



# Research on the Path to Brand-Building of Characteristic Agricultural Products An Empirical Analysis Based on Southwest China

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**Abstract.** The brands associated with characteristic agricultural products reflect the quality, advantages, and culture of regional products; these brands affirm the regional characteristics and advantages of specific agricultural products. Exploring the path to building the brands of characteristic agricultural products helps provide a reference for transforming the advantages of existing resources into competitive advantages for the southwest region. This can further enhance the level of brand development of characteristic agricultural products. This study investigated the factors influencing characteristic agricultural product brands, constructed a theoretical model for brand building for characteristic agricultural products, and conducted an empirical study on the mechanism forming of the brands of characteristic agricultural products in southwestern China using a structural equation model (SEM). The empirical results show that in descending order of importance, the factors influencing the regional brand reputation are: geographical resource endowment, management, regional culture, and government support. The geographical resource endowment and regional culture factors influence regional brand reputation through management. The intermediary effect of management is significant in the corresponding path, and serves as the core driving force to advance the reputation of the regional brand. The intermediary effect of government support is not significant in the corresponding path.

**Keywords:** Brand building · Characteristic agricultural products · Regional brands of agricultural products · Reputation of regional brands

## 1 Introduction

By 2019, Document No. 1 of the CPC Central Committee had focused on “agriculture, rural areas and farmers” for 16 consecutive years. In the context of a new era of development, a new development direction has been proposed to develop characteristic rural industries and agricultural product brands. Brand building for characteristic agricultural

products is a driving force for agricultural industry development, and is an important way to realize the sustainable agriculture development. Building brands for characteristic agricultural products supports improvements in agricultural efficiency, farmer income, and rural development. All of these are of great significance to the development of the agricultural economy in southwest China.

Researchers have investigated the influencing factors associated with the brand building of agricultural products from the perspectives of competitiveness, building strategy, and the value chain. Some researchers have focused on the brand competitiveness of agricultural products. Using geographic indicators and collective trademarks supports the standardization of regional brands, and the comprehensive use of marketing strategy supports improvements in regional brand competitiveness [1]. Six factors influence evaluations of brand competitiveness with respect to agricultural products: resource-based capacity, industrial development capacity, organization and management ability, brand innovation ability, marketing ability, and brand equity ability [2]. Brand resources, brand foundation, brand support, and brand development are several important factors influencing the regional brand competitiveness of agricultural products [3]. Some scholars have highlighted research about brand building strategies related to agricultural products. As an example, brand building strategies related to agricultural products can be specific to tea industry. The product and brand personality promote the brand building of the tea; the brand culture improves the brand reputation; and the level of management plays an important role in advancing the brand building of tea [4]. Relevant factors include the brand strategy concept for the agricultural product brand, the innovative brand marketing strategy on the Internet, the material basis of industrial thinking for the agricultural product brand, and government functions. All of these factors support improvements in the core competitiveness of agricultural products, and promoting the strategic management of agricultural brands [5]. Other scholars have researched the brand building of agricultural products from a value chain perspective. Internal brand building and external communication create a joint brand building framework of characteristic agricultural products. Establishing the brand value chain for characteristic agricultural products helps build a platform for stakeholders inside and outside the enterprise. This provides consumers with a unique psychologically-based added value through interaction, enhancing the long-term core competitiveness of characteristic agricultural enterprises, and promoting sustainable development [6]. From the perspective of the industrial value chain, the three aspects of brand value components, brand value innovation, and advertising, serve as a point of action. This strengthens the brand image building of agricultural products and the exploration and analysis of a brand building strategy for agricultural products [7].

In summary, researchers have conducted wide and fruitful investigations on the brand building of agricultural products, with a range of research results. Previous studies on the brand building of agricultural products have laid a foundation for this study, providing a basis for measuring the effect of relevant factors on the formation of regional brand reputations in China. Few studies have addressed characteristic agricultural products in southwest China, and the relevant existing studies are mostly qualitative, with fewer empirical studies focusing on brand building paths. Based on this, this study focused on the characteristic agricultural products in Southwest China, establishing a structural

equation model (SEM) to conduct an empirical analyses of the region's or products' brand building path to apply the research results to practice. This also provides a useful reference for the development of characteristic agriculture in China.

The structure of the remaining part of this article is as follows: The second part is a literature review and research hypothesis. It mainly elaborates five latent variables such as geographic resource endowment, regional culture, government support advantages, management advantages and regional brand reputation to provide the basis for the theoretical model; the third part is the research design, which mainly introduces the sample source and data collection, as well as the measurement of variables; the fourth part conducts empirical analysis of the article, first conducts the reliability and validity test, and then analyzes and discusses the empirical results; The fifth part is the conclusion and enlightenment, summarizes the results of the previous research, and puts forward corresponding countermeasures and suggestions on this basis.

## 2 Literature Review and Research Hypotheses

### 2.1 Geographical Resource Endowment, Regional Culture, and Regional Brand Reputation

Producing agricultural products is characterized by regionalism and resource dependence. Product quality is closely related to a region's environment and resources. The close relationship between the products and regions, unique geographical features, competitive resource advantages, and the origin effect form a connection with the humanities. The regional brand of agricultural products formed based on this is regionally specific with distinctive geographical characteristics [8, 9]. Under different geographical environments and natural conditions, a cultural characteristic is formed with a significant geographical location correlation. This is known as regional culture [10]. Due to the different geographical environments in different regions, the resulting regional culture also has its own characteristics and is relatively independent. Thus, geographical resource endowment can advance the formation of regional culture. Based on this, this study proposed the following hypothesis:

H1: Geographical resource endowment has a positive influence on regional culture.

Regional factors influence the regional brand of characteristic agricultural products; this involves the factors of regional natural resources and regional culture. The production of agricultural products depends highly on the condition of the regional natural geography resources [11]. Agricultural development is the outcome of the integrated development of nature and economy. This is because biological resources and natural resources form the foundations of a region, and natural resource endowments can strengthen the regional characteristics of agricultural product brands [12]. The development and expansion of many agricultural product brands with geographical indicators are closely related to the endowed factors in a region, including the superior ecological environment, abundant natural resources, and sound humanistic conditions. The "geographical" conditions of locations play a positive role in advancing characteristic agricultural products. Specifically, geographical resource endowment advances the quality of characteristic agricultural products, and enhances brand reputation and attraction [13]. Based on this, the study proposed the following hypothesis:

H2: Geographical resource endowment advances the formation of regional brand reputation.

One of the main factors influencing the local characteristic development of regional agricultural product brands is the humanistic environment in a region [14]. A region's agricultural product brand and the regional culture are inseparable. As such, developing regional agricultural product brands should be based on the region's characteristic culture. To better advance brand development, the local government and regional media should attach importance to expanding the influence of a characteristic culture in a region. This should strengthen people's understanding and good feelings about the regional culture. This in turn builds the brands of agricultural products [15]. The inheritance and accumulation of regional culture and history is the basis for the regional brand formation of agricultural products. This deepens the connotation of the regional brand, shapes the unique brand culture, strengthens the regional brand image of agricultural products, and advances the popularity and reputation of agricultural products. On this basis, the following hypothesis is proposed:

H3: The regional culture promotes the formation of regional brand reputation.

## 2.2 Geographical Resources, Regional Culture, and Government Support

Geographical resources are an important material basis for the government to support regional agriculture. Resource endowment affects the development of family farms and serves as an important factor influencing government intervention and support strategies [16]. The brands of local characteristic agricultural products are formed by relying on natural resources, with the subsequent comprehensive application of social resources, such as government support, labor force, capital, and technical progress [17]. While cultivating and developing industries in regions with abundant resources, the central government should consciously guide the process by implementing targeted financial subsidy policies and other mechanisms [18]. Conducting in-depth investigations on local geographical factors, resource factors, industrial basis, and other factors is important for planning support. Determining the advantages and disadvantages of geographical locations helps maximize the advantages of local resources and strengthens the support and cultivation of key industrial clusters by relying on the advantages associated with local industries [19]. Government support is based on natural resources, which in turn influence the implementation of government policies. That is, the more abundant the resources are, the more the government should strengthen policy guidance and support. Based on this, the study proposed the following hypothesis:

H4: Geographical resource endowment positively influences the advantages of government support.

Regional culture supports the distinctive differential positioning of regional brands of characteristic agricultural products. A more prosperous cultural industry indicates better economic benefits, attracting larger investments. The development of cultural industry is an important factor attracting investment, and its stable development mainly benefits from government support [20]. Regional culture positively impacts regional development, affecting government policymaking and the provision of public services. This provides "rooted soil" for the development of cluster brands. Culture is a spiritual force that can stimulate the internal cohesion of cluster enterprises, realizing a better division

of labor and coordination between upstream and downstream enterprises, promoting the development mode of enterprise brands [21]. Based on this, the study proposed the following hypothesis:

H5: Regional culture positively influences the advantages of government support.

### 2.3 Government Support and Regional Brand Reputation

Motivating regional brand development mainly comes from resource factors and system-related factors. The key to developing regional brands lies in attention and strong support from regional administrative leaders [22, 23]. Developing regional brands is the result of joint efforts made by many stakeholders. Government management and coordination are essential for the joint efforts that support regional objectives, convey consensus information, and form regional identification in a bid to restrain opportunistic behaviors of enterprises and stakeholders [24]. The government is the main body leading the development of regional agricultural product brands. As such, the government should strengthen its macro-control, and optimize regional planning of famous agricultural products. In the process of integrating unique agricultural product into regional brands, regional brands can influence the government's behavior. The government's behavior can gradually strengthen regional brand development. Government behavior leads to different new brand values for regional brand development at different stages. The increased brand value benefiting from the government behavior will gradually accumulate with brand development [25]. Local governments advance the formation and development of regional brands by formulating brand strategy, policy guidance, and normative constraint [26]. Based on this, the study proposed the following hypothesis:

H6: The advantage of government support promotes the formation of regional brand reputation.

### 2.4 Geographical Resource, Regional Culture, and Business Management

Geographical resource endowment is a necessary condition and material basis for the formation of agricultural industry clusters. These directly impact the formation and development of agricultural industrial clusters. Effective management is an essential part of characteristic agriculture, relying on abundant natural resources. Characteristic agriculture is a large chain involving the natural environment, infrastructure, raw material, marketing, logistics distribution, and business management. Conducting unified management and scientific planning can effectively avoid disordered production. Therefore, the scientific planning and distribution of characteristic agriculture in regions where ethnic groups have a small population should be strengthened, and the development of characteristic agriculture should be under the unified management of the regional agricultural sector [27]. A scientific management mode plays a crucial role in building agricultural product brands in regions with relatively abundant resources. Based on this, the study proposed the following hypothesis:

H7: Geographical resource endowment positively influences the advantages of business management.

Regional brands often have profound regional culture connections, and this culture may be strongly independent. In many ways, this means that the regional branding

strategy is based on the individuals’ and organizations’ cultural cognition of regional branding [28]. Integrating natural resources and regional culture, and conducting intensive joint management of regional agricultural product brands can support the formation of effective mechanisms for managing agricultural regional brands. In addition, they lay foundations for gathering and optimizing high-quality regional agricultural resources, and advance regional agricultural product brands to gradually develop into a better system design, with higher a popularity and reputation [29]. Based on this, the study proposed the following hypothesis:

H8: Regional culture positively influences the advantages of business management.

### 2.5 Management and Reputation of Regional Brands

Innovating the operating mechanism and expanding leading enterprises can help advance the development of characteristic agriculture in the ethnic areas of southeast Chongqing [30]. Enterprises can optimize the allocation of regional resources in the process of building regional brands, and can play an important role in enhancing the regional competitive advantages and advancing improvements in regional brand performance [31]. Moreover, one side cannot complete the building and management of agricultural product brands; it must be a systematic project. Building a coordinated “four-in-one” management mechanism, with clear responsibilities among the main bodies of regional agricultural product brands, supports the formation of an overall joint force to promote regional brand development [32]. Based on this, the study proposed the following hypothesis:

H9: The advantage of business management advances the formation of regional brand reputation.

Based on the hypotheses above, Fig. 1 presents the theoretical model studied in this paper:

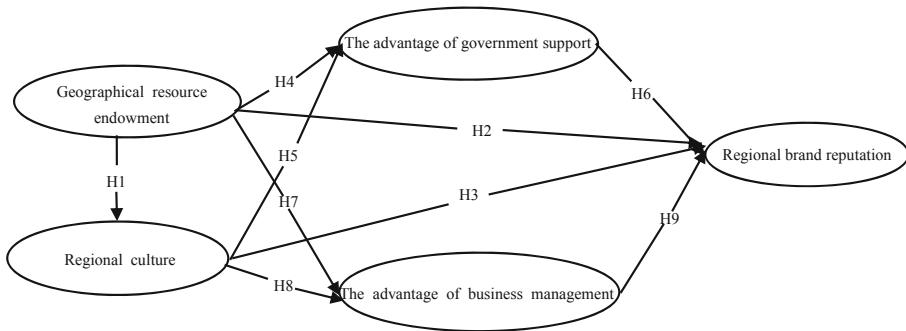


Fig. 1. A theoretical model for the brand building of characteristic agricultural products

## 3 Study Design

### 3.1 Sample Source and Data Collection

The subjects for this study were from southwest China, including Yunnan, Guangxi, Guizhou, Sichuan, and Chongqing. The characteristic agricultural products in southwest

China were selected as the research object; the specific investigation subjects included staff from the government, agricultural enterprises, agricultural industry associations, and other departments and units, farmers and consumers. This fully represented the relevant personnel using and managing characteristic agricultural products in the region. A total of 354 questionnaires were collected in this investigation; 270 questionnaires were considered valid through screening and verification, reflecting a recovery efficiency of 76.3%.

### 3.2 Variable Measurement

To ensure the reliability and validity of the measurement scales, related studies by foreign researchers were used for reference. In the specific operational process, the scales were translated from the foreign language and then back-translated by professionals, and then their Chinese versions were provided to guarantee the reliability and validity of the scales. The complete questionnaire for this study consisted of two parts. These parts included variable and item designs, as well as 5 identification items and necessary text descriptions. The questionnaire involved 5 constructs: geographical resource endowment, regional culture, government support advantages, business management advantages, and regional brand reputation. A 7-level Likert scale was adopted for the item design. The numbers from 1 to 7 indicated an increase of the degree of agreement, with “1” denoting “strongly disagree,” and “7” denoting “strongly agree.”

**Geographical Resource Endowment.** A study by Zhou Xinde, Li Deli, and Song Liying was used as a reference for this scale. The measurement scale had 5 items developed by Yu Yan et al. [33], including items such as “the local climate, soil, water and soil, geography and other conditions for the growth of the agricultural products are advantageous” and “clusters help optimize variety structures and develop the varieties of high value-added products.” The Cronbach’s  $\alpha$  coefficient for the internal consistency of the variables was 0.893.

**Regional Culture.** This measurement scale included 4 items developed by Yu Yan et al. [33] The scale included items such as “unique cultural customs, lifestyles, and national culture have been formed in the cultivation, processing, and consumption of agricultural products in the region” and “the government has developed a series of traditional and characteristic cultural activities focused on the local agricultural product culture to enhance the reputation.” The Cronbach’s  $\alpha$  coefficient for the internal consistency of variables was 0.897.

**The Advantage of Government Support.** This study adopted the measurement scale developed by Zhang Chuantong. [29] The scale included 15 test items from three dimensions: policy support service, development design, and regional marketing. Items included the items “actively improving the layout and planning of agricultural industry,” “implementing a famous-brand strategy and making a development plan for regional brands of agricultural products,” and “actively promoting evaluation, publicity and recommendation of regional brands of agricultural products.” The Cronbach’s  $\alpha$  coefficient for the internal consistency of the variables was 0.925.

**The Advantage of Business Management.** The measurement scale developed by Zhang Chuantong [29] was adopted, including 16 test items from four dimensions: brand licensing, oversight standard, service guidance, and marketing promotion. These includes items such as “actively promoting management certification, quality certification, product certification, etc.,” “establishing a relatively perfect brand application authorization system,” “actively providing services such as technical rights protection, packaging anti-counterfeiting, logo management, etc.,” and “actively carrying out the application for regional famous brand and well-known brand certification of agricultural products.” Cronbach’s  $\alpha$  coefficient for the internal consistency of the variables was 0.937.

**The Regional Brand Reputation.** Regional brand formation was denoted by a variable index for regional brand reputation [21]. The measurement scale revised by Chhaudhuri [34] was adopted, including 5 items, including “this brand is influential” and “this brand has a good reputation.” Cronbach’s  $\alpha$  coefficient for the internal consistency of the variables was 0.936.

## 4 Empirical Analysis

### 4.1 Reliability and Validity Test

The software package SPSS22.0 was used to assess the relationship between the variables reflected in questionnaire data. A reliability test on the questionnaires was conducted using the coefficient method; Table 1 shows the test results. The KMO and Bartlett spherical test value was 0.929; this shows that the correlation between variables was good, and the data were suitable for factor analysis [35]. The Cronbach’s  $\alpha$  coefficient for the overall questionnaires was 0.941, indicating the variables had high reliability. The values for the average variance extracted (AVE) of each variable all exceeded 0.5, indicating the measurement model had good convergence validity. The square root of AVE of each variable was consistently greater than the correlation coefficient between this variable and the other variables. This indicated there were significant differences between different potential variables. The measurement variables in this study had better discriminant validity (as shown in Table 2).

**Table 1.** KMO and Bartlett spherical test.

KMO		0.929
Bartlett sphericity test	Chi-square	3763.034
	Degree of freedom	210
	Significance	0.000

**Table 2.** Correlation coefficient of each variable and AVE square root.

	AVE	Geographical resource endowment	Regional culture	The advantage of government support	The advantage of business management	Regional brand reputation
Geographical resource endowment	0.632	0.795				
Regional culture	0.686	0.513**	0.828			
The advantage of government support	0.740	0.498**	0.561**	0.860		
The advantage of business management	0.792	0.509**	0.554**	0.665**	0.890	
Regional brand reputation	0.745	0.556**	0.544**	0.546**	0.638**	0.863

Note: The diagonal line denotes the square root of AVE; and \*\* denotes that the correlation is significant at 0.01 (bilateral test)

## 4.2 Analysis and Discussion on Empirical Results

### Structural Model Test

In this study, the software package SPSS 22.0 and the software package Mplus 7.4 were used to conduct the statistical analysis. When the sample size is relatively small, but there are too many measurement items, the original items cannot be used for modelling. Therefore, before using software Mplus 7.4 for analysis, the measurement items were packaged using the balance method to avoid larger parameter estimation bias [36]. After processing, the advantage of government support included three items, and the variable for the advantage of operation and management included four items. In combination with the conceptual framework and research hypothesis proposed above, software Mplus 7.4 was used to conduct a model fitting test on the brand building path of characteristic agricultural products in southwest China. Figure 2 shows the resulting structural equation model.

Table 3 shows the test results of structural equation model M. The corresponding model adaptation indices are as follows: the value for  $\chi^2/df$  is 2.29; RMSEA = 0.069; SRMR = 0.053; CFI = 0.937; and TLI = 0.926. Each index shows a good model fit. The results in Table 3 show that model M effectively explains the data. This can be used to research the brand building path associated with characteristic agricultural products in southwest China inhabited by ethnic groups.

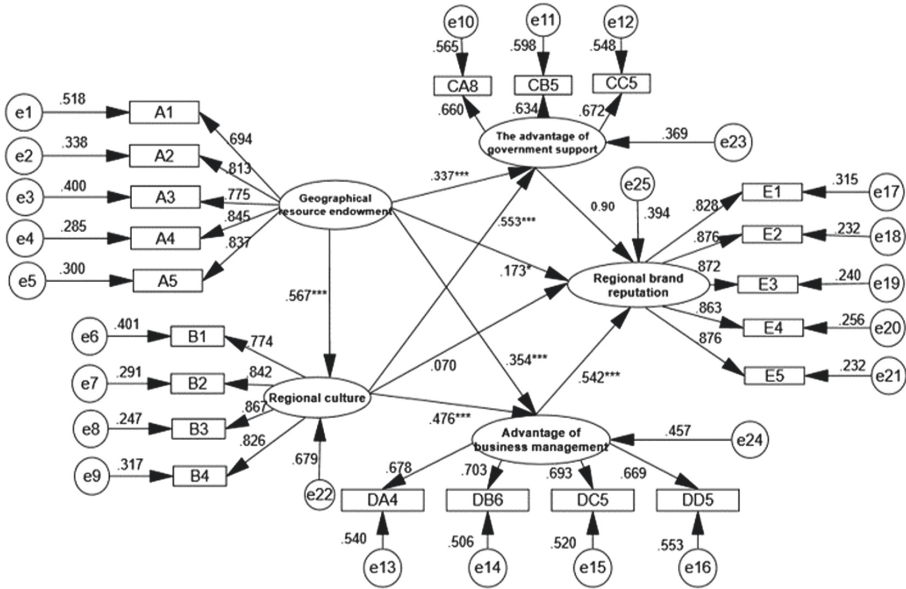


Fig. 2. Standardized structural equation model M.

Table 3. Test results of standardized structural equation model M.

Fitting coefficient	$\chi^2$	df	$\chi^2/df$	TLI	SRMR	CFI	RMSEA
Statistic	411.889	180	2.29	0.926	0.053	0.937	0.069
Preliminary fit criteria	n/a	n/a	0–5	>0.90	<0.08	>0.90	<0.08

Table 4 shows the test results from the standardized structural equation model M. The p-value for the relationship between regional culture and regional brand reputation is 0.440 (p-value of > 0.05), leading to the rejection of H3. The p-value for the relationship between the advantage of government support and regional brand reputation is 0.469 (p-value of > 0.05), leading to the rejection of H6. Hypothesis H1 was supported, with a  $\beta$ -value between geographical resource endowment and regional culture of  $\beta = 0.567$ , and a p-value of < 0.001. Hypothesis H2 was also supported; the  $\beta$ -value for the relationship between geographical resource endowment and regional brand reputation was  $\beta = 0.173$ , with a p-value of < 0.05. Hypothesis H4 was supported with a  $\beta$ -value for the relationship between geographical resource endowment and the advantage of government support of  $\beta = 0.354$ , and a p-value of < 0.001. Hypothesis H5 was also supported, with a  $\beta$ -value for the relationship between regional culture and government support of  $\beta = 0.337$ , and a p-value of < 0.001. Hypothesis H7 was also supported, with a  $\beta$ -value for the relationship between geographical resource endowment and the advantage of business management of  $\beta = 0.476$ , with a p-value of < 0.001. Hypothesis H8 was also supported, with

the  $\beta$ -value for the relationship between regional culture and the advantage of business management of  $\beta = 0.553$ , and a p-value of  $< 0.001$ . Finally, H9 was supported, with a  $\beta$ -value for the relationship between the advantage of business management and regional brand reputation of  $\beta = 0.542$ , and a p-value of  $< 0.001$ . Therefore, H1, H2, H4, H5, H7, H8, and H9 were supported and H3 and H6 were not.

**Table 4.** Estimate and test results on the path of Model M.

Path	Estimate	S.E.	C.R.	P
Geographical resource endowment → Regional culture	0.567	0.048	11.736	***
Geographical resource endowment → Regional brand reputation	0.173	0.074	2.360	*
Regional culture → Regional brand reputation	0.070	0.091	0.773	0.440
Geographical resource endowment → The advantage of government support	0.337	0.075	4.506	***
Regional culture → The advantage of government support	0.553	0.071	7.761	***
The advantage of government support → Regional brand reputation	0.090	0.124	0.724	0.469
Geographical resource endowment → The advantage of business management	0.354	0.071	4.978	***
Regional culture → The advantage of business management	0.476	0.069	6.926	***
The advantage of business management → Regional brand reputation	0.542	0.094	5.762	***

Note: \* denotes  $p < 0.05$ ; \*\* denotes  $p < 0.01$ ; and \*\*\* denotes  $p < 0.001$

**Effect Analysis**

Geographical resource endowment and regional culture affected regional brand reputation through government support and business management. Business management and government support directly affected regional brand reputation. Table 5 shows the values associated with the effect of each potential variable on regional brand reputation. The total values of the effects of geographical resource and regional culture on regional brand reputation were 0.610 and 0.467, respectively. Business management and government support directly affected regional brand reputation, with total effect values of 0.090 and 0.542, respectively. As such, the four factors affecting regional brand reputation, in increasing order of influence, were geographical resource endowment, business management, regional culture, and government support.

The model’s path analysis results shows that geographical resource endowment and regional culture enhanced regional brand reputation through the advantage of government support and the advantage of business management, respectively. To further verify the intermediary effect of government support and business management, the Bootstrap

**Table 5.** Direct effects of each potential variable on regional brand reputation.

Path	Direct effect	Indirect effect	Total effect
Geographical resource endowment - Regional brand reputation	0.173	0.436	0.610
Regional culture- Regional brand reputation	0.034	0.433	0.467
The advantage of business management - Regional brand reputation	0.542	–	0.542
The advantage of government support - Regional brand reputation	0.090	–	0.090

program within the software package Mplus7.4 was used to test the statistical significance of the intermediary effects. Given the sample count of  $N = 270$ , the confidence interval was set at 95%. There were 5,000 samples used to conduct the Bootstrap operation; Table 6 shows the results. The confidence interval for the paths including government support contained 0. This indicated that the intermediary effect of government support did not significantly impact the corresponding path. The confidence interval for the paths including the advantage of business management did not contain 0. This indicated that the intermediary effect of business management significantly impacted the corresponding path. Further, the value for the geographical resource endowment-the advantage of business management-regional brand reputation effect path was 0.192 (p-value of  $< 0.01$ ). The value for the geographical resource endowment-regional culture-the advantage of business management-regional brand reputation effect path was 0.146 (p-value of  $< 0.01$ ). The value for the regional culture-the advantage of business management-regional brand reputation effect path was 0.376 (p-value of  $< 0.001$ ). These three paths indicate that the advantage of business management had a significant intermediary effect. Turning to effect paths involving government support, the value of the geographical resource endowment-the advantage of government support-regional brand reputation effect path was 0.030, with a p-value of 0.685 (exceeding a p-value of 0.05). The value of the geographical resource endowment-regional culture-the advantage of government support-regional brand reputation effect path was 0.028, with a p-value of 0.723 (also exceeding a p-value of 0.05). Finally, the value of the regional culture-the advantage of government support-regional brand reputation effect path was 0.057, with p-value of 0.717 (also exceeding a p-value of 0.05). The three paths above indicate that the advantage of government support did not have a significant intermediary effect.

### Analysis of Results

Table 7 shows the results of the testing against the original hypotheses with respect to the brand building conceptual model for characteristic agricultural products. Of the nine hypotheses proposed in the previous section, all hypotheses passed the test except H3 and H6 ( $p < 0.05$ ). H3 did not pass the test, indicating that regional culture had no significantly direct effect on regional brand reputation. To increase the role of regional culture on regional brand reputation, agricultural enterprises should conduct better business management. Together with government support, the two can be more closely combined,

**Table 6.** Bootstrap test effects on intermediary effect.

Indirect effect path	Standardized effect		Proportion of the total effect (%)	95% confidence interval	
	Indirect effect	Total effect		Upper limit	Lower limit
Geographical resource endowment-the advantage of business management-regional brand reputation	0.192		44.04	0.052	0.334
Geographical resource endowment-the advantage of government support-regional brand reputation	0.030		6.88	-0.205	0.152
Geographical resource endowment-regional culture-regional brand reputation	0.040	0.436	9.17	-0.307	0.193
Geographical resource endowment-regional culture-the advantage of business management-regional brand reputation	0.146		33.49	0.048	0.254
Geographical resource endowment-regional culture-the advantage of government support-regional brand reputation	0.028		6.42	-0.163	0.149
Regional culture-the advantage of business management-regional brand reputation	0.376		86.84	0.132	0.540
Regional culture-the advantage of government support-regional brand reputation	0.057	0.433	13.16	-0.341	0.288

rooting regional culture in regional agricultural products and maximizing the inner value of regional culture. Hypothesis H6 also did not pass the test, indicating that government

support had no significantly direct effect on the formation of regional agricultural product brands. This shows that government support had no significant intermediary effect. The government provides strong support for regional brands; however, the influence and reputation of regional brands experienced little improvement. This is mainly because market mechanisms are the fundamental driver for the formation and development of regional brands. In the process of formulating and implementing policies supporting regional brands, the government had a relatively weak awareness related to advancing regional brand development through market mechanisms. As a result, government support did not significantly affect regional brand reputation.

**Table 7.** Summary of empirical results on regional brand reputation.

Hypothesis	Content	Result
H1	Geographical resource endowment had a positive influence on regional culture	Pass
H2	Geographical resource endowment promoted the formation of regional brand reputation	Pass
H3	Regional culture promoted the formation of regional brand reputation	Unsupported
H4	Geographical resource endowment positively influenced the advantages of government support	Pass
H5	Regional culture positively influenced the advantages of government support	Pass
H6	The advantage of government support advanced the formation of regional brand reputation	Unsupported
H7	Geographical resource endowment positively influenced the advantages of business management	Pass
H8	Regional culture positively influenced the advantages of business management	Pass
H9	The advantage of business management advanced the formation of regional brand reputation	Pass

## 5 Discussion

### 5.1 Conclusions

This study developed a new theoretical model to investigate the mechanisms involved in the formation of characteristic agricultural product brands in southwest China. Questionnaire data and a structural equation model were used to measure the effects of relevant factors on the formation of regional brand reputations in China. An empirical analysis was conducted to describe the brand building path of characteristic agricultural products in southwest China. The empirical results led to the following key findings.

- 1) The main factors influencing the brand reputation of characteristic agricultural products in southwest China include, in descending order of importance: geographical resource endowment, business management, regional culture, and government support. This indicates that in forming regional brands of characteristic agricultural products in southwest China, natural geographical resource endowment plays a basic and core role, and business management plays a decisive role in developing a regional brand reputation.
- 2) Business management had a significant intermediary effect on the corresponding path. As the core driver, it advanced improvements in regional brand reputation. Government support had no significant intermediary effect on the corresponding path, and it had insufficient advancement effects and influence on regional brands. This indicates that market mechanism was the fundamental driver for the formation and development of regional brands, and that although government support is strong, it had no significant effect on improving the influence and reputation of regional brands.
- 3) Geographical resource endowment and regional culture influenced regional brand reputation through business management. The two factors significantly impacted regional brand reputation through the following paths: “geographical resource endowment - the advantage of business management - regional brand reputation;” “geographical resource endowment - regional culture - the advantage of business management - regional brand reputation,” and “regional culture - the advantage of business management - regional brand reputation.” Of these, the path of “regional culture - the advantage of business management - regional brand reputation” had the most significant effect.

## 5.2 Theoretical Contributions

First of all, the current research on branding of agricultural products is relatively rich, but there are few specific researches on branding of agricultural products in Southwest China. In addition, most of the research methods for shaping the path of characteristic agricultural products are theoretical narratives, and empirical tests are rarely used to study the branding of characteristic agricultural products. The research in this article has not only improved the relevant theories of branding, but also deepened the research method system.

Secondly, through the research on the development status of characteristic agricultural products brand in southwest, construct the brand modeling model of characteristic agricultural products and conduct empirical test, research and put forward the development strategy of characteristic agricultural products regional brand. Through the research on the development strategy of regional brand of characteristic agricultural products, it has further enriched the practical guiding value of the mountain characteristic agricultural product brand theory, and provided valuable theoretical reference for the brand development of my country's traditional regional famous and special agricultural product resources.

### 5.3 Managerial Implications

The research conclusions above lead to the following recommendations for advancing the brand building of characteristic agricultural products.

- 1) In developing characteristic agricultural products, it is important to follow the principle of taking local materials and adopting measures appropriate for local conditions. Based on marketing requirements, regional comparative advantages should be leveraged to support the adaptation of agricultural product development to the current status of regional economic development. By developing agricultural products with regional characteristics, regions can realize the transformation from “resource advantage” to “brand advantage.”
- 2) Some characteristic agricultural products in southwest China mainly grow in areas with ethnic minorities. Agricultural management should focus on showing the distinctive regional characteristics and cultural connotation of these agricultural products. This lays the foundation for building the brands of national cultural agricultural products, improving their popularity and influence.
- 3) Scientific management of regional agricultural product brands is crucial to brand building for characteristic agricultural products. Applying the principle of “supporting the advantageous, the strong, the special and the large,” the focus should be on building leading backbone enterprises for characteristic agriculture. This involves enhancing their innovative ability, extending the product development chain, and improving the level of deep processing. These support the establishment of scientific management for regional agricultural product brands.
- 4) Government support creates a good development environment for characteristic agriculture. Guidance and support advance the establishment of characteristic agricultural industry system in ethnic areas. Based on this, regional planning and layouts can be conducted on industrial chains of characteristic agriculture. In turn, characteristic agriculture can be included in the scope of economic development and county planning. This facilitates the establishment of demonstration counties for characteristic agriculture, creating a typical model for development. These may accelerate the formation of a good pattern of competitive development, complementary advantages, and echelon improvement of characteristic agriculture in southwest China.

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