



# New Rural Women's Power: Sustainable Rural Food Preparation Model Inheritance and Business Model <sup>†</sup>

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**Abstract:** Taiwan's rural areas are currently facing important food problems and the dilemma of human inheritance. Based on the United Nations' belief that rural women must be empowered; they are a key force in promoting agricultural and rural development, as well as food security and nutrition, by harming the environment and helping the poor. Food security and livelihoods and production activities that revitalize production and sustained economic growth have made important contributions to sustainable development. They are also important and active in the implementation of employment policies, social integration, regional and rural development, agriculture and environmental protection. Through the reflection and verification of basic theories and theories, this study conducts research on the value of structural rural food preparation and innovation. This research uses the in-depth focus group interview method and questionnaire survey method to focus on the women's home economics groups in the Taiwan Farmers Association to analyze the business model of food preparation and inheritance. The results of the study show that there are five dimensions in the business model of agricultural food preparation and inheritance of women's home economics groups. The contribution of this research is as follows: In response to the threat of the COVID-19 pandemic and changes in rural food in Taiwan, this research has constructed an indicator model of rural food preparation and innovation value. It can be used as an important reference for the inheritance and development of Taiwan's agriculture and food.

**Keywords:** sustainable rural development; rural food preparation; women's household economy organization; inheritance and innovation



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## 1. Introduction

In recent years, governments, entrepreneurs, experts and scholars in various countries have paid great attention to "local food" [1,2]. Food is regarded as a project that can be commercialized, to convey the sustainability, authenticity and cultural, geographic or rural characteristics of local ingredients [3–5]. Ferguson and Iturbide [6] pointed out in their research that the food of various cultures affects cultural adaptation. Globalization, urbanization, modernization, and immigration have shaped and changed the way modern people consume food.

Foreign immigrants will move with their food culture, and they will also recreate a new food culture due to the process of multiple migrations. Taiwan is a multicultural society, and ethnic groups must learn from the perspective of multiculturalism to

pay attention to cross-cultural behavior and the process of cultural construction and adjustment. People habitually connect with society through food in daily life. From a historical point of view, food will continue to reconstruct the relationship between society and culture through food exchange as civilization evolves [7]. Therefore, in order to develop local agricultural and food specialties and promote the charm of local industrial food culture, it is necessary to use local ingredients to make dishes, combine local cultural characteristics, and increase the culinary value of rural food [8]. Especially under the threat of the COVID-19 pandemic and the changing state of rural food in Taiwan.

With the advancement of the concept of gender equality, countries around the world are paying more and more attention to the importance of women in agriculture. Article 14 of the United Nations "Convention on the Elimination of All Forms of Discrimination Against Women" "Rural Women's Rights" states that rural women should share equal rights with men in terms of political rights, marriage and family, and employment, and recognize rural women have an important contribution to the family, economy and society.

In Taiwan's early traditional agricultural production, men were the main labor force, and women were mainly family management. However, due to the migration of the population and the shortage of young labor forces, the proportion of rural women engaged in agricultural production began to increase in recent years. According to the 2020 Taiwan Agricultural Employment Survey, the agricultural employment population is about 548,800, and women are about 142,000. The proportion of rural women is 26.0%. They are mainly engaged in field work on their own farms. In global agriculture, the expansion of agricultural product production is related to women. The increase in employment is related to the increase in female employment [9], and the importance of rural women's participation in agricultural production has become an important key trend [10–13].

The essence of rural food inheritance is based on connecting local food and cultural characteristics, prompting rural women to use traditional cooking techniques to integrate local ingredients, and then promote local traditional culture, so that local culture can be inherited. This inherited element can be produced and replicated as a result of the dynamic interaction between tradition and modernity [14]. However, the rapid development of modern society has caused the gradual separation and disintegration of the relationship between local culture and material life, and society. Particularly under the domination of commercialization and the tourism-oriented, the relationship between rural food itself and the local area is often invisible [15]. Therefore, as time goes by, traditional dishes may be lost or gradually forgotten. However, in the cultural assets of the countryside, we must make the status of food in the cultural assets continue to improve, so that the traditional food culture in the countryside can be exchanged in culture and play an important role in economic development.

The agricultural food market has been rapidly changing over the past few decades. This includes globalization, trade liberalization, population growth, urbanization, policy changes, changes in food consumption patterns and diets, technological changes, and environmental degradation. Global drivers have created diversified trends, such as: eating local ingredients, focusing on small-scale agriculture, food quality, and embedding social and ethical values in the food supply chain [16,17]. Diversified development can increase additional sources of income in rural areas to make up for the reduced income. Diversification means the development of additional non-agricultural activities on the farm, including the production and processing of high-quality food (for example: organic agriculture, local cuisine, etc.).

Agricultural food management has become a necessary condition to help rural communities that rely on agriculture to meet these new demands [18]. Innovative business models can not only increase productivity or sales, but also increase social capital, local food systems, and access opportunities in the international market, which in turn bring benefits beyond currency profitability [19]. Agricultural product innovation management needs to consider its participants and actors, because the interaction between multiple participants and actors can enhance the innovation capabilities of other participants [20,21]. Under the modern rural development model, regardless of the production of rural cuisine, high-quality food with local characteristics, or even commodities such as public spaces, rural areas must be transformed to match the process of commercialization of agricultural products [22].

The objectives of this research, based on the research background and rationale described above, were as follows:

1. To construct indicators based on the inheritance of rural women's sustainable food preparation skills and rural food operations.
2. To analyze the weighting of rural women's sustainable food material inheritance and rural food operations.

## 2. Materials and Methods

This research first adopted the content analysis method to analyze the concept of inheritance and management of sustainable cooking skills for rural women in previous literature. Then, five dimensions of Analytic Hierarchy Process (AHP) questionnaire indicators were designed and expert AHP measurement was conducted. The indicators in the questionnaire (level and interlevel indicators) are independent of each other, and the direction of influence is based on the assumptions from the upper level to the lower level, design of the framework and use of AHP to judge the weight of each indicator.

After reviewing the relevant literature on rural food and business management [11,14,22–27] and the opinions of expert meetings, the deduced research aspects of this study were derived: (1) innovation competition, (2) market operation, (3) education and training, (4) festival activity, and (5) promotion and development. These five aspects were used as the research framework for the AHP.

The objects of the study were 31 professionals in the field of rural food. Before filling out the questionnaire, various explanations on the inheritance and management indicators of rural women's use of sustainable food cooking skills were first explained to the interviewees to avoid confusion. The interviewees' understanding and relationship with each indicator was effectively established. The AHP method questionnaire uses 1 to 9 as the evaluation scale and uses pairwise comparison to answer the questions.

After reviewing the questionnaires that were missed and not answered as scheduled, the consistency statistical test was performed immediately. All the valid questionnaires met the standard of C.R. value less than 0.10 [28]. After that, the questionnaires were effectively collected, according to the AHP criteria [28], and the Expert Choice statistical software was used to calculate the weights of each indicator, and the individual and overall weights were analyzed according to their professional attributes to evaluate the indicators.

## 3. Results

The procedure of the AHP method is divided into eight steps [29].

1. Decision-making issues are identified, and evaluation indicators are listed.
2. The hierarchical structure is constructed.
3. Pairwise comparisons are performed for evaluation and judgement.
4. The matrix at each hierarchy is developed according to step 3 to construct all judgement matrices.

This study targeted sub-hierarchies of all hierarchies to perform pairwise comparisons to obtain all judgement matrices. Judgement matrices of all hierarchies are constructed according to the following Formula (1):

$$[A_k] = [a_{ij}] = \begin{bmatrix} 1 & a_{12} & \cdots & a_{1n} \\ 1/a_{12} & 1 & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ 1/a_{1n} & 1/a_{2n} & \cdots & 1 \end{bmatrix}, k = 1, 2, \cdots, n, \quad (1)$$

where,  $A_k$  is the judgement matrix at each hierarchy;

$i$  is the hierarchical code;

$j$  is the index code;

$k$  is the expert code; and

$a$  is the matrix of each hierarchy.

5. Pairwise comparison matrices are constructed, priority vectors are calculated, and consistency is examined.

The consistency is examined using the following Formula (2):

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

The consistency index of the randomly produced positive reciprocal matrix is the random index (RI). Using the above CI and RI, the consistency ratio of the pairwise comparison matrix is obtained, C.R. = CI/RI.

6. All hierarchies are subject to steps 3–5 and connected according to each hierarchy.
7. The total priority weight of the overall hierarchy is calculated.
8. The consistency of the overall hierarchy is evaluated.

The consistent ratio of the overall hierarchy is mainly the consistency index of the hierarchy (CIH) divided by the random index of the hierarchy (RIH). Therefore, the consistency ratio of the overall hierarchy should be smaller than 0.10. If this standard is not met, evaluation should be amended again to improve the consistency ratio. In summary, the overall consistency ratio of hierarchy (CRH) was smaller than 0.10.

This research integrates the concepts of various agricultural and food professionals and conducts AHP analysis on the indicators of this research, as shown in Table 1.

**Table 1.** Analysis of the overall professionals' weighting of the inheritance and management indicators of rural women's sustainable food cooking skills.

Aspect	Item	Weight	Relative Weight	Ranking
Innovation competition 0.139	Participate in innovative cooking competitions using local ingredients	0.167	0.027	19
	Transform cuisines based on local ingredients from cooking competitions into recipes for inheritance	0.284	0.036	17
	Cook ingredients using traditional cooking techniques	0.338	0.049	7
	Observe and shadow the cooking competitions incorporating local ingredients	0.211	0.027	20
Market operations 0.113	Able to make local ingredients into gourmet food for sale	0.337	0.038	12
	Able to process local ingredients into souvenirs	0.278	0.037	15
	Able to customize local ingredients in response to market demand	0.234	0.024	22
	Able to produce delicacies from local ingredients preferred by customers	0.152	0.015	23

Table 1. Cont.

Aspect	Item	Weight	Relative Weight	Ranking
Trainings 0.328	Participate in training in the use of local ingredients organized by the Farmers' Association	0.328	0.112	1
	Participate in the local gastronomy and cooking courses conducted by vocational training units	0.194	0.064	4
	Learn the cooking techniques of local ingredients from elders	0.225	0.066	3
	Refer to the media to use local ingredients to learn and refine culinary skills	0.110	0.036	16
	Learn the innovative cooking techniques of well-known chefs using local ingredients	0.143	0.050	6
Festival activities 0.152	Local ingredients are used for cooking during religious festivals	0.190	0.033	18
	Local ingredients are used for cooking at family dinners	0.401	0.057	5
	Local ingredients are used for cooking when friends visit for dinner	0.281	0.037	14
	Local ingredients are used for cooking when worshipping ancestors	0.128	0.025	21
Promotions 0.269	Pass on cuisines based on local ingredients to the next generation	0.274	0.068	2
	Pass on cuisines based on local ingredients to young people (school students)	0.159	0.038	13
	Introduce cuisines based on local ingredients to family and friends	0.165	0.044	8
	Print cuisines based on local ingredients in books	0.155	0.041	9
	Compile cuisines based on local ingredients into audio-visual teaching materials	0.131	0.039	11
	Cross-county, -city, and -regional exchange of cuisines based on local ingredients	0.115	0.039	10

#### 4. Discussion

In terms of overall expert opinions, the cultural inheritance and innovation of rural women's use of local ingredients must integrate multiple different aspects, including: (1) innovation competition, (2) market operation, (3) education and training, (4) festival activity, and (5) promotion and development. Agricultural experts all have their own indicators of importance. For example, experts in industry focus on education, training and promotion and development, while government departments and academia both focus on education and training.

Therefore, this study provides a clearer development and implementation direction for women farmers when inheriting their sustainable food cooking skills and business models, so that Taiwan's agricultural industry can clearly understand the importance of cultural inheritance and management in the future. Indicators, and the government's agricultural department, can provide courses and policies that meet the needs of the agricultural food market and industry, and academia can also formulate suitable guidance strategies and directions for rural women in preparing food.

It can help the rural areas to develop to be more diversified and meet the needs of local food characteristics, so that local ingredients can be used more innovatively, so that the local traditional food culture can be inherited, and it can also be solved through the management of real estate and local sales. The predicament faced by the rural areas is to establish incentives to attract foreign tourists to enhance the overall development of the rural areas [11,30].

## 5. Conclusions

The results of this study show that education and training is the primary indicator, promotion and development is the second most important indicator, and festivals are the third most important indicator. Therefore, the inheritance of sustainable cooking skills in rural areas requires not only education and training, but also promotion. The way of development and the use of local ingredients in festival activities show that the inheritance must be integrated in education, promotion, and activities. The three aspects are complementary to each other to produce synergy.

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