


Article

Diversified and Sustainable Business Strategy of Smallholder Farmers in the Suburbs of Taiwan

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Abstract: Taiwan's smallholder farmers are transforming into a diversified business model to respond to the transformation of economic structures and the demand for sightseeing and recreation. On that account, it is urgent and valuable at the research level to develop diversified and sustainable business strategies and models for smallholder farmers. There are two goals in this study. First of all, the study formulated the indicators of diversified and sustainable business strategies for smallholder farmers in Taiwan's suburbs. Second, the study measured the relevant weights of these indicators from the perspectives of experts. The qualitative and quantitative Analytic Hierarchy Process (AHP) was applied in the study, with Taiwan's agricultural experts being our main subjects to establish the indicators and models for diversified and sustainable business strategies based on their opinions. According to the research results, there were 6 criteria and 25 sub-criteria for smallholder farmers in terms of diversified and sustainable business strategies, among which, catering services topped other criteria; food health and safety outweighed other sub-criteria of diversified and sustainable business strategies for smallholder farmers. The greatest contribution of the study is the establishment of the indicators and models of diversified and sustainable strategies for smallholder farmers in Taiwan's suburbs and the discovery that catering service can be an important orientation of diversified and sustainable business strategies for smallholder farmers in Taiwan's suburbs.

Keywords: smallholder; farm operation; diversification business strategy; food service



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1. Introduction

Taiwan has witnessed the social and economic structure change, the urgency of agricultural transformation, the rapid development of urbanization, and the increasing number of people moving from rural areas to cities. In response to the demands of tourism and recreation, the government and private sectors have been actively developing diversified farm operation models, establishing many different kinds of recreational areas to meet the needs of the public for lifestyles. Industries related to leisure agriculture are springing up all over Taiwan. With leisure agriculture, fresh, healthy and safe agricultural products are available to satisfy people's needs, protect natural ecological landscapes and water sources, regulate climate and improve the living environment, thereby meeting the demands of urban social and cultural life [1]. To this end, Taiwan's smallholder farmers take an active part in engaging in leisure tourism, develop complex farms with diversified leisure agriculture, with businesses ranging from ecological tourism, leisure farms to civil agricultural parks, etc. to strengthen their own operation capacities, take places in competitive economic markets, minimize the adverse impacts on the environment, and provide leisure

tourism destinations for people credited to the natural and ecological environment, thereby promoting the protection and cultivation of environment and ecology.

According to the Council of Agriculture, Executive Yuan [2], agricultural leisure tourism attracted about 27.8 million tourists, including more than 717,000 overseas tourists, creating an output value of USD\$3.67 million (NTD\$10.9 billion) in 2019. The recreational development of farms expands the rural consumer market, vitalizes rural areas, and improves the living standards of local residents [3]. Leisure agriculture, on the one hand, is conducive to agricultural transformation and activation of rural areas, and on the other hand, is the most promising development orientation of Taiwan's agriculture.

Tourism in rural areas and suburbs has become an important tourism industry in Europe, particularly in countries such as France, Austria, and the UK, as a very effective means of responding to the social and economic challenges arising from the decline of traditional agricultural industries [4,5]. Tourism is able to promote the development of the social and natural environment where it develops and possibly stimulates economic growth and local economic diversification [6–9]. According to the Tourism Bureau, Ministry of Transportation and Communications [10], in 2020, Taiwanese people mainly engaged in recreational activities when they traveled, with the highest rate (63.3%) of “natural viewing activities”. In addition, the most favorite recreational activity has the highest rate (50.0%) of “nature viewing activities”. Therefore, the rise of Taiwan's leisure agriculture is highly associated with the increasingly popular leisure tourism and leisure style of getting close to nature.

The development of small-scale agriculture is very important for the agriculture and tourism industry [9]. According to the Executive Yuan [11], Taiwan's agriculture will account for 1.6% of GDP in 2020. Due to natural environment constraints, the average farmland size of Taiwanese farmers is only about 0.72 hectares, which is a small farmer's business model. This study defines smallholders as farms between 0.5–0.7 hectares. Thus, speaking of the development of leisure agriculture in cities and suburbs, policies promoting leisure agriculture and living needs of citizens around cities should be introduced to help improve the productivity and competitiveness of smallholder farmers, thereby enhancing the sustainability of agriculture around cities and facilitating the operation and development of smallholder farmers so that they can tap into the competitive agri-tourism market. In addition to developing advantages and characteristics of the farms themselves, it is necessary for smallholder farmers to combine themselves with new marketing modes. Only with the powerful and effective marketing means can the farms make more profits. Yang, Lin and Hu [1] believe that leisure agriculture is a new service industry oriented at leisure functions, which combines the natural landscape and ecological resources in agricultural environment, agricultural production (processing), agricultural and fishery products, rural culture, humanities and arts, rural facilities, tourism and other resources, suggesting that leisure products or services provided by leisure agriculture must be based on agriculture.

As pointed out in Loureiro's [12] study, it is of great importance for rural areas to develop an attractive and distinctive tourism experience. The leisure agri-tourism experience can not only provide tourists with high-quality service but also allow them to taste the local agricultural products, enjoy the scenery, and even actively be involved in the rural activities—handicrafts DIY, cultural activities and activities related to regional fairs. Such unique rural lifestyles are different from those in other tourist destinations. According to the results obtained by Yang, Lan and Hu [1] through the analysis of the willingness and obstacles to food education on farms from the perspective of the leisure agriculturist, farms can be the best way to promote food agriculture education by increasing human resources, strengthening professional explanation and developing experiential teaching mode. Additionally, food and traditional cooking are also the main driving forces for modern agri-tourism tourists [13].

Based on the above literature, the leisure agriculture developed by Taiwan's smallholder farmers is a new type of agricultural service industry combining natural landscape

and ecological resources in the agricultural environment, agricultural production, agricultural processing products, rural culture, humanities and arts, tourism and education, activity experience and other resources. It can potentially promote the economic growth and development and local economic diversification, and provide resources, products, and services for cities through multiple channels and other authorities of the city, thereby making it more advantageous in the production and consumption side and a perfect choice for the potential consumers living around the city to travel and relax.

The question is, how can smallholders use leisure farms to increase profits? If discussed from the perspective of supply and demand, the topics of how to develop the leisure agriculture modes?; what kind of tutoring strategies should the government provide to improve the overall competitiveness of smallholder farmers to make them active in the markets?; how can smallholder farmers' farms adjust their business strategies to attract more consumers?; and how can smallholder farmers' farms increase the efficiency and sustainability of agro-food systems are all issues to be discussed and developed in the study. On this basis, diversified business models in line with the needs of smallholder farmers can be developed.

City-level, small-scale farms can be run by integrating the production, processing, sales, and management of farmers to make palatable rural specialty foods commercially available and promote the rural economy and development [14]. The use of local agricultural products, traditional cooking methods, and the development of the cultures of small-scale farms will boost the local economy [15]. Local foods have gradually being marketed and sold together with the cultures and traditions [16,17]. City-based agricultural products are mainly sold to urban consumers to meet the city residents' needs of weekend travel, business meetings, leisure experience dining, etc. Such agriculture is suburb-based and operated mainly in the form of agricultural products picking, experience activities, and leisure farms [18]. As shown in Choe and Kim's study [19], tourists' attitudes towards local cuisine have significant positive impacts on the image of tourist destinations. According to Alderighi, Bianchi, and Lorenzini [20], tourists' strong preference for local specialty food will remarkably increase their willingness to visit again. Thus, foods and traditional cooking are major driving forces for tourists to visit, and local agricultural specialty products and unique rural cuisines are deemed as the symbol of local and cultural assets, contributing to promoting the overall rural economic development, developing tourism and sightseeing, as well as maintaining the local population [13,16,21–23].

Consumers attach great importance to the farm's natural ecological environment and scenic spots, therefore, it is suggested that the farms should provide other features to make up for their failure to offer an impressive sensual experience or improve the sensory images [24]. Furthermore, consumers also pay attention to the infrastructure, range of activities, and special activities [25]. Traditionally, landscape opinions rarely take into account the tourists' feelings about the landscape resources, which require tourists' mindscape towards landscape resources before such landscapes become valuable to consumers [26].

Ignaacio [27] holds the view that the aesthetic experience of the natural landscape is conducive to recognizing the environment and promoting the formation of environmental awareness. The establishment of the landscape resources of the tourist destinations is the key to successful tourism development. Apart from the physical landscape vision being an important source of experience, sound, smell, taste, and connection with the past are also critical experience resources [28]. Generally, the tourism industry represents as an activity integrated into local landscapes, which requires it to take into account shaping local practices, reshaping the relationship between the society and materials as well as being a part of local residents' daily life so that it will be deemed as an activity that directly affects the local way of life in relation to the local landscapes [29,30].

Diversification operations in rural areas allow farmers to treat themselves as entrepreneurs and producers [31]. Based on the styles of farms, operators can vertically innovate their catering services or leisure recreation. They should combine the rural cultures with the farms' characteristics and use local unique agricultural resources to create

impressive farm brands. Moreover, it is necessary for them to design a parking lot with a peculiar style, innovative packaging for agricultural products, palatable delicacies, goods with rural characteristics, provide customers with a well-established farm itinerary map and route planning, etc., so that tourists can have rich sensory enjoyment. Besides, operators should also make service information available on the social platforms and official website, launch online marketing channels, and run online shops to practice their sustainable operation goals [32].

It was found by Yen, Xiong, and Yan [3] from the comments on developing leisure agriculture into an alternative for tourism that the development of sustainable leisure agriculture can have positive effects on the rural environment and economy, as well as social cultures. Therefore, the development of sustainable leisure agriculture turns out to be a valid alternative for tourism. Rural tourism has been widely recognized as a feasible way to revitalize a sustainable rural economy [33], and tourism can even improve it [34]. An agricultural industrial foundation and ecological resources and environment are primary driving forces for developing leisure agriculture; the regional economic development level and market conditions are the impetus for leisure agriculture development [18]; to sum up, farms are rich in diverse agricultural resources that can serve as a foundation for promotion and experience industry. Combined with modern tourism, experience-based economy, agricultural products, farm operations and other characteristics, the smallholder farmers' development of leisure agriculture has been one of the most rapidly-growing business trends. For tourists expecting to free themselves from intense and heavy work, leisure agriculture has been another sightseeing option. The development of future leisure agriculture will be based on the overall experience, tourism, landscapes, as well as local cultures.

Extensive research on the diversification operation in rural areas has been carried out by many scholars [3,18,32,35,36]. On this basis, this study came up with diversified and sustainable business strategies for smallholder farmers in line with the regional characteristics of Taiwan's suburbs by summarizing the experts' opinions in the previous studies.

The research is designed mainly to analyze the importance of diversified and sustainable business strategies for each smallholder farmer by applying Analytic Hierarchy Process (AHP) and investigating the questionnaires collected from government agri-food professionals, agricultural education organizations, agri-food-related scholars, and smallholder farmers. Finally, according to the expert questionnaires, the quantitative ranking of the importance of smallholder farmers' diversified and sustainable business strategy is analyzed, which is expected to serve as a reference for smallholder farmers to develop diversification operations in the future. Therefore, there are two main goals in the study:

- (1) Formulate the indicators of diversified and sustainable business strategy for smallholder farmers in suburbs of Taiwan through AHP.
- (2) Apply AHP to measure the weight of indicators and the impact of their priorities on the diversified and sustainable business strategy for smallholder farmers in suburban Taiwan.

2. Materials and Methods

2.1. Methodology and Framework

In this study, the AHP method, together with qualitative and quantitative research methods, were applied for agri-tourism experts to work out diversification operation indicators for smallholder farmers. When it comes to research design, the on-site interviews were carried out among scholars and experts in the field of agri-tourism and smallholder farmers at the meeting of experts. Furthermore, the literature review was employed to collect previous documents for drawing up AHP-based questionnaires. Then the AHP method was adopted to classify and rank the important factors for diversification operation indicators for smallholder farmers in Taiwan's suburb areas.

AHP has been applied to a variety of agricultural decision-making issues, including sustainable development of agriculture [37], smallholder management analysis and marketing [38], agricultural policies [39], etc., therefore, the important indicators and factors of diversification operation for smallholder farmers in Taiwan's suburbs can be established by

referring to such theories and analytic methods. Hence, based on the viewpoints of Yang, Lin, and Hu [1], leisure agriculture develops industries with leisure functions based on agriculture. This study incorporated the concepts in the previous studies into the AHP-based hierarchy model [3,15,18,24,31–33,40]. The AHP-based hierarchical structure is divided into 6 criteria and 25 sub-criteria, as shown in Figure 1. The study included all the survey indicators (goals, criteria, and sub-criteria) into the hierarchical model. Accordingly, the survey data is used to determine the relative importance of topics at each level in the model.

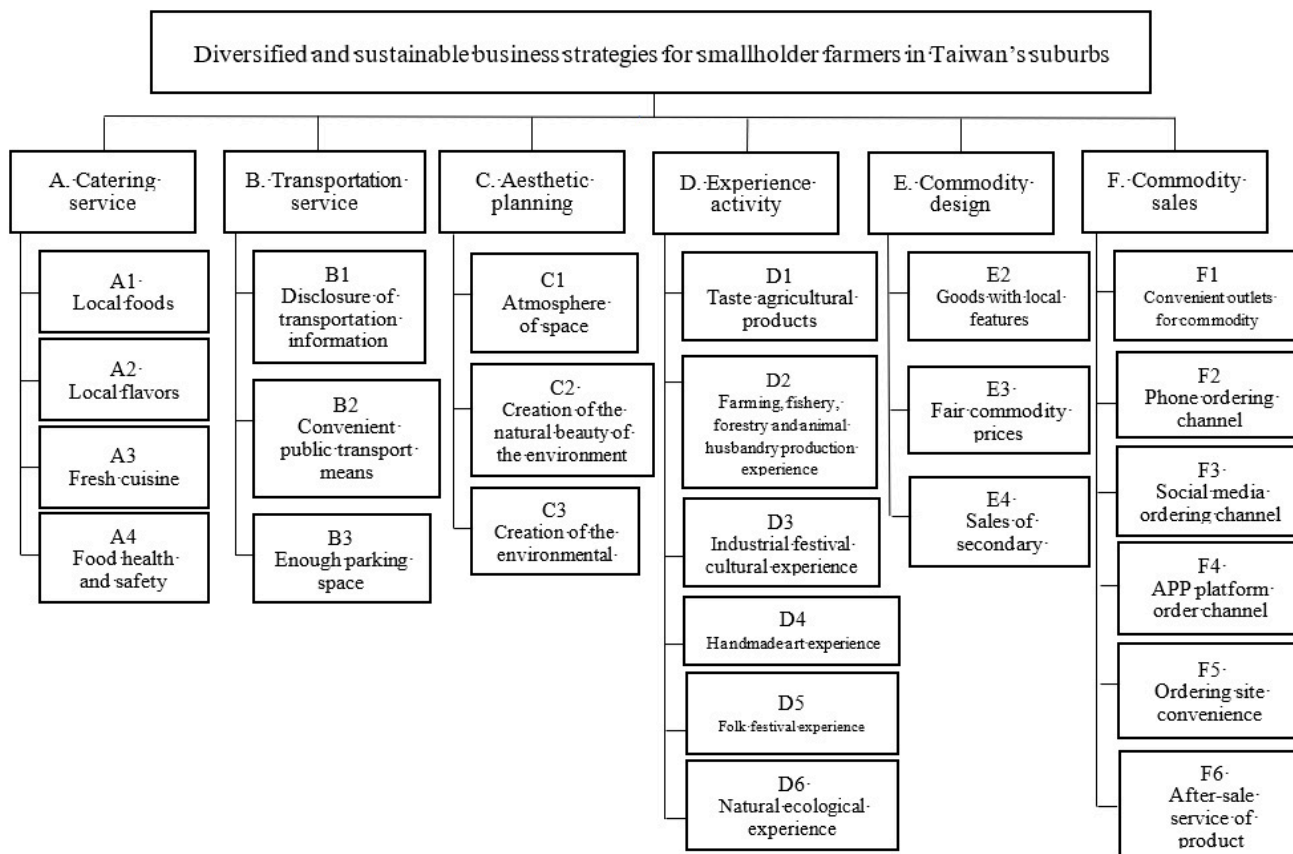


Figure 1. AHP structure chart.

2.2. Questionnaire and Sampling Design

In consideration of the specialization of the study's topic, a total of 25 experts were selected to participate in the study from those agri-tourism experts and scholars with an experience of over 15 years, including government agri-food professionals (4 persons), agri-food-related scholars (5 persons), agricultural education organizations (8 persons), smallholder farmers (8 persons) (as shown in Table 1). The selection of experts in this study was recommended by the agricultural system expert database of government units in Taiwan. The experts participating this time were all senior agricultural management and agri-food experts with more than 15 years of experience and have been responsible for Taiwan's agricultural construction management for many years and are authoritative and representative. The executive director of the research group personally invited them to participate in this research. The Analytic Hierarchy Process (AHP) questionnaire uses 1 to 9 as the evaluation scale and uses pairwise comparisons to answer the questions.

Table 1. Summarized expert characteristics.

Items	Category	Professional Background	Seniority
1	Government agri-food professionals	Agricultural Policy Director	21
2	Government agri-food professionals	Agricultural Policy Director	18
3	Government agri-food professionals	Agricultural Policy Director	15
4	Government agri-food professionals	Agricultural Policy Director	17
5	Agri-food-related scholars	Professor of Agriculture	17
6	Agri-food-related scholars	Professor of Agriculture	16
7	Agri-food-related scholars	Professor of Food and Beverage	19
8	Agri-food-related scholars	Professor of Food and Beverage	19
9	Agri-food-related scholars	Professor of Tourism	20
10	Agricultural education organizations	Senior Cooking Trainer	17
11	Agricultural education organizations	Senior Cooking Trainer	15
12	Agricultural education organizations	Senior Cooking Trainer	18
13	Agricultural education organizations	Senior Course Planner	16
14	Agricultural education organizations	Senior Course Planner	15
15	Agricultural education organizations	Senior Course Planner	19
16	Agricultural education organizations	Educational Training Planner	18
17	Agricultural education organizations	Educational Training Planner	16
18	Smallholder farmers	Product Promotion Manager	22
19	Smallholder farmers	Product Promotion Manager	19
20	Smallholder farmers	Product Promotion Manager	15
21	Smallholder farmers	Senior Sales Representative	16
22	Smallholder farmers	Senior Sales Representative	15
23	Smallholder farmers	Senior Sales Representative	23
24	Smallholder farmers	Product Marketing Manager	20
25	Smallholder farmers	Product Marketing Manager	16

The AHP questionnaires were designed based on the framework, as shown in Figure 1. After deleting the invalid questionnaires absent from answers, 25 valid ones subject to statistical verification of consistency and meeting the standard of C.R. value less than 0.10 were obtained. The ex-post approach was adopted to recover the questionnaires and the statistical software Super Decisions 3.2 was applied in accordance with AHP criteria to calculate the weight of each indicator. These indicators were individually and collectively weighted according to their professional attributes so that they could be evaluated.

2.3. The Application of AHP to Diversification Operation Indicators for Smallholder Farmers in Taiwan's Suburbs

AHP is mainly used in uncertain situations and decision-making with multiple evaluation criteria to select alternatives for different attributes to make preferred decisions [41]. AHP is widely applied, especially to the planning, forecasting, resource allocation, and portfolio trial calculation, etc. The hierarchical relationships enable decision-makers to select logical judgment and evaluation suitable for the case, and the case with higher priority suggests a higher priority of being accepted. The quantitative judgment streamlines and improves the previous instinct-relied decision-making processes [42].

In this study, the AHP was adopted to quantitatively evaluate the relative importance of diversification operation indicators for smallholder farmers in Taiwan's suburbs. On the

basis of AHP theories, a general structure containing criteria and sub-criteria that might influence decision-making was determined by referring to the literature. These criteria and sub-criteria were then analyzed by pairwise comparison (criteria vs. criteria; sub-criteria vs. sub-criteria) to identify the most important criteria and sub-criteria relative to others in the decision-making issue [43]. According to the AHP structure shown in Figure 2, the primary goal (G), representing the focus of the problem, was in the first level at the top; The criteria (C1, C2, C3) that helped achieve the goal were in the second level; and the sub-criteria in the third level (SC). All criteria and sub-criteria at any particular level in this structure should be related to those at higher levels so that their relative importance at that particular level can be determined or assessed [42]. As shown in Figure 1, the importance of C1, C2, and C3 were evaluated relative to upper-level C1 by pairwise comparison of goals, SC1-1 and SC1-2; the same applied to C2 by pairwise comparison of SC2-1 and SC2-2; the same applied to C3 by pairwise comparison of SC3-1 and SC3-2.

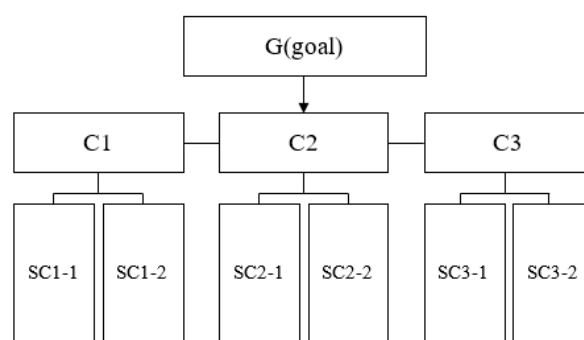


Figure 2. AHP hierarchical structure chart.

In pairwise comparison, the hierarchical structure is followed by the evaluation and judgment, which is mainly based on the indicators of the upper level. The pairwise comparison is conducted between any two indicators of the same level with the indicators of the upper level to determine the relative importance. For n indicators, $n(n - 1)/2$ pairwise comparisons are required to judge the relative importance of indicators at the same level. It is suggested by Saaty [42] that AHP Basic Scale should be used to answer the basic questions. That is, how many times is one criterion/sub-criterion more important or more superior to another in terms of a criterion? In comparing, the decision-maker assigns the recommended numbers in the AHP Scale from 1/9 to 9 as an expression of the importance/preference degree of the criteria and sub-criteria being compared. Level 1 selected by the participant indicates two criteria and sub-criteria under comparison are of equal importance. On the other hand, if 9 is selected, it indicates that one criterion (i) is significantly more important than another (j); on the contrary, 1/9 represents that the criterion (j) is of marginal importance compared to another (i). However, in order to aggregate the participants' judgments, pairwise comparisons are typically performed in an "n by N" matrix. For example, the importance of level 2 criteria relative to the goal at level 1 is expressed in matrix $(n \times n)$, where a_{jk} represents the ratio of w_j to w_k and the reciprocal matrix is expressed as $a_{jk} = 1/a_{kj}$ and $a_{jj} = 1$, for all j and k; A typical pairwise comparison matrix contains a certain number of comparisons (where n is the number of criteria to compare), expressed as:

$$n(n - 1)/2 \tag{1}$$

The C1, C2, and C3 criteria in Figure 2 require only three evaluations. The pairwise comparison matrix shown in Table 2 shows a typical evaluation to be performed across hierarchies.

Table 2. Pairwise comparison matrix.

	C1	C2	C3
C1	C1/C1	C1/C2	C1/C3
C2	C2/C1	C2/C2	C2/C3
C3	C3/C1	C3/C2	C3/C3

In this study, the relative weights of indicators of all levels are integrated to calculate the total priority weight of the whole level, and the weight calculated represents the relative priority of each decision-making case corresponding to the decision-making goal. According to the experts of particular fields (agricultural education organizations, government agri-food professionals, agri-food-related scholars, and smallholder farmers), the weight of indicators at each level was figured out for evaluating the priority of each indicator so as to work out the quantitative ranking of the importance of smallholder farmers’ diversification operation indicators in suburban Taiwan; based on that, the Eigenvector and λ_{max} were calculated. Then, the difference between the λ_{max} and n indicators is converted into a Consistence Index (CI) to determine that the indicators in the matrix are consistently proportional, thereby serving as a reference to whether to accept the pairwise comparison matrix. The following formula was used to test the consistency.

$$CI = (\lambda_{max} - n) / (n - 1) \tag{2}$$

In the typical AHP analysis, the criteria and sub-criteria in the AHP model are subject to pairwise comparison, and the pairwise comparison matrix is established according to the evaluation and judgment data, which is referred to as Positive Reciprocal Matrix, so as to build up the positive reciprocal matrix. The Consistency Index (CI) of the positive reciprocal matrix randomly generated is referred to the Random Index (RI), and the RI corresponding to the order is shown in Table 3. Through the above CI and RI, the C.R. of pairwise comparison matrix is obtained, that is, C.R. = CI/RI.

Table 3. Random index table of n-order positive reciprocal matrix.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RI	0.00	0.00	0.58	0.90	1.21	1.24	1.32	1.41	1.45	1.49	1.51	1.48	1.56	1.57	1.59

The CRH ratio is mainly obtained by dividing the CIH by RIH. Therefore, the CRH ratio is required to be smaller than 0.10 to ensure that respondents’ judgments are consistent and logical [41]. If this standard is not met, then, a revision and re-evaluation should be conducted to improve the CI ratio.

To sum up, the CRH here should be smaller than 0.10. The relative importance level of the criteria or sub-criteria is obtained by screening out the weight of all the decision-makers, so as to highlight the advantage of one criterion/sub-criterion over another.

3. Results

3.1. Experts’ AHP-Based Analysis of Diversified and Sustainable Business Indicators for Smallholder Farmers

As shown in Table 4, according to professionals from different walks of life, the “catering service” (0.256) is paid greatest attention to, followed by “experience activity” (0.235), and then by “aesthetic planning” (0.198), indicating that the overall professionals believe that the catering service plays the most important part in the diversified and sustainable business strategies for smallholder farmers in Taiwan’s suburbs.

Table 4. Experts' weight analysis table of diversified and sustainable operation indicators for the smallholder farmers.

Aspects	Indicators	Weight	Relative Weight	Ranking
Catering service 0.256	Local food materials	0.201	0.048	10
	Local flavor	0.171	0.048	9
	Fresh cuisine	0.253	0.065	5
	Food health and safety	0.375	0.095	1
Transportation service 0.110	Disclosure of transportation information	0.456	0.043	11
	Convenient public transport means	0.223	0.035	14
	Enough parking space	0.322	0.029	15
Aesthetic planning 0.198	Atmosphere of space	0.437	0.088	2
	Creation of the natural beauty of the environment	0.410	0.080	3
	Creation of the environmental artistic beauty	0.152	0.040	12
Experience activity 0.235	Taste agricultural products	0.278	0.051	7
	Farming, fishery, forestry, and animal husbandry production experience	0.244	0.065	4
	Industrial festival cultural experience	0.086	0.025	16
	Handmade art experience	0.121	0.022	18
	Folk festival experience	0.055	0.014	21
	Natural ecological experience	0.216	0.051	8
Commodity design 0.123	Goods with local features	0.481	0.063	6
	Fair commodity prices	0.193	0.019	19
	Sales of secondary processed agricultural products	0.327	0.038	13
Commodity sales 0.078	Convenient outlets for commodity	0.223	0.023	17
	Phone ordering channel	0.148	0.011	24
	Social media ordering channel	0.181	0.016	20
	APP platform order channel	0.132	0.011	23
	Ordering site convenience	0.186	0.011	22
	After-sale service of product	0.131	0.009	25

In observing the indicator weight of some aspects, it was found that, in the sub-criteria of catering service, the "food health and safety" (0.375) outweighed the other, followed by the "fresh cuisine" (0.253), and then by "local food materials" (0.201); in terms of transportation services, "disclosure of transportation information" (0.456) outweighed the other, followed by "enough parking space" (0.322), and then by "convenient public transport means" (0.223). As for aesthetic planning, the "atmosphere of space" (0.437), outweighed the other, followed by the "creation of the natural beauty of the environment" (0.410), and then by the "creation of the environmental artistic beauty" (0.152). With regard to experience activity, "taste agricultural products" outweighed the other (0.278), followed by "farming, fishery, forestry and animal husbandry production experience" (0.244), and then by "natural ecological experience" (0.216). When it comes to commodity design, "goods with local features" (0.481) outweighed the other, followed by "sales of secondary processed agricultural products", and then by "fair commodity prices" (0.193). In terms of commodity sales, "convenient outlets for commodity" outweighed the other (0.223), followed by "ordering site convenience" (0.186), and then by "social media ordering channel" (0.181).

In conclusion, it was widely believed among all the agri-tourism professionals that "food health and safety" (0.095) weighed most among all the other indicators, followed by the "atmosphere of space" (0.088).

3.2. Experts' Relative Weight Ranking Analysis of Diversified and Sustainable Operation Indicators for Smallholder Farmers

By summarizing the concepts of all the professionals and ranking the weight values of diversified and sustainable operation indicators for the smallholder farmers, it was found, as shown in Table 5, that experts from different walks of life pay attention to different

indicator aspects. However, most of them attached greater importance to the indicator “food health and safety”, followed by “atmosphere of space”, and then by the “creation of the natural beauty of the environment”. As observed from the indicator weights from the perspectives of experts, in terms of the government agri-food professionals, the “goods with local features” is the most important indicator, followed by the “food health and safety”, and then by the “atmosphere of space”; for agricultural education organizations, the “atmosphere of space” is the indicator topping the others, followed by the “creation of the natural beauty of the environment”, and then by the “fresh cuisine”. For agri-food-related scholars, “food health and safety” is the indicator of top priority, followed by “taste agricultural products”, and then by the “farming, fishery, forestry and animal husbandry production experience”; from the perspective of smallholder farmers, the “food health and safety” is the indicator of the greatest importance, followed by the “creation of the natural beauty of the environment”, and then by the “atmosphere of space”.

Table 5. Experts’ weight analysis of diversified and sustainable operation indicators for smallholder farmers.

Aspects	Indicators	Government Units	Agricultural Education Organizations	Agri-Food-Related Scholars	Smallholder Farmers	Overall
		Ranking				
Catering service	Local food materials	17	9	6	9	10
	Local flavor	6	10	8	11	9
	Fresh cuisine	5	3	15	4	5
	Food health and safety	2	4	1	1	1
Transportation service	Disclosure of transportation information	10	8	5	17	11
	Convenient public transport means	11	7	10	25	14
	Enough parking space	16	11	16	20	15
Aesthetic planning	Atmosphere of space	3	1	11	3	2
	Creation of the natural beauty of the environment	12	2	7	2	3
	Creation of the environmental artistic beauty	14	5	21	15	12
Experience activity	Taste agricultural products	4	14	2	10	7
	Farming, fishery, forestry, and animal husbandry production experience	7	6	3	5	4
	Industrial festival cultural experience	15	15	19	16	16
	Handmade art experience	18	19	14	14	18
	Folk festival experience	23	16	25	21	21
	Natural ecological experience	8	13	9	6	8
Commodity design	Goods with local features	1	12	4	8	6
	Fair commodity prices	13	18	20	19	19
	Sales of secondary processed agricultural products	9	17	13	7	13
Commodity sales	Convenient outlets for commodity	20	21	12	12	17
	Phone ordering channel	19	25	17	22	24
	Social media ordering channel	21	23	18	13	20
	APP platform order channel	25	24	24	18	23
	Ordering site convenience	24	20	23	23	22
	After-sale service of product	22	22	22	24	25

4. Discussion

4.1. Views of Government Agri-Food Professionals

Taking an overall look at the opinions of government agri-food professionals, we can see that the government is a key factor in the development of local smallholder farmers as it plays the role of formulating policies and organizing related activities, and promoting the integration of local featured agricultural products into the commodities. In view that the urban food system can be improved by developing smallholder farmers and that the suburbs can activate the supply efficiency of the food system, the local featured products are capable of promoting the sustainable development of characteristic agriculture of local smallholder farmers, so as to provide food system with rich and diverse local featured agricultural products. It is also necessary for the smallholder farmers to value the food health and safety to establish safe, highly efficient, and abundant urban food system. Besides, creating a good space atmosphere contributes to relieving the pressure in the lives of consumers who go to the farms for a break. The diversification operation of the smallholder farmers can not only vitalize the agricultural food system of our country, but also provide residents with comfortable and sustainable recreational fields.

4.2. Views of Agricultural Education Organizations

From the opinions of agricultural education organizations, coaching the smallholder farmers to improve the atmosphere of the space is a key factor in promoting the development of smallholder farmers. By creating the natural beauty of the environment, the farm can be endowed with a good and comfortable natural atmosphere, which can also improve the quality of diversification operation of the farm, drive the willingness of consumers to travel for leisure, and enjoy a good atmosphere in the farm. In addition, it also provides local fresh food to meet consumers' travel and food planning. It is also a diversified and sustainable way of operation recognized by agricultural education organizations.

4.3. Views of Agri-Food-Related Scholars

Most agri-food-related scholars value the development and inheritance of local agriculture. Smallholder farmers possess not only the local featured agricultural products, but also rich agricultural resources and industrial cultures. Therefore, food health and safety is one key factor emphasized and recognized by agri-food-related scholars for diversification operations. Additionally, through the activity designed for tasting agricultural products and experiencing farming, fishery, forestry, and animal husbandry production, consumers can experience farming culture and other related agricultural industry experience, through which the consumers can learn agricultural knowledge, strengthen their understanding of agriculture and food systems and carry forward local cultures. All above are ways of diversified and sustainable operation highlighted by the scholars.

4.4. Views of Smallholder Farmers

The smallholder farmers think that the sales of primary and secondary processed agricultural products are the main operation way of smallholder farmers. They can also create recreational fields to improve the competitiveness and productiveness of the farms. Smallholder farmers, as the supplier of the food system, take the provision of foods in line with the health and safety specifications as the principal purpose. Therefore, they must consolidate the food quality and safety to activate the food supply efficiency of suburbs and become the first choice for food purchase of consumers. Moreover, the top priority of creating sound farm fields is to create an environment of natural beauty and field space atmosphere so that consumers can buy healthy and safe agricultural foods in a comfortable and sustainable natural environment.

4.5. All Experts

Smallholder farmers are the supplier of foods. In view of this, a consensus that food health and safety is the principal indicator has been reached among experts. Providing good

agricultural products can vitalize the economy of the agricultural industry around the city, improve the overall competitiveness of smallholder farmers, and promote the sustainable development of the agricultural industry and food. Credited to regional advantages, it can also reduce the environmental pollution caused by transportation and logistics. By creating a good spatial atmosphere and natural beauty of the environment, smallholder farmers can make use of the advantages of the natural environment to create diversified economic income, which is also the main purpose of smallholder farmers' diversified and sustainable operation.

5. Conclusions

Smallholder farmers in Taiwan make the primary and secondary agricultural products commercially available and create farms as one of the leisure and recreation fields. Thus, diversified and sustainable operational ways must be developed to improve the competitiveness of smallholder farmers [33,40]. As such, smallholder farmers, who mainly sell agricultural products, should focus on food health and safety, so that the food systems around cities can provide safe, stable, and diverse, high-quality local agricultural products [32]. Besides, fresh food and local specialties must be sold to meet the catering needs of tourists heading for leisure and recreation. This result is consistent with Di-Clemente et al. [13] and Lin, Li, and Ji [32].

Furthermore, the smallholder farmers running leisure and recreation businesses can create sound and comfortable space atmosphere with the natural landscapes, which is also the main way to build ambience, so that the smallholder farmers' competitiveness can be grown with the development of tourism [34]. The recreational places built based on agriculture can attract most consumers due to the natural landscapes created, this result is consistent with Wu, Cheng, and Ai [24]. Many urban residents expecting to temporarily escape from urban life and get close to the natural scenery can go to the farms near the suburbs of cities and enjoy the natural and sustainable landscapes at close range [1], which can help consumers relieve their pressures of life and also provide a destination for parents and children to veg out.

The farms cannot only provide comfortable places but leisure activities designed for agricultural production experience based on the agriculture. Taiwan's farms have their own operating characteristics and natural ecology, providing consumers with diversified experience opportunities [18,35], by which the education on agriculture and natural environment can be expanded. Featured with agriculture and ecological education elements [1], the experience activities enable consumers to learn relevant knowledge and get in touch with sustainable and natural life during the experience; this result is consistent with Loureiro [12].

All in all, this study evaluated the diversified and sustainable business strategy of smallholder farmers in suburbs of Taiwan, and selected experts in various fields using the qualitative and quantitative AHP method. The results showed that the most important three aspects of diversified and sustainable business strategy are catering service and experience activities and aesthetic planning.

6. Limitations

The AHP method in the study for working out criteria/sub-criteria weights was used on the premise that the levels were independent from criteria/sub-criteria. However, in the actual use, the criteria/sub-criteria were often associated with each other, which perhaps resulted in the limitation of this research method. In this study, the criteria/sub-criteria were measured by experts and scholars from different walks of life. In view that agricultural education organizations and smallholder farmers accounted for the majority of experts, the opinions of experts from these two fields might prevail, which was the biggest restriction of this study. It is suggested that subsequent researchers can expand the sample to include the analysis of consumers.

7. Contribution and Management Implications

Based on the AHP method, 25 experts were investigated to build up and figure out the indicators and criteria/sub-criteria of diversified and sustainable strategies of smallholder farmers in Taiwan's suburbs. According to the results, catering services outweigh other indicators in terms of diversified and sustainable business strategies for smallholder farmers in Taiwan's suburbs, which is followed by the experience activities and then by aesthetic planning. Among them, "food health and safety" was ranked top by the all experts, followed by the "creation of atmosphere of space" and then by the "creation of the beauty of natural environment". All these are the greatest contribution of the study. The results of this study will serve as a reference for future government units, local school associations, and academic research institutions to guide smallholder farmers to enhance competitiveness and develop diversified and sustainable businesses. The local agricultural supply should contribute to improving the urban food system to make it less exposed to logistic pollution as well as protect the local agricultural assets. Moreover, the sustainable local featured agriculture can also encourage the smallholder farmers to participate in the overall competitive agricultural market.

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