



Market Strategy and Its Influence on Sabah Small Farmer's Economic, Social, and Environmental Sustainability Performance

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Abstract. There is growing pressure on the insufficiency of food supply and small farmers' sustainability issues. The unsustainability performance of the small farmer is affecting sustainability agriculture. Therefore, it is an alarm to pay more attention to the sustainability of the small farmers, not just economic sustainability but also social and environmental sustainability. By examining the marketing strategy's impact on small farmers' sustainability, 160 small farmers in Sabah who are involved in food crops agriculture have been selected as the respondent in examining the small farmer's sustainability in Sabah. Understanding the marketing strategy will help with stringent food supply issues and Sabah's declining agriculture gross domestic product (GDP). This study used a questionnaire and PLS 3.3 software to analyze the data. The results contribute to theoretical and practical implications and allow future researcher to enhance their study knowledge.

Keywords: Small farmer · Food Crops · Sustainability · Market strategy · Sustainability Performance · Economic · Social · Environmental

1 Introduction

Agriculture significantly contributes to national and state economies despite the rapid rise of the industrial, manufacturing, and service sectors. Agriculture has contributed substantially to Sabah state's gross domestic product (GDP), one of Malaysia's giant lands after Sarawak. According to the Sabah Agriculture Blueprint (2021–2030), launched in 2017, Sabah has contributed 15.8% to agricultural GDP. The agricultural environment in Malaysia is separated into two categories: food crops and industrial crops. Food crops include vegetables, fruits, root crops, and grain crops, generally handled by small-scale farmers or controlled by individual farmers.

Meanwhile, industrial plants, such as oil palm, rubber, tea, and other crops, run mainly by big estates or enterprises (Casey, 2016). The food crop sub-sector is one of the most critical contributors to Sabah's economic development. The State of Government plans to spend RM33.7 million on agriculture products and RM79.54 million on the Sabah Agriculture Department (Sabah Budget, 2019). Food crop production, farm

certification, crop research, and agricultural innovation are the programs implemented for this budget allocation.

In 2020, the Agriculture Sector experienced negative growth of 6.6 percent. To respond to these issues, Sabah shifted its focus to agriculture, manufacturing, and tourism for the Sabah State development. It is described in the Sabah Maju Jaya (SMJ) roadmap, focusing on strategies and techniques to expedite development. The production of food crops is one of the significant concerns in Sabah. Based on Sabah's staple production, food crop production self-sufficiency level declines yearly. This is demonstrated by the fact that rice's self-sufficiency level (SSL) was only approximately 25%, which is a significant difference from Sabah's former rice production levels of 50% in 1980. Rice is a staple meal for society in Sabah. However, only 40,948 hectares of land in Sabah are used for paddy plantations, compared to 1.4 million hectares for oil palm plantations (Borneo today, May 2020). The main reason for this problem is the small farmers' unsustainable performance in the market. If this issue is not resolved, it will jeopardize future food security, as small farmers play an essential role in achieving sustainable agriculture by the United Nations. Besides, the FAO (2020) reported that 500 million small farmers are identified as key food producers and are maintaining sufficient food supplies for people worldwide. Thus, it is vital to develop small farmers to address the declining agricultural contribution and improve rural farmers' livelihood. Many policies have been developed by highlighting small farmers. Among them are the Sabah Agriculture Plans from one to three, Sabah Agriculture Blueprint, and the most recent Sabah Maju Jaya (SMJ). All the policies designed have made agriculture one of the key priorities. Literature and academicians have explored the approach for promoting small farmers innumerable times. Marketing strategies have been identified as the key to developing small farmers. (Musara et al., 2018).

1.1 Problem Identification

Despite all the policy designs, small farmers' livelihoods and sustainability remained uncertain, and small farmers' livelihoods remain low, which is a challenge for the agriculture sector to achieve sustainable agriculture (Malaysia Insight, 2020). In Sabah, the small farmers have been relatively low and very much fall behind. Besides, Sabah's self-sufficiency level (SSL) is declining (DOSM, 2020; SMJ Report, 2021). Based on previous studies, the inefficiencies in agricultural activities related to producing product quality, distribution networks, and the overall supply chain are the main reasons for the farmers' inability to improve their living standards. Purnomo, Otten, and Faust (2018) noted that marketing strategy is the main problem for farmers' participation in the modern market channel (Schmidt & Wagner, 2019). Corresponding to Hung Anh and Bokelmann (2019), the lack of market elements such as product, price strategy, promotion, and location strategy have contributed significantly to the difficulties of being competitive.

Additionally, inconsistent findings from past literature are found in past studies. Tey Arsil, Brindal, Teoh, and Lim (2017), there is no exact market strategy requirement as it will vary depending on the small farmer's region. Different geographies may have various market factors. Nonetheless, the inconsistent findings on the location market factors with the small farmers (Musara et al., 2018; Nandi et al., 2017).

2 Literature Review

2.1 Marketing Strategy and Sustainability Performance

Along with the notion of sustainable development, the marketing mix plays an essential role in the strategy of business operations. Previous research on marketing and sustainable development has been limited, and marketing should be viewed as a new research field. As a result, more modifications and improvements were required theoretically and empirically (Kowalska, 2020). Pomeroy (2017) and Kotler (2011) argue that marketing should be more concerned with long-term sustainability. This sentiment pertains to the sustainability of the environment, society, and economy. This study demonstrates the importance of considering the marketing mix component and its influence on long-term sustainability. Market strategy is a basis for the small farmers to participate in a profitable market channel which leads them to sustainability (Musara et al., 2018).

2.2 Marketing Strategy and Sustainability Performance

One of the reasons that buyers or intermediaries reject small farmers' products is their inability to fulfill market demand. Even though a contract binds them, they are still rejected if their crops are not according to the market requirement. The research found that small farmers abandon the profitable market channel due to their inability to match market demands, such as producing product qualities (Ochieng et al., 2017). It is because buyers in the profitable market channel have a high expectation of product quality. Aside from that, several scientific research has assessed product quality variables in agriculture. According to Bosona and Gebresenbet (2018), organic production looked to be a marker of a high-quality product. Consumer perceptions of organic food and food production sustainability were investigated in this study. Small farmers will profit financially from being able to meet customer demands. As per Tefera et al. (2020), product quality and the reasons for sustainability performance have a significant relationship. Producing a fresh product could preserve nutrients and benefit small farmers in the economy, society, and environment. Failing to produce a nonstandard crop, such as lacking nutrients and quality, can result in food waste and losses (Matzembacher & Meira, 2018). Hence, this may improve the small farmer's well-being and environmental sustainability.

H1: Product has a positive relationship with economic sustainability performance.

H2: Product has a positive relationship with social sustainability performance.

H3: Product has a positive relationship with environmental sustainability performance.

2.3 The Effects of Pricing on Small Farmer Sustainability Performance

The pricing strategy is another critical issue for the small farmer's sustainability. Previous research on small-scale citrus has looked at how price influences people's decisions to engage in a marketing channel, and the results showed that it's one of the most important aspects for them to stay in business. According to Eneizan and Wahab's (2016) research on green marketing strategy, green prices positively impact enterprises' financial and non-financial performance. Price marketing has grown and significantly affects perceived

product quality, penetration price influences customers to purchase, and value-based pricing improves profitability (Gituma, 2017).

It is important to provide reasonable pricing to their customers (Kowalska, 2020). Hence, the study's findings show that producers seldom engage in activities with a higher cost than their rivals. In return, farmers will not supply environmentally friendly production as customers resist spending higher costs on the. Meanwhile, Tefera et al. (2020), a high input cost indicates producing a high-quality product. Thus, if the price offered to the buyers cannot cover the cost, small farmers' productions might be affected, leading to difficulty achieving economic, environmental, and social sustainability performance. Khaswarina, Sucherly, Kaltum, and Ariawaty (2021) showed that if the price received by farmers were high, the farmer would be motivated to produce in large quantities. This study indicates that pricing strategy in the marketing mix had a significant relationship with performance. According to Ochieng et al. (2017), receiving late payments for their crops has affected small farmers' ability to survive economically. The small farmers are burdened with many bills to pay, and they also need to purchase farm inputs to ensure continuous, high-quality production. Uncertain market pricing is another difficulty that arises while engaging in a profitable channel (Anh Huang et al., 2019). Due to pricing uncertainties, small farmers will not participate in the profitable market.

H4: Price has a positive relationship with economic sustainability performance.

H5: Price has a positive relationship with social sustainability performance.

H6: Price has a positive relationship with environmental sustainability performance.

2.4 The Effect of Place Dimension on Small Farmer Sustainability Performance

According to Farid et al. (2019), the elements of place strategy in market strategy are related to delivery at the right place and at the right time. According to the results regarding the distribution strategy and sustainability marketing surveyed on SMEs, the most popular activity among SMEs is optimizing logistics processes. It includes selecting transport routes, using cost-effective modes of transportation, and their optimal loading, as supported by Kowalska (2020). According to Cai and Ma (2015), the long distance to the market significantly impacts the farmer's contract enforcement and will negatively affect the farmer's improved performance. A long-distance issue incurred many costs that might jeopardize farmers' economic viability. Okoye et al. (2016), Mbitsemunda et al. (2017), Musara et al. (2018), and Jitmun et al. (2020) have identified distance from the market as one of the characteristics that might negatively impact small farmers' income and participation in the profitable market. Small farmers' sustainability will be affected due to this matter. Bottani et al. (2019) find that one-way transportation to other locations lowers the emission generation than the warehouse's activities in the fashion supply chain context. From the small farmer's perspective, farming operations may influence environmental sustainability compared to bringing their products to market. Additionally, Jia and Peng et al. (2020) stated that a long-distance transportation route causes environmental and societal problems, such as Green House Gas emissions. The study also looks at how a short food supply chain might help to promote sustainability by growing the local economy, lowering fuel usage, and strengthening connections between stakeholders.

H7: Place has a negative relationship with economic sustainability performance.

H8: Place has a negative relationship with social sustainability performance.

H9: Place has a negative relationship with environmental sustainability performance.

2.5 The Effect of Promotion Dimension on Small Farmer Sustainability Performance

Every firm relies on promotion to ensure their customer is aware and well informed about their product and services. Even if the promotion component is vital for small company performance, a previous study on small fish farming indicated that promotion was not significant to business performance. The study justifies that conducting a promotion may raise costs and affect the business profit (Fitriah et al., 2019). Musara et al. (2018), on the other hand, discovered that promotion allows farmers to boost their sustainability by acquiring more outstanding market share. Promotional actions for value-added goods will not have a detrimental impact on the performance of small farmers. More buyers are expected to be attracted by the value highlighted on the farmer's crops, which may increase the small farmer's profits. Based on Ngenoh, Kurgat, Bett, Kebede, and Bokelmann (2019), promotion is a method that can help small-scale farmers become more effective by overcoming the competition from the high-value Agro-food chains. To highlight the value of their vegetables, small farmers in Africa have advertised their farming operations. Small farmers may get a competitive edge in the market by being able to emphasize their high-value crops. Ngenoh et al. (2019) and Musara et al. (2018) implicitly describe promotion as a factor for small farmers' economic sustainability; however, these two studies do not detail the other two aspects of sustainability: social and environmental. Further discussion on the sustainability practices regarding promotion activities has impacted the farmers environmentally and socially. Farmers will promote their environmental-friendly practice in their production, and social well-being will be affected by consuming safe food (Coppola & Ianuario, 2017).

H10: Promotion has a positive relationship with economic sustainability performance.

H11: Promotion has a positive relationship with social sustainability performance.

H12: Promotion has a positive relationship with environment sustainability performance.

3 Methodology

The analytical unit for this study is a small farmer that works with food crops in each of Sabah's regions. Because Malaysia has not explicitly specified the small farmer in food crops, the FAO's small farmer criteria for the Asia Pacific were used to select the relevant respondents for inclusion in this study. The participants in this study had the characteristics of small farmers, as measured by farm size, income, and labor input. Purposive sampling was used in this study since it is difficult to characterize the small farmers' population precisely. To ensure that the respondents fulfill the study's goal, they will be scrutinized using criteria.

For this investigation, one hundred fifty-three samples were chosen based on their *g* power calculation. To avoid any unanswered questions or blank responses from the

questionnaire, the sample size for this study was increased to 160. Product, price, place, and promotion are the four dimensions that make up the market factor constructions in this study. The items used to measure each dimension were from.

4 Analysis

The composite reliability is sufficient since it explains the indicators differently from Cronbach's alpha, which explains overall reliability. The arrow whose loading is at least 0.70 for each item in the construct indicates good convergence of internal consistency between the items and is referred to as the item's reliability (Gefen & Rigdon, 2011; Gefen, Straub, & Boudreau, 2000; Hair et al., 2014; 147 Henseler et al., 2009; Thurasamy et al., 2018; Wright, Campbell, Thatcher, & Roberts, 2012). The composite reliability revealed in this study has a value of 0.7 above, which is more than sufficient (Table 1). According to Hair et al. (2017), using the squared loading method, the indicator's outer loadings should be 0.7 or higher to get a value of 0.50. However, 0.4 to 0.7 is sufficient if another loading serves as a complement to the weak indications (Ramayah et al., 2018). It can only be eliminated if eliminating them can result in higher composite reliability or AVE (Hair et al., 2017). The findings indicated that Place4 mm, Price1 mm, Env1 and Env2 are the four elements that have been eliminated. The remaining elements are not eliminated since the composite reliability and AVE have already reached the 0.50 criteria. (Urbach & Ahlemann, 2010; Hair et al., 2014). Table 1 shows the AVE values for all constructions. All constructions had AVE values greater than 0.5 for each set of data. These findings indicate that the measurement model has sufficient convergent validity.

4.1 Discriminant Validity

This paper uses HTMT .85 technique to assess the discriminant validity (Henseler et al., 2015). As shown in Table 2, all values fulfill the criterion of HTMT. The results indicate that discriminant validity has been ascertained. Besides, the confidence interval does not offer a value of 1 on any of the constructs, which confirms discriminant validity.

4.2 Assessing the Significance of the Structural Model Relationships

Table 3 shows that product, price, and promotion are all positively associated with social sustainability performance, whereas place is not. Besides, pricing and promotion impact environmental sustainability performance, but not on the product and promotion. Economic sustainability was not significant with product, place, price, and promotion. With a path coefficient of $\beta = 0.202$, the promotion appears to be the best predictive construct for social sustainability performance. Meanwhile, with a coefficient value of $\beta = 0.203$, pricing was the highest predictor of environmental sustainability performance.

5 Discussion

According to the data, the product had no significant impact on economic and environmental sustainability. However, the product strategy had a significant effect on small farmers' social sustainability performance, which is in line with the results of the prior investigation (Farradia et al., 2019; Ahmadi et al., 2021). The H3 hypothesis is supported by the finding justification whereby the small farmers can support their living for the next ten years. The small farmers in the rural areas could still feed themselves and the people around them even though the restrictions and movement orders were imposed during the pandemic. Insufficient food is not the main issue for them during uncertain situations. The H1 and H3 were found not supported in this study. Small farmers' contributions have been slowing down in recent years, as seen by the state of Sabah's GDP (Dosm, 2020). Most of the small farmers in Sabah were economically stagnant and slow in earning their monetary income and market availability. The results justify that most respondents have been involved in agriculture for more than ten years. However, their land for food crop production is not improving, which is less than 5 acres, which affects their earning income, which is still below RM 4000 even though they have been in the agriculture industry for many years. As the cost of food crop production increases, it will be challenging for small farmers to sustain themselves economically. The product strategy was not significant to the small farmer's environmental sustainability as most of the small farmers referred to their product strategy during the pandemic. The pandemic has impacted small farmers' production, whereby they could not supply to the market, and wastage was high on their food crops. Besides, waste has increased (Ellison & Kalaitzandonakes, 2020). Organic farming supplies are expensive (Tefera et al., 2020). Small farmers do not generate a significant profit during the pandemic, so they must minimize costs by employing inexpensive resources for their agricultural activities.

This paper shows that pricing strategy positively impacts economic, social, and environmental sustainability. This study is validated and compatible with the prior investigation by Siddiques, Garneyska, and Marr (2018), Eneizen (2016), and Gitume (2016). (2017). Food crop pricing has become a critical variable in most research, indicating that price influences small farmers' profit or economy. Small farmers' livelihoods and well-being will be impacted if paid at premium prices. Based on Yeo (2022) on *business, today's* news, the higher-value crops produced by small farmers will give the small farmers high profit. Being paid a premium may impact the small farmer's social sustainability through their well-being and relationship with other channel members. Pricing strategy could influence the environmental sustainability performance of the small farmer as the market price of organic produce is highly paid, which encourages the small farmers in Sabah to be in the organic produce business. The finding justifies that the small farmers consistently produce a quality food crop and practice using pesticides according to the standards if the price received can cover the organic farming cost.

Place factor findings, unfortunately, do not support the hypothesis construct. Although the indicators' value toward the construct is reliable and valid, the results show that the location factor has no negative impact on small farmers' economic, social, or environmental sustainability performance. A previous study on the small fish business found that location was not significant for business success, implying it is irrelevant to

business performance (Fitriah et al., 2019). The market channel used by the small farmers in this study is the main reason for the unsupported hypothesis. Most small farmers sell their products directly to the market, and most respondents are located less than 50 km from the market. A short supply chain employed by the respondents was the main reason for their sustainable performance in the economic, social, and environment. The small farmers will not have difficulty selling their food crops to the market as the buyers are always available. Besides, they did not have to be burdened by the transportation and food crop damage costs. This will affect the small farmers' social well-being, and direct relationships with the buyers will be better as they do not have to deal with many intermediaries. The findings were consistent with earlier research, indicating that businesses operating in urban regions have a better chance of achieving sustainability than those working in rural locations (Gituma, 2017).

The promotion has positively impacted sustainability performance in previous research (Coppolo & Ianuria, 2017). This study discovered that the market model's promotion approach substantially affects social and environmental sustainability performance. Promoting to the customers their ecological practice in their farming activities will give value-added to the small farmers. In line with the previous study (Ngenoh et al., 2019), the African indigenous small-scale farmers are using promotions to communicate their valuable vegetables to be competitive in the market. Informing the customers about their environmental practice in farming may affect their living and good image among the buyers in the market channel.

Meanwhile, the promotion strategy on small farmers' economic sustainability performance hypothesis was not supported, which is consistent with Ngarava and Mushunje's study (2019). Small farmers in Sabah are mainly involved by the generations unfamiliar with the technology. Thus, employing a traditional promotions strategy will not give the small farmers positive economic sustainability as the traditional promotions require a high cost.

6 Implication

In general, this research has several significant contributions to the theory. This study fills the gap in the literature by examining the small farmer sustainability performance in Sabah, specifically in terms of economic, social, and environmental. Most previous studies focus on industrial agriculture and the financial sustainability of small farmers. The small farmer's sustainability performance has been highlighted as a significant issue because it has impacted other sustainability issues such as food security, low self-sufficiency, poverty, and others. This study is taking the initiative to measure the small farmer's economic, social, and environmental performance. Hence, this study contributes to the ultimate measure of the small farmer's performance.

This study indicates that all tested variables on the sustainability performance model. In this light, understanding the factors will provide insight to farmers, the farmer's associations, the government, and researchers. The finding of this study may enhance the small farmers' understanding of being a competitive advantage in their production and marketing. Small Farmers were consistently associated with a lack of marketing strategy related to the product, pricing strategy, place, and promotion. Understanding the ability

to enhance the market factor could enhance their economic, social, and environmental sustainability. Besides, it may encourage the small farmers to be more competitive in the supply chain. The farmer association, such as FAMA, LPP, KPD, etc., could utilize this research by designing the program to enhance the small farmer's product, price, place, and promotions strategy. During uncertain situations, it may incur a cost that impacts the occurrence of the transaction cost. The finding of this study is to minimize the transaction cost, and promotions activity is a factor that needs to be the focus as it affects the transaction cost. In this study, the identification of the measurement for economic, social, and environmental sustainability could be used by the government and policymakers in benchmarking the small farmer's sustainability performance. In addition, the small-scale farmer's credit policy should be revised. Getting credit from a financial institution may motivate small farmers to aim for more extensive food crop farming.

7 Study Limitation and Recommendation

The first limitation is that the scope of this study is limited to selected types of agriculture. Data were only explicitly collected from those involved in food crops agriculture. According to Sabah Agriculture policy 3, Sabah has several focus agriculture areas. Among the agriculture, areas are Agro tourism, food crops, Industrial and other economic focus, Agro-industry, livestock, and fisheries. There is a possibility that small-scale farmers are also involved in other critical areas of agriculture, such as livestock and industrial agriculture. Furthermore, a longitudinal study is suggested to be conducted, especially examining a few variables in this study. Still, despite these limitations, this research is believed to provide meaningful insights into the determinants of small farmers' sustainability performance.

By expanding the study of food crops agriculture into others, areas of agriculture will represent the whole agriculture. Hence it will give a significant impact and insight into the agriculture sector in Sabah. A longitudinal study is also suggested to be conducted as several variables might change over time. There are many indicators proposed by previous studies on the economic, social, and environmental sustainability performance and are not widely applied to the small farmer's context.

Table 1. Measurement Model

Items	Factor loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Prod1	0.814	0.818	0.873	0.581
Prod2	0.734			
Prod3	0.849			
Prod4	0.715			
Prod5	0.687			
Price2	0.746	0.736	0.831	0.553
Price3	0.771			
Price4	0.77			
Price5	0.682			
Place1	0.887	0.738	0.84	0.579
Place2	0.76			
Place3	0.853			
Place5	0.472			
Prom1	0.709	0.872	0.907	0.663
Prom2	0.823			
Prom3	0.88			
Prom4	0.822			
Prom5	0.828			
Eco1	0.741	0.872	0.907	0.663
Eco2	0.749			
Eco3	0.85			
Eco4	0.873			
Eco5	0.85			
Soc1	0.826	0.878	0.91	0.67
Soc2	0.782			
Soc3	0.856			
Soc4	0.787			
Soc5	0.84			

Table 2. Discriminant Validity

	Eco	Env	Place	Price	Product	Promo	Soc
Eco							
Env	0.455						
Place	0.306	0.36					
Price	0.304	0.444	0.779				
Product	0.394	0.425	0.664	0.678			
Promo	0.36	0.422	0.672	0.456	0.598		
Soc	0.481	0.661	0.485	0.506	0.559	0.523	

Table 3. Results of the Significance in Structural Model Relationships.

Hypothesis	(?)	Std. Error	t-value	p -values	Decision
Product -> Economic SP	0.063	0.091	0.694	0.244	Not Supported
Product_->Environmental SP	0.136	0.098	1.387	0.083	Not Supported
Product -> Social SP	0.186	0.1	1.855	0.032	Supported
Price ->Economic SP	0.047	0.086	0.55	0.291	Supported
Price -> Environmental SP	0.203	0.112	1.806	0.036	Supported
Price ->Social SP	0.164	0.085	1.942	0.026	Supported
Place -> Economic SP	-0.09	0.098	0.922	0.178	Not Supported
Place ->Environmental SP	-0.046	0.107	0.425	0.335	Not Supported
Place ->Social SP	0.021	0.112	0.189	0.425	Not Supported
Promotion -> Economic SP	-0.024	0.093	0.262	0.397	Not Supported
Promotion ->Environmental SP	0.196	0.108	1.807	0.036	Supported
Promotion ->Social SP	0.202	0.103	1.953	0.026	Supported

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