controlled enterprises. They operate based on the values of self-help, self-responsibility, democracy, equality, equity, and solidarity. The history of cooperatives dates to the 19th century, emerging as a response to the economic challenges and social inequalities brought about by the Industrial Revolution (Holyoake, G. J. 1906).

The concept of cooperatives gained prominence through the efforts of pioneers such as the Rochdale Society of Equitable Pioneers, founded in 1844 in Rochdale, England. This cooperative, recognized as the birthplace of the modern cooperative movement, established principles that form the foundation of contemporary cooperative enterprises. The Rochdale Principles include open membership, democratic control, distribution of surplus in proportion to transactions, and concern for the community (Holyoake, G. J. 1906). Cooperatives have played a crucial role in addressing economic and social challenges globally. In the late 19th and early 20th centuries, agricultural cooperatives emerged to empower farmers, enabling them to collectively market their produce and access resources. The cooperative movement expanded across various sectors, including banking, housing, and consumer goods, contributing to community development and poverty alleviation (Foner, P. S, 1994).

During the Great Depression, cooperatives provided a lifeline for many communities, offering stability and resilience in times of economic downturn. In the developing world, cooperatives became instrumental in promoting sustainable development, empowering marginalized groups, and fostering local economies (Foner, P.



S, 1994). Cooperatives continue to be relevant in the 21st century, addressing contemporary challenges such as income inequality, environmental sustainability, and social inclusion. As hybrid models that blend economic success with social responsibility, cooperatives remain a viable and influential force in shaping more equitable and sustainable societies (Birchall, J, 2003).

Agricultural cooperatives are collective enterprises formed by farmers to address common challenges, enhance their bargaining power, and promote sustainable agricultural practices. This form of cooperation dates to the late 19th century when farmers recognized the need to organize for mutual benefit (Danbom, D. B, 1981). One of the earliest and influential examples of agricultural cooperatives is the "Grange Movement" in the United States during the 1860s. The Grange, officially known as the Patrons of Husbandry, established cooperatives to provide farmers with a unified voice in the face of economic injustices. This movement laid the groundwork for the development of various agricultural cooperatives globally (Danbom, D. B, 1981).

According to the World Bank. (2008), Agricultural cooperatives play a crucial role in improving the economic conditions of farmers. By pooling resources, farmers can collectively purchase inputs, access credit, and efficiently market their produce. Research indicates that agricultural cooperatives contribute significantly to the income and livelihoods of their members, fostering economic sustainability in rural communities. Following Defourny, J., & Develtere, P. (1999), Agricultural cooperatives are instrumental in promoting social cohesion and community development in rural areas. Through shared ownership and democratic governance, these cooperatives empower farmers, particularly smallholders, by providing them with a platform to voice their concerns and participate in decision-making processes. Agricultural cooperatives often embrace sustainable farming practices. By promoting organic farming, resource conservation, and environmentally friendly production methods, these cooperatives contribute to long-term ecological balance and resilience in agriculture (Sexton, R. J., & Lavoie, N, 2001).

Despite their numerous benefits, agricultural cooperatives face challenges such as management issues, market access, and policy support. Ongoing research explores innovative solutions and policy recommendations to strengthen the resilience and effectiveness of agricultural cooperatives in the face of evolving agricultural landscapes (Fulton, M., & Gibbons, A, 2001). Agricultural cooperatives stand as dynamic entities that not only contribute to the economic well-being of farmers but also play a pivotal role in fostering social cohesion and environmental sustainability in rural communities. Ongoing research continues to shape the policies and practices supporting the growth and resilience of agricultural cooperatives globally.



2. Agricultural Cooperatives in Thailand: Catalysts for Rural Development

Agricultural cooperatives in Thailand have played a vital role in fostering rural development, empowering farmers, and enhancing the overall sustainability of the agricultural sector. This overview delves into the historical context, economic impact, and challenges faced by these cooperatives, drawing on relevant research and literature (Sorajjakool, S, 2002).

Following Sorajjakool, S. (2002), the cooperative movement in Thailand has roots dating back to the mid-20th century, with early initiatives aiming to improve the economic conditions of farmers. The establishment of agricultural cooperatives gained momentum, particularly during the 1960s and 1970s, as the government recognized the potential of cooperatives in uplifting rural communities. According to Pananond, P., & Hahn, K. H. (2017), their research indicates that agricultural cooperatives in Thailand contribute significantly to the economic well-being of farmers. These cooperatives enable smallholder farmers to pool resources, access credit, and collectively market their produce, resulting in increased income and improved livelihoods.

Tanasupawat, W., & Trueblood, M. A. (2001) stated that Agricultural cooperatives serve as agents of social cohesion and community development. Through democratic governance structures, these cooperatives empower farmers, particularly in decision-making processes. This inclusive approach helps build resilient and self-reliant rural communities. Despite their positive impact, agricultural cooperatives in Thailand face challenges, including management issues, market access, and external support. Ongoing research explores solutions to these challenges, emphasizing the need for effective policies and capacity-building initiatives (Ito, J, 2016). In addition, Government policies have played a crucial role in shaping the landscape of agricultural cooperatives in Thailand. Research highlights the importance of supportive policies that facilitate the growth and sustainability of these cooperatives (Pholsena, S, 2010).

Following the work of Supasri, A., & Trueblood, M. A. (2001), Agricultural cooperatives in Thailand stand as integral components of rural development, contributing to economic growth, social empowerment, and environmental sustainability. Ongoing research and strategic policy interventions are essential to address challenges and further enhance the impact of these cooperatives on the Thai agricultural landscape.

3. Business Operational Income

Operational income, often referred to as operating income or operating profit, is a key financial metric that reflects a company's profitability from its core operations. It is calculated by subtracting operating expenses from gross profit. Operating income excludes non-operating items such as interest and taxes, providing a clearer picture of a company's



ability to generate profit from its main activities (Brigham, E. F., & Houston, J. F, 2009). Following Gitman, L. J., & Zutter, C. J. (2015), the component of operational Income was Gross Profit: The difference between revenue and the cost of goods sold (COGS). It represents the direct profit from the production of goods or services. Operating Expenses: These include expenses related to day-to-day business operations, such as salaries, rent, utilities, and marketing. Operating Income: Calculated by subtracting operating expenses from gross profit, this figure represents the profit generated from a company's core operations.

Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2015) stated that profitability assessment: operational income is a key indicator of a company's profitability and efficiency in managing its core business functions. Investors often use operational income to evaluate a company's operational efficiency and its ability to generate profit before considering non-operational factors. Comparative analysis of operational income over different periods allows for assessing business performance trends. Following Horngren, C. T., Datar, S. M., & Rajan, M. V. (2015), understanding operational income is essential for businesses to make informed decisions, attract investors, and ensure sustainable profitability. The provided sources offer a foundation for further exploration into this critical financial metric. Controlling operating expenses is crucial to maintaining and improving operational income. External factors, such as changes in market conditions, can impact operational income.

Objective

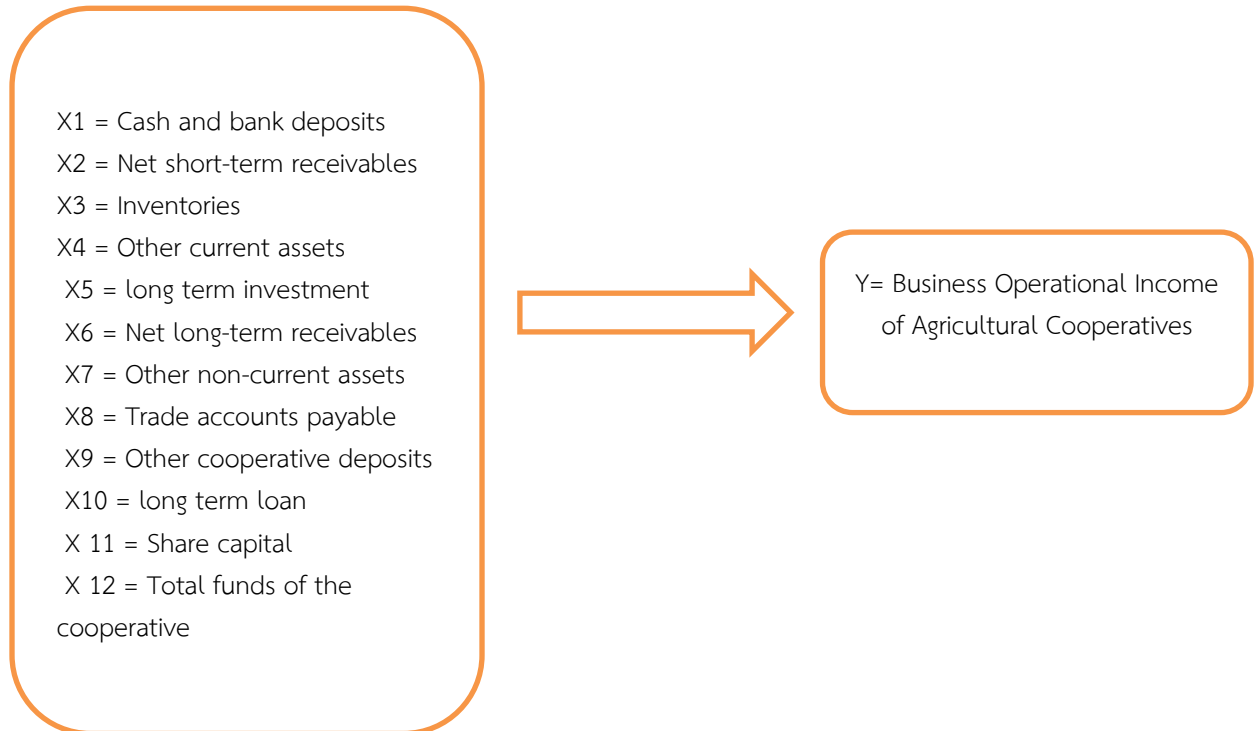
The research objective was to examine the factors affecting the business operational income of Agricultural Cooperatives in Kalasin province, Thailand.



Concept theory framework

Independent Variables

Dependent Variable



Materials and Methods

Methodology

The methodology was quantitative research applying the econometric methodology to examine the factors affecting the business operational income of Agricultural Cooperatives in Kalasin Province, Thailand. The presentation of the research methodology study and its details unfolded in the following manner:

1. Data Collection

The secondary data were collected from the Cooperative Auditing Department database from 2010 to 2023 comprised of 1) Cash and bank deposits, 2) Net short-term receivables, 3) Inventories, 4) Other current assets, 5) long-term investment, 6) Net long-term receivables, 7) Other non-current assets, 8) Trade accounts payable, 9) Other cooperative deposits, 10) long term loan, 11) Share capital, 12) Total funds of the cooperative, and business operational income of 44 Agricultural Cooperatives in Kalasin province, Thailand. With 13 years and 44 Agricultural Cooperatives, the total numbers accounted for 572 observations.



2. Data Analysis

The data were analyzed by econometric methodology to examine the factors affecting the business operational income of Agricultural Cooperatives in Kalasin Province, Thailand. Multiple linear regression analysis with the remove technique.

Results

Following the research objective, factors affecting the business operational income of Agricultural Cooperatives in Kalasin Province, Thailand will be expressed in table 2 as follows:

Table 2: Factors Affecting the Business Operational Income of Agricultural Cooperatives in Kalasin province, Thailand

n. = 572

Dependent Variable: Business Operational Income of Agricultural Cooperatives (Y)			
Independent Variables (X)	Description	Coefficients	T-value
X1	Cash and bank deposits	0.081	14.27**
X2	Net short-term receivables	0.148	22.65**
X3	Inventories	-0.111	19.87*
X4	Other current assets	-0.209	23.67**
X5	long term investment	-0.22	25.46**
X6	Net long-term receivables	0.777	32.48**
X7	Other non-current assets	-0.948	31.23**
X8	Trade accounts payable	-0.222	24.45**
X9	Other cooperative deposits	-0.283	16.57*
X10	long term loan	-0.113	18.63*
X11	Share capital	-0.284	19.59*
X12	Total funds of the cooperative	0.002	22.46**
\bar{R}^2	.86		
F	142.64		

Source: Calculation

** Statistically significant level of 99 percent

* Statistically significant level of 95 percent



According to Table 2, factors affecting the business operational income of Agricultural Cooperatives in Kalasin Province, Thailand showed 2 ways of influences which were:

1) factors that had a positive influence on business operational income which comprised of 4 factors, cash and bank deposits, net short-term receivables, net long-term receivables, and total funds of the cooperative with their coefficients of 0.081, 0.148, 0.777, and 0.002 respectively. The net long-term receivables and the biggest positive influence on the business operational income of Agricultural Cooperatives with the coefficient of 0.777. This meant that when the increase in the net long-term receivables by 1 percent led to the increase of business operational income of Agricultural Cooperatives by 0.77 percent. Likewise, the increase of cash and bank deposits, net short-term receivables, and total funds of the cooperatives by 1 percent led to the increase in business operational income of Agricultural Cooperatives by 0.081, 0.148, and 0.002 respectively.

2) factors that had a negative influence on business operational income which comprised of 8 factors, inventories, other current assets, long-term investment, other non-current assets, trade accounts payable, other cooperative deposits, long-term loan, and share capital with their coefficients of -0.111, -0.209, -0.22, -0.948, -0.222, -0.283, -0.113, and -0.284 respectively. This meant that an increase in inventories, other current assets, long-term investment, other non-current assets, trade accounts payable, other cooperative deposits, long-term loan, and share capital by 1 percent led to a decrease in business operational income by 0.111, 0.209, 0.22, 0.948, 0.222, 0.283, 0.113, and 0.284 percent respectively.

With theoretical explanation of factors had a negative influence on business operational income as follow:

Inventories, Inventory management involves converting cash into goods, which reduces the amount of cash on hand, affects liquidity, or involves using funds elsewhere. Additionally, it involves evaluating the value of remaining inventory compared to income. Increasing in inventory of agricultural cooperatives may lead to the decreasing in business operational incomes of agricultural cooperatives.

Other current assets, when agricultural cooperatives invest more in current assets, it typically means they're holding higher levels of liquid assets or those easily convertible to cash, often within a year. However, increasing investment in current assets may lead to a decrease in the cooperative's income in the form of reduced cash flows.

Long-term investment involves investing in various assets with the aim of obtaining returns in the future, typically over a period longer than one year. When agricultural cooperatives increase their investment in long-term assets, it may result in a decrease in



income from business operations.

Other non-current assets, also known as fixed assets, are assets that cannot be quickly converted into cash and typically have low liquidity. Generally, if an asset cannot be converted into cash within one year, it is considered a non-current asset. Therefore, when agricultural cooperatives increase their investments in non-current assets, it may have an impact on reducing the income of the agricultural cooperative business.

Trade accounts payables refer to transactions where a business purchases goods or services from another company, receives the goods or services, but has not yet paid for them. This creates an obligation for the business to settle the payment owed to the supplier within an agreed-upon timeframe. Increased trade payables for agricultural cooperatives may lead to a decrease in the cooperative's business income because a portion of the income must be used to repay the debts owed to the suppliers.

Other cooperative deposits refer to when an agricultural cooperative place its funds as deposits with another cooperative. While the agricultural cooperative may earn interest on these deposits, it simultaneously loses the opportunity to invest the funds in other business activities. This can result in a decrease in income from the agricultural cooperative's business operations.

Long-term loans are loans with a repayment period of approximately 5 years or more. The borrowers typically include large-scale investors who require a significant amount of capital, such as for purchasing large machinery or durable goods with high value, like real estate properties. Besides having a lengthy loan term, this type of credit also often involves a higher loan amount and requires a longer evaluation period. When agricultural cooperatives take out long-term loans, it affects their interest payments, which are considered expenses in business operations, and consequently reduces the income of the agricultural cooperative.

Share capital, member shares or monthly savings from cooperative members, which the cooperative collects from them every month by deducting from their salaries. These payments for shares or monthly savings are eligible for dividend payouts during the year. When agricultural cooperatives have increased member shares, they must pay out more dividends, which affects the cooperative's income from business operations, reducing it.

As a business unit and operational organization, Agricultural Cooperatives in Kalasin province would consider the increasing factors affecting business operational income as positive influence of Agricultural Cooperatives in Kalasin province which were the net long-term receivables, cash and bank deposits, net short-term receivables, and total funds of the cooperatives. The research results were consistent with the works of Supaphol, S., Tadjuntuk, A., Preechasin, T., & Manee-in, A. (2022) who studied the Agricultural



Cooperatives in Suphanburi Province, Thailand.

On the other hand, Agricultural Cooperatives would take their consideration factors affecting business operational income in the negative influence. This meant that all of the 8 factors that had a negative influence on business operational income would be reduced to increase the business operational income. This research outcome was consistent with the work of Sala-Rios, M. (2023) who studied the determinants affecting cooperatives' profitability. Evidence from Spain.

Conclusions and Discussion

According to research outcomes, some factors influenced the business operational income of Agricultural Cooperatives in Kalasin province, Thailand. There were 4 out of 12 factors that had a positive influence on the business operational income which were the net long-term receivables, cash and bank deposits, net short-term receivables, and total funds of the cooperatives. Agricultural Cooperatives in Kalasin province would take their consideration all 4 factors that would lead to an increase in their business operational income. Since, business operational income expressed a financial status that presents Agricultural Cooperatives revenues and expenses, indicating whether the Agricultural Cooperatives have incurred a profit or a loss during a specific period. The business operational income assists Agricultural Cooperatives in determining the feasibility of generating profits through strategies such as revenue enhancement, cost reduction, or a combination of both. In addition all of Agricultural Cooperatives would consider all of these 4 factors to put in the strategic plan of their business strategy to make their implementation finally. It was consistent with the works of Mahazril Aini Y., Hafizah H.A.K, & Zuraini Yc (2012). Who studied factors affecting Cooperatives performance in relation to strategic planning and members' participation in Malaysia. Also, it was consistent with the work of Wittayakorn-Puripunpinyoo, A. (2022). Who studied the measurement of technical efficiency and factors affecting the operational efficiency of Savings Cooperatives in Kalasin province, Thailand.

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