# Research on driving factors and mechanism of Minority Village tourism development in Guizhou Province, China[1]☆

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ABSTRACT

The fundamental purpose of tourism destination development is to improve the quality of life of local residents. For the minority areas in Guizhou Province in China, tourism development can achieve good ecological, economic and social benefits. This research is aimed at to exploring the key driving factors which can improve the quality of local destinations. On the basis of literature analysis and to visit many villages, 8 variables are found, which are tourism resources, tourism location, tourism development environment, tourists' preference, tourism stakeholders, tourism products, tourism innovation and the development tourism destination. 19 hypotheses are proposed and a theoretical models is established. Through the sequential mixed method of qualitative phase and quantitative phase and model test with SEM, it is found: 1) all factors have significant positive effects on the development of rural tourism destinations. 2) The primary factors driving the development of rural tourism destinations are CTR, TL and tourism innovation. 3) Most factors interact with each other to drive the development of minority tourism destinations. Finally, according to the research results, combined with the current situation of the development of rural tourism destinations, the study puts forward suggestions and prospects to promote the development of rural minority tourism destinations.

## 1. Introduction

The No. 1 Document of the Central Committee of China in 2023 (http://www.npc.gov.cn/) emphasizes the key work of comprehensively promoting the strategy of Rural Revitalization, such as rural development, rural construction and rural governance. Tourism industry has the characteristics of high correlation, strong comprehensiveness and prominent pulling function [1], so it is considered as one of the important ways to pull rural economic development and construction of rural areas [2]. In this context, it is of great significance to study the development status of rural tourism, analyze its influencing factors, find out existing problems and summarize its development rules, which will promote the sustainable development of rural tourism and help rural revitalization.

The minority villages of China are rich areas of tourism resources [3]. Guizhou has about 12,000 ethnic minority villages spread throughout the province. Because many of these villages have superior ecological environment, wonderful national culture, they possess high protection and development value. Since 2014, 1652 villages had been named *Chinese Ethnic Minority Characteristics*

*Villages* by the State Ethnic Affairs Commission of China, of which 312 are in Guizhou, accounting for about 19% of the total, ranking first and far surpassing other provinces. Therefore, the author thinks that the tourism development of minority villages in Guizhou Province is absolutely representative. On this basis, with the support of the National Social Science Foundation of China, the authors conduct a large range of visits in Guizhou Province. As of April 2023, the author have arrived 102 villages. In the process of visiting, the authors understand and observe local tourism development and interview tourists or villagers briefly to understand the key influencing factors and the nature of each factor to rural tourism development. At the same time, typical study cases will be selected to prepare for the next research.

At the same time, the authors find in the process of literature analysis that related research on rural tourism has attracted wide attention from academic circles in recent years, domestic and foreign scholars have summarized the driving factors and mechanisms of rural tourism development from multiple perspectives, however, most of the existing studies only construct the conceptual model of rural tourism development power system for qualitative analysis, few studies have conducted empirical tests of the rural tourism-driven model, therefore, taking the rural tourism areas in Guizhou Province as the research object, this paper constructs the SEM of the development driving mechanism of rural tourism area and puts forward relevant assumptions, through the combination of qualitative and quantitative analysis of the driver structure and mechanism of the development of rural tourism, clarify the driving factors of the development of rural tourism areas to promote the high-quality sustainable development of rural tourism. Because of this, several villages are selected as in-depth study because of their respective typical characteristics. The Xijiang Qianhu Miao Village in the southeast of Guizhou Province, represents a mature government-supported tourism development model; The Minzu villages in northern effectively promotes the tourism development because of the local characteristic industries. Xianahui Village in southwest has developed homestay tourism based on its beautiful natural idyllic scenery, and have achieved rapid development. The research is ongoing, and the authors hope to enrich the existing theoretical system of related research by empirical research on them.

## 2. Theoretical backgrounds and hypothesis development

### 2.1. Theoretical backgrounds

#### 2.1.1. Complex adaptive system (CAS) theory

A research gap has been found in the process of literature analysis about this study: Many aspects of rural tourism have been studied by scholars, such as the concept, the development mode and the trend in the future, but most of the studies are on single elements [4], ignoring the relationship between various elements of the system and the stress response due to environmental changes. Therefore, the theory of CAS is introduced in this study as the theoretical support. The CAS theory was formally proposed by American Professor John Holland in 1994 at the 10th anniversary of the establishment of Santa fe Institute, which included micro and macro aspects. It breaks the traditional linear thinking mode and advocates the dynamic and relational thinking to study the relationship between various elements of the system. This theory emphasizes three points: individual active adaptability, interaction between individuals and organic connection and unity at the macro and micro levels [4]. CAS Theory provides a new way for people to know, understand, control and manage complex systems [5].

Rural tourism has gained increasing attention from scholars and practitioners due to its potential economic, social, and environmental benefits to rural areas. However, rural tourism is a complex system that involves multiple stakeholders, including tourists, residents, businesses, and government agencies [6]. CAS Theory views systems as dynamic and self-organizing, where the behavior of the system emerges from the interactions between the individual components [7]. In rural tourism, the system comprises various elements, including tourists, residents, local businesses, government agencies, and the natural and cultural environment. The behavior of the system is influenced by the interactions and feedback loops between these components [8].

CAS Theory provides a useful framework for understanding and managing the complex system of rural tourism. By adopting a flexible, adaptive, and collaborative approach, policymakers and planners can enhance the sustainability, innovation, and resilience of rural tourism [9]. Some studies have applied CAS Theory to rural tourism. Wang and Wang used CAS Theory to explore the sustainability of rural tourism in China. They argued that rural tourism systems are complex and nonlinear, with emergent behaviors that are difficult to predict. They suggested that policymakers and planners should adopt a flexible and adaptive approach to manage rural tourism [10]. Similarly, Huang et al. applied CAS Theory to study the innovation of rural tourism in China. They found that rural tourism innovation is a complex process that involves the interactions and feedback loops between tourists, local residents, and tourism businesses. They recommended that policymakers should promote collaboration and cooperation among these stakeholders to facilitate rural tourism innovation [11]. Carmona et al. used CAS Theory to analyze the resilience of rural tourism in Spain. They argued that rural tourism is a complex and dynamic system that is vulnerable to external shocks, such as economic crises, environmental disasters, and political instability. They suggested that policymakers and planners should adopt a resilience-based approach to manage rural tourism and enhance its adaptive capacity [12].

Therefore, to study rural tourism system, it is necessary to focus on the social, economic, environmental, resource and other dimensions of the tourism system, to explore the factors related to each dimension and their interactions. On this basis, the development mechanism with integrity, correlation, hierarchical structure and dynamic balance need to construct [4], and to study the complex and general rules of tourism activities. This study regards rural tourism as a complex adaptive system and all elements of rural tourism as organic subjects, and studies the relationship between them, so as to promote the healthy and positive development of rural tourism destinations.

### 2.1.2. Ethnic minority villages and their influencing factors of tourism development

It shows that the term of "Ethnic minority villages" and "Ethnic minority villages tourism" does not exist beyond China, but the concept of "ethnic community tourism" is similar to the Chinese concept, so the current situation of foreign ethnic community tourism is analyzed here [13]. The study of foreign ethnic community tourism began in Nunez's weekend tourism study on a mountain village in Mexico in the 1960s, and then the concept of "ethnic tourism" was formally proposed by Smith in 1989 [14]. The earliest scholar to study ethnic village tourism in China is Luo, and the interpretation of ethnic village tourism is the most representative. Ethnic minority village tourism is as natural scenery and human landscape in village destination for tourist attractions, satisfy the tourists to pursue experience heterogeneity culture the psychological motivation of tourism activities, defined ethnic village tourism in minority rural communities as a tourism destination, as a result, ethnic village tourism has also been defined as belonging to the rural tourism and the way of the intersection of ethnic tourism. It has the two basic characteristics of national culture and rural character and takes national culture as the main feature [15].

Tourism is considered a relatively healthy industry and is known as a "smokeless industry" [16]. From an economic perspective, tourism has become a driving force in many countries around the world [17]. Therefore, one common similarity among rural tourism destinations is based on the idea of using tourism to generate social and economic benefits and to protect local natural resources and ecosystems. However, due to the lack of some key factors, many projects eventually failed [18]. Due to a lack of community participation, a sense of ownership of community members, and local financial resources, finally some community tourism programs failed [19]. As for minority village tourism destinations in Guizhou, it seems that those precious culture and good ecological environments should not suffer failure. In addition, with the increasing role of tourism development in promoting the development of rural areas, the research on the influencing factors of rural tourism development has gradually attracted the attention of scholars in the world. However, most of relevant research results are carried out case studies, and few studies on the general regularity, so a relatively systematic theoretical system has not been formed. However, it is of great significance for the development of ethnic minority villages to explore the key influencing factors and the interrelationship between them.

Because of the influencing factors of minority village tourism development in China, many authors put forward their own opinions. Ding & Peng mentioned the main influence of minority ethnic village tourism development was the ethnic characteristics and ethnic popularity, the ethnic image of the tourist destination, whether there are famous scenic spots or scenic spots, traffic conditions, space concentration and competition, customer market, regional economic development level, policymakers behavior and residents attitude [20]. Huang pointed out that the development of ethnic village tourism is influenced by the village, ecology, culture, economy, and other factors [21]. According to the research results on Zhaoxing Village in Guizhou, eight factors affecting the development of tourism in this village as resource characteristics were mentioned, including government support and promotion, the introduction of social funds, participation of residents, policy environment, promotion by scholars [22]. Sun and Li pointed out that the success of tourism development in Xijiang Miao Village of a thousand households in Guizhou lies in the chance, the promotion of the government, the current optional tourism system, the cultural connotation and scale of the village, and other factors [23]. However, Tao believed that the main factors affecting the development of Xijiang Miao Village with thousands of families are the local government, residents, and tourists [24]. From travel demand and supply of tourism, tourist media three perspective study the ethnic village tourism development of 19 factors are concluded, which are classified as the driving force, internal thrust, and support [25]. Yang believed that the typicality, popularity of ethnic resources, abundance, and cultural atmosphere is the key element to the development of the ethnic minority villages, the village scale, residents' support and the climate comfortable degree was an important conditions affecting the ethnic village tourism development, local economic development level, convenient transportation is the key factor in the development of ethnic village tourism [6]. By combing and comparing the above literatures, it can be seen that tourism land resources, government policies, infrastructure construction, management, resident participation, economic development level, and tourism demand are the main influencing factors mentioned by scholars.

### 2.2. Hypothesis development

In order to research the influencing factors and formation mechanism of tourism development in minority areas, it is necessary to

**Table 1**
Key factors affecting the development of tourism in ethnic minority villages.

| Driving factors | Sources |
|---|---|
| Characteristic tourism resources (CTR) | (Yang, 2016) [13]; (Ding & Peng, 2002) [20]; (Wu et al., 2008) [22]; (Zou, 2019) [26]; (Wang & Xu, 2015) [27]; (Jangra & Kaushik, 2021) [28] |
| Tourism location (TL) | (An & Alarcón, 2021) [2]; (Ding & Peng, 2002) [20]; (Jangra & Kaushik, 2021) [28]; (Gong & Du, 2019) [29]; (Roberts et al., 2022) [30] |
| Tourism development environment (TDE) | (Liu et al., 2019) [6]; (Yang, 2016) [13]; (Ding & Peng, 2002) [20]; (Guo et al., 2019) [21]; (Zou, 2019) [26]; (Jangra & Kaushik, 2021) [28]; (Gong & Du, 2019) [29]; (Wang, 2014) [31]; (Zhou, 2017) [32] |
| Tourists' preference (TP) | (An & Alarcón, 2021) [2]; (Wan, 2022) [25]; (Bowlea & Hwang, 2008) [33]; (Zhou et al., 2018) [34]; (Sandra & Carlos, 2022) [35] |
| Tourism stakeholders (TS) | (An & Alarcón, 2021) [2]; (Liu et al., 2019) [6]; (Yang, 2016) [13]; (Ding & Peng, 2002) [20]; (Wu et al., 2008) [22]; (Sun & li, 2012) [23]; (Tao, 2013) [24]; (Zou, 2019) [26]; (Wang, 2014) [31] |
| Tourism products (TPb) | (Ding & Peng, 2002) [20]; (Wan, 2022) [25]; (Yang, 2022) [36]; (Li & Li, 2010) [37]; (Cheng & Wang, 2010) [38]; (Fan, 2019) [39]; |
| Tourism innovation (TI) | (Fan, 2019) [39]; (Hjalager, 2010) [40]; (Peng et al., 2019) [41]; (Rattena & Bragab, 2019) [42]; (Chen, 2015) [43] |

clarify: (1) to explore the factors that drive the development of rural tourism in minority areas at different levels; (2) to construct the theoretical model base on 1); (3) to examine the influence mechanism of driving factors of rural tourism in minority areas. This requires not only exploring influencing factors and building theoretical models based on qualitative data, but also testing influencing mechanisms based on quantitative data. Therefore, the mixed research method becomes the best choice for this study.

Base on the literature analysis and to field visit many villages in Guizhou Province of the authors, the key 10 factors are identified affecting the development of ethnic village tourism initially. Combined with the opinions of three experts (see 3.1.3 scale development for details), the key factors to the development of tourism destination are finally determined, which are: respectively is characteristic tourism resources (CTR), tourism location (TL), tourism development environment (TDE), tourists' preference (TPa), tourism stakeholders (TS), tourism products (TPb), and tourism innovation (TI). They together affect the tourism development (TD) of rural destinations. Table 1 provides their sources of them.

### 2.2.1. CTR

Zou believed that tourism resources are the basis and premise of tourism development, and the quality of resource conditions often determines the development degree and potential of a tourism destination, which mainly includes the natural ecological environment, climatic conditions, and the quantity and quality of health and leisure resources [26]. The research on tourists' decision-making behavior shows that the greater the cultural difference from the location of tourists, the easier it is to be selected. Therefore, for a country or region, the stronger its ethnic flavor and distinctive ethnic characteristics, the stronger its attraction to tourists and the greater the value of tourism development. Wang et al. also found in their research that resource characteristics are always the basis for development [27], and the unique local culture must be respected and protected to maintain the attractiveness and competitiveness of rural tourism. Mining characteristic tourism resources is conducive to creating unique tourism products and tourism image. In addition, tourist attractions have a positive impact on tourism preference, which has been confirmed [44].

Therefore, hypotheses can be put forward as follows: H1: CTR has a positive impact on TPa; H2: CTR has a positive impact on the TDE. H3: CTR has a positive impact on TD.

### 2.2.2. TL

Jangra & Kaushik believed roads and public transport are crucial for tourist destinations [28]. Among the three destinations of Jangra's study, only one destination, Reckong-Peo, provides Internet services, while the other two destinations lack such facilities. The sustainable development of tourism needs urgent improvement. Zou found that location conditions include geographical location, economic location and tourism location [26]. The geographical environment of the tourist destination is different, and the tourist resources also form their characteristics, leading to the different tourist attractions. Regions with good economic locations can provide a lot of funds for the promotion of regional tourism competitiveness by giving play to regional advantages and improving the level of economic development. Tourism location can be regarded as the relative position and accessibility of tourism region and tourist source. After comprehensively considering the various attributes, tourists will choose rural tourism with the highest desired utility. Relatively important preferred attributes are staff enthusiasm, outdoor activities, additional facilities, and location [2]. Gong et al. found that the traffic conditions, health conditions, scenic spot environment in the environmental factors, and the characteristics of the scenic spot factors are positively correlated with the choice of tourists' willingness to travel to the rural areas [29].

Therefore, hypotheses can be proposed: H4: tourist location has a positive impact on TPa; H5: TL has a positive impact on the TDE; H6: TL has a positive impact on TD.

### 2.2.3. TPa

Tourism preference is a more direct regulation or psychological factor affecting tourism behavior than tourism motivation [45]. In real life, each individual will choose consumption objects according to consumption preferences [33]. Therefore, tourists choose tourism products based on consumer preferences. It can be seen that understanding tourism preference plays an important role in tourism practitioners' good design of tourism products and more targeted marketing, and also enables tourists to get a better experience from the consumption process of tourism products [46]. Zhou believed that tourism destinations lack comprehensive, detailed, in-depth and timely analysis of tourists' needs, resulting in the mismatch between tourism products and tourism reception services and tourists' needs, which will affect the prospects of the great development of tourism [34]. Tourism industry can be used by organizations to refine their marketing strategies and improve their services, thereby improving performance and enhancing credibility and competitiveness [35].

Therefore, the following hypotheses can be proposed: H7: TPa has a positive impact on TPb; H8: TPa has a positive impact on TD.

### 2.2.4. TDE

If high tourist satisfaction with all aspects of the destination environment will lead to the reliability of the destination in revisiting and recommending others [35]. The tourism environment includes the economic environment, social and cultural environment, scientific and technological environment, and political and legal environment [47]. It shows that government and policy factors, economic structure factors, and traditional cultural factors are the main factors affecting the development of rural tourism [48]. It also found through research that internal and external factors such as investment and talent, economic atmosphere, business atmosphere, government management, and cultural differences are important factors affecting the development of rural tourism [31]. Zhou found that the perception of government support can directly improve community participation, and can also exert an influence on community participation through participation in tourism attitude [32]. Gong & Du believed that catering services, accommodation services, transportation conditions, health conditions, and scenic spot environment are positively correlated with tourists' rural

tourism intention [29].

Therefore, the following hypotheses can be put forward: H9: TDE has a positive impact on TS; H10: TDE has a positive impact on TPb; H11: TDE has a positive impact on TD.

### 2.2.5. TPb

Price, quality, time, service, benefit and marketing ability of tourism products at tourist destinations are factors affecting the competitiveness of tourist destinations. In the Maldives, Hawaii and in Bali, the full use of local cultural and historical resources are being incorporated into tourism products and services to provide tourists with a peak experience of cultural embedding and emotional engagement [49]. Improvements can increase also the residents' income level and tourists' sense of value and satisfaction.

The following hypotheses can be put forward: H12: TPb has a positive impact on TD.

### 2.2.6. TI

Innovation is possible in management, marketing and systems that organise activities. These can promote the further development of tourism [40,41]. Innovation can be the internal driving force and vitality of sustainable development if entrepreneurs are interested in setting up a unique brand, for example.

Therefore, the following hypotheses can be put forward: H13: TI has a positive impact on TPb; H14: TI has a positive impact on the TDE; H15: TI has a positive impact on TD.

### 2.2.7. TS

The stakeholders include manager and employees, adjacent industries to tourist sites and community residents [50]. The stakeholders in ethnic villages include local government, residents, tourists, and tourism entrepreneurs [51]. Communities play a vital role in tourism development. When tourists feel comfortable and welcomed by the local community, they are more likely to return and recommend such destinations to friends and relatives. Preferred attributes are the hospitality of the staff, quality and variety of outdoor activities, unique facilities, and location. Nowadays "postmodern tourists" have complex, multilayered desires and needs, therefore, local governments, as well as the private sector, need to provide attractive facilities for tourists [52].

Accordingly, hypothesis H16 is put forward: TS has a positive impact on TPa.

It has been confirmed that rural residents have both positive effects of tourism development, also have negative effect perception, should pay attention to the attitude of residents perception, and respond as early as possible, solve various problems encountered in the process of development, to make rural tourism a benign development [53]. Therefore, the perceptions of tourists and residents is essential as it is the basic point that must be understood before implementing any tourism industry policy, which contributes to the sustainable development of tourism. Cohen & Avieli believed that residents' support and their attitudes affect tourism sustainability [54], and the cooperation of various stakeholders can promote the sustainable development of tourism [36].

Accordingly, hypothesis H17 is put forward: TS have a positive impact on TDE.

Tourism enterprises are the media of tourism supply and demand, which directly participate in the competition and are the operators of tourism competition [26]. The enterprise scale, development strategy, development goal, operation strategy, enterprise self-accumulation and development mechanism of tourist destinations undoubtedly play an active role in the competitiveness of tourist destinations. The operation level and investment scale of operators is important to the development of rural tourism [55]. Among the
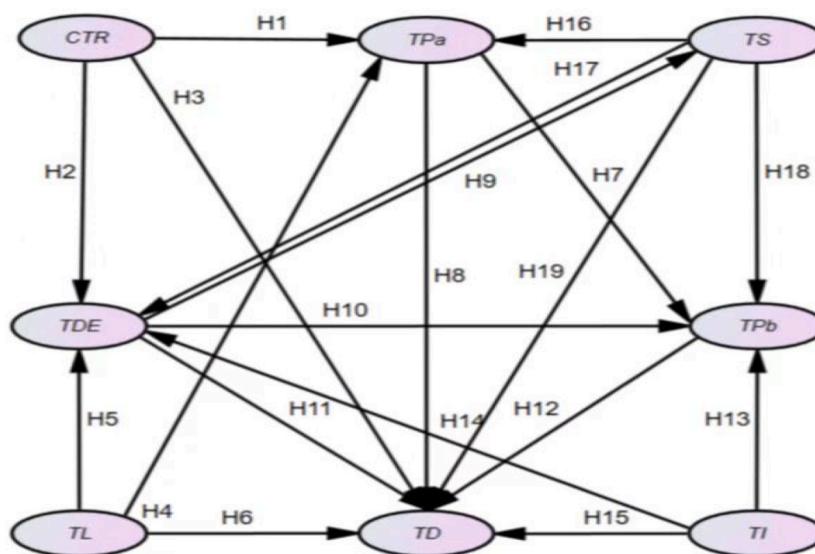


**Fig. 1.** Hypothetical theoretical model.

intermediate factors affecting the development of rural tourism, the level of operation and management of tourism enterprises, and the strength of operation and management support have a high degree of importance. Moreover, policy changes not only affect the sustainability of tourism itself, but also affect the resilience of communities that depend on the continued success of tourism [56].

**Table 2**
Sources of scale items.

| Scale Items | Source |
| --- | --- |
| CTR | |
| 1) The natural scenery is unique and beautiful. | Interview, GSTC, (Chen & Xu, 2019 [44]); |
| 2) The buildings are rich in local ethnic characteristics. | Interview, GSTC, (Jangra & Kaushik, 2021 [28]); |
| 3) Costumes full of local ethnic characteristics. | Interview, (Yang, 2016 [13]; Zou, 2019 [26]) |
| 4) Folk festival activities are rich and distinctive. | Interview, (Ding & Peng, 2002 [20]) |
| 5) Cultural heritage is rich in connotation and diverse in types. | Interview, GSTC, (Tao, 2013 [24]; Wan, 2022 [25]) |
| 6) The local tourist landscape is well known. | Interview, (Ding & Peng, 2002 [20]) |
| TL | |
| 7) Tourism traffic is good, and the outside traffic connection is convenient. | Interview, GSTC, (Yang, 2016 [13]) |
| 8) Excellent geographical location, close to the city space. | Interview, (Yang, 2016 [13]; Wang & Xu, 2015 [27]) |
| 9) The area attractions in series degree is strong. | Interview, GSTC, (Zou, 2019 [26]) |
| 10)The nearby source market is large. | GSTC, Chen & Xu, 2019 [44]) |
| TDE | |
| 11) The destination development of tourism has been strongly supported by the higher government. | GSTC, (Wondirad, 2020 [60]) |
| 12) The city/county where the destination is located has good economic development. | (Yang, 2016 [13]; Xu & Li, 2021 [55]) |
| 13) The destination has greater competitiveness compared with the surrounding similar scenic spots. | Interview, GSTC, (Zou, 2019 [26]) |
| 14) The business environment of the destination for tourism development is good. | GSTC, (Yang, 2016 [13], Ding & Peng, 2002 [20]) |
| 15) The destination has a sound talent mechanism for developing tourism. | GSTC, (Liu et al., 2019 [6]) |
| TPa | |
| 16) To be interested in the natural landscape available here. | Interview, (An & Alarcón, 2021 [2]; Chen & Xu, 2019 [28]) |
| 17) To be interested in the residential buildings here. | Interview, (Chen & Xu, 2019 [44]) |
| 18) To be interested in the history, culture and folk customs here. | Interview, (An & Alarcón, 2021 [2]; (Chen & Xu, 2019 [44]) |
| 19) To be interested in participating in the experience here. | Interview, (Chen & Xu, 2019 [44]) |
| 20) To be interested in the special food here. | Interview, (Chen & Xu, 2019 [44]) |
| TS | |
| 21) The local government ensures that tourism planning is forward-looking and tourism development is scientific and orderly. | Interview, GSTC |
| 22) The local government pays attention to creating a quality business environment. | Interview, (Li, 2015 [51]) |
| 23) The local government pays attention to building tourism infrastructure to make it safe, reliable and clean. | Interview, GSTC, (Liu et al., 2019 [6]) |
| 24) Local residents actively support the development of tourism. | Interview, GSTC |
| 25) Local residents are deeply involved in the decision-making, development and benefit distribution of tourism. | Interview, GSTC, (Liu et al., 2019 [6]; (Gursoy et al., 2019 [58]) |
| 26) Tourism operators jointly maintain a fair and orderly market environment. | Interview |
| 26) Tourism operators have a good reception service system, and the reception service of practitioners is meticulous and thoughtful. | Interview, GSTC, (Liu et al., 2019 [61], Yang, 2016 [13]) |
| 28)The protection system for tourists' rights and interests has been improved. | Interview, GSTC, Wang & Xu, 2015 [27]) |
| TPb | |
| 29) Tourism products are unique and attractive. | Interview, (Zhong, 2012 [45], Hjalager, 2010 [40]) |
| 30) Tourism products pay attention to the integration of industry and tourism and effectively promote the development of local industries. | Interview, Sandra & Carlos, 2022 [35] |
| 31) Tourism products pay attention to the integration of culture and tourism and effectively protect and develop the precious local culture. | GSTC; (Li, 2015 [51]) |
| 32) Tourism products are rich and can provide a variety of tourism activities for tourists to choose from. | (Wu et al., 2008 [22]; Zhong, 2012 [45]) |
| 33) Tourism products are moderately priced. | Interview, (Wu et al., 2008 [22]22]) |
| TI | |
| 34)TPb pay attention to personalization and innovation. | Interview, (Chen & Xu, 2019 [44]); |
| 35)Tourism marketing continues to innovate. | (Chen & Xu, 2019 [44]); |
| 36)Tourism can adapt to the new market demand, and constantly open up new markets. | Interview, (Chen & Xu, 2019 [44]); Xu & Li, 2021 [55]) |
| 37)Tourism management concepts and methods are constantly optimized and innovated. | GSTC; (Ding & Peng, 2002 [20]; Hjalager, 2010 [40]) |
| 38)The tourism system keeps pace with The Times and makes continuous progress. | GSTC; (Chen & Xu, 2019 [44]); |
| TD | |
| 39)The popularity and reputation of the tourist destination have been continuously improved. | GSTC; (Yang, 2016 [13]) |
| 40)The economic structure of tourism has been continuously improved. | GSTC; (Yang, 2016 [13]; Chen & Xu, 2019 [44]) |
| 41)Sustainable and sound social development of tourism destinations. | GSTC; (Liu et al., 2019 [6]) |
| 42)The culture of tourist destinations can be effectively protected and utilized. | GSTC; (Liu et al., 2019 [6]) |
| 43)The ecological environment of tourist destinations has been continuously improved. | GSTC; (Yang, 2016 [13], Sharif et al., 2019 [47]) |

Note: CTR is characteristic tourism resources, TL is tourism location, TDE is tourism development environment, TPa is tourists' preference, TS is tourism stakeholders, TPb is tourism products, TI is tourism innovation, and TD is tourism development.

Therefore, the following hypotheses can be put forward: H18: TS has a positive impact on TPb;

To sum up, hypotheses are proposed as follows: H19: TS has a positive impact on TD.

Based on the above analysis, a theoretical model of location-based research hypotheses on driving factors and mechanisms of rural tourism destination development. The model consists of eight variables, which are CTR, TDE, TL, TPa, TS, TPb, TI and TD, as shown in Fig. 1.

## 3. Research design

### 3.1. Overview of the research

In the list of the *National Ethnic Minority Characteristics Villages* published by the Department of Economic Development of the State Ethnic Affairs Commission, 312 villages with ethnic minority characteristics in Guizhou Province rank first, far exceeding other regions in total number and having a very typical representative significance. The authors reviewed past studies on the driving factors of ethnic village tourism development and found that most of the existing studies on ethnic village tourism are qualitative analyses of the current situation of a specific village, while few studies are quantitative measurements, which made it difficult to effectively evaluate the driving factors of ethnic village tourism.

Therefore, this study selects minority villages with typical tourism development in Guizhou Province as the study case and adopts the sequential mixed method to carry out the study [57], in which "one type of data provides the basis for the collection of another type of data" [58]. Firstly, based on referring to relevant literature, relevant experts consultation and field research interviews are carried out to develop the driving factors scale of ethnic village tourism development from the perspective of individual perception. To explore the dimensions of tourism influencing factors in ethnic villages, and provide scale and variable reference for subsequent quantitative analysis. Among them, the interview data is mainly used to construct the structure of tourism driving factors, while the questionnaire data is mainly used to develop the tourism driving factors scale. And then, the primary data obtained from the survey are used for factor analysis, and the structural equation model of the driving factors of ethnic village tourism development is established. SPSS23.0 and AMOS26.0 are used for model fitting and hypothesis verification.

### 3.2. Qualitative phase

102 ethnic minority villages in Guizhou Province have been visited. Observations are carried out and informal interviews are conducted during the process. A number of tourists or villagers received a simple interview, mainly asking about the influencing factors and their suggestions for the development of tourism in the village. Subsequent coding and analysis of these data confirmed our 10 initial variables and generated 52 scale items.

To confirm and expand the research area, the authors combined the Global Sustainable Tourism Criteria for Destinations (GSTC) (V2.0) in December 2019. The GSTC is used as an important reference material for scale development. It is organized under four themes, sustainable management; social and economic impact; cultural influence and environmental influence, it applies to the entire tourism industry [59]. The initial variables of this study are firstly basically determined, with a total of 10 variables and 66 scale items.

Two teachers majoring in tourism management proofread commented and made suggestions on the projects. A questionnaire containing 10 variables and 63 questions was formed. Then teachers proofread commented and made suggestions on the items.

Then three professors, which research fields are respectively tourism management community participation, and rural tourism development. Experts gave marks to the scale questions and filled in their opinions. According to the experts' assignment of each influencing factor, the indexes with scores less than 20 points were deleted. In addition, two of the experts agreed that the variable "quality of tourism public services" was not reasonable, and the question in it is repeated with other questions and should be deleted.



**Fig. 2.** Minzu, nahui, and Xijiang in Guizhou province.

Three experts agreed that "resident participation, management and leadership, and effective communication of stakeholders" should be merged into "stakeholders"; One professor thought that the question "effective protection and utilization of cultural and intangible heritage of tourist destinations" should be added to the "development of tourist destinations". The expert scoring results were sorted out and summarized, and the unnecessary influencing factor indicators were modified or eliminated. Finally, 8 variables and 43 scale items are determined. Table 2 illustrates the source of each scale item. In addition, the distribution areas of the questionnaire were also discussed and had unanimous approval.

### 3.3. Quantitative phase

#### 3.3.1. Overview of case location

Three ethnic minority villages have been selected for tourism, namely Xijiang Qianhu Miao Village, Chishui Minzu Village, and Nahui Village in Guizhou Province (See Fig. 2). The reason for this selection is that they are representative of tourism development in minority villages. Xijiang Qianhu Miao Village is the largest Miao village in the world, where tourism development has been for many years; In recent years, Minzu Village in Chishui has made great achievements in tourism innovation, and its development model has been praised many times. Relying on the beautiful Wanfenglin scenic spot, the rapid development of homestays in Xianahui Village in Xingyi is worth exploring.

#### 3.3.2. Data collection

The questionnaire design mainly includes two parts. The first part is mainly used to collect the basic information of residents, including gender, age, educational background, personal monthly income level, occupation, travel times, travel forms and other information, and is mainly used to record the social demographic characteristics and travel characteristics of respondents. The second part is on the impact factors of rural tourism destination drive eight structure contains 43 observation variables measurement, mainly use the Likert scale method, to "strongly disagree - strongly agree" corresponding assessment scale from 1 to 5 points, based on the rural tourist destination tourist information, for each item scores.

The preparation for the questionnaire conducting began in May 2022. From August 5 to 7, three groups with one teacher and two students in each group went to the 3 villages to distribute questionnaires to tourists. A total of 600 questionnaires (each village was 200) were distributed to the tourists. After the questionnaires were collected, the data were sorted out and the unqualified questionnaires are eliminated. Ineffective questionnaires including blank and scribble questionnaires, and with too many repeated answers were eliminated. Finally, 527 valid questionnaires are obtained in this survey.

#### 3.3.3. Data analysis

*3.3.3.1. Sample statistical analysis.* Interviewees are male (40.7%) and female (50.3%). In terms of age distribution, most of the respondents are 30–40 years old (26.0%); most of them are at junior college or undergraduate level (62.8%); most (62.0%) has a monthly income of 3000–5000 yuan; the occupation distribution is relatively balanced; in terms of the distribution of the number of trips, the majority (66.2%) took one trip. The main form of tourism is individual tourism (80.4%). The basic statistics of samples are shown in Table 3.

*3.3.3.2. Reliability and validity test of the scale.* Reliability refers to the consistency of the results obtained when the same object is repeatedly measured by the same method [62]. Cronbach's alpha coefficient is used in this paper, and it is generally believed that when the coefficient reaches 0.7–0.8, the scale has considerable reliability [63]. The reliability test showed that the Cronbach coefficient of the total scale is 0.977. The exogenous variables: CTR, TL, TDE, TPa, TS, TPb, TI and TD are investigated. Cronbach's alpha coefficient of each part of the questionnaire is above 0.8, indicating that the internal reliability of the scale is good, as shown in Table 4.

Validity refers to the degree to which the measurement tool or questionnaire can accurately measure the things to be measured [62]. The more consistent the measurement results are with the content to be investigated, the higher the Validity will be. Otherwise , the lower the validity [63]. The validity of all 43 indicators is tested, and the verification results are shown in Table 3. The

**Table 3**
Reliability and validity analysis.

| Category | Cronbach's Alpha | KMO measure | Number of terms | Bartlett's spherical test | | |
|---|---|---|---|---|---|---|
| | | | | Chi-square value | Degree of Freedom | Significance |
| Total | 0.977 | 0.972 | 43 | 28664.098 | 903 | 0 |
| CTR | 0.891 | 0.892 | 6 | 2201.873 | 15 | 0 |
| TL | 0.835 | 0.777 | 4 | 1135.612 | 6 | 0 |
| TDE | 0.887 | 0.852 | 5 | 1941.92 | 10 | 0 |
| TPa | 0.881 | 0.875 | 5 | 1786.758 | 10 | 0 |
| TS | 0.934 | 0.95 | 8 | 4035.822 | 28 | 0 |
| TPb | 0.958 | 0.79 | 5 | 7245.75 | 10 | 0 |
| TI | 0.903 | 0.888 | 5 | 2129.842 | 10 | 0 |
| TD | 0.915 | 0.892 | 5 | 2414.234 | 10 | 0 |

**Table 4**

Index values of the initial hypothesis model.

| Category | Index | Test criterion | Fitted value | Fit judgment |
|---|---|---|---|---|
| | X2/df | <3 | 5.206 | N |
| | GFI | >0.9 | 0.835 | N |
| Absolute fit index | AGFI | >0.9 | 0.813 | N |
| | RMR | <0.05 | 0.048 | Y |
| | RMSEA | <0.05 (Adaptation is good) | 0.077 | Y |
| | | <0.08 (Adaptation is reasonable) | | |
| | NFI | >0.9 | 0.852 | N |
| Incremental fit index | RFI | >0.9 | 0.839 | N |
| | IFI | >0.9 | 0.877 | N |
| | CFI | >0.9 | 0.876 | N |

Kaiser-Meyer-Olkin (KMO) value of the total scale is 0.972, and the KMO values of the subscales are all greater than 0.7. The Bartlett spherical test value of the total scale is 28664.098. The Bartlett spherical test values of the subscales ranged from 1135.612 to 4035.882, all of which are significantly correlated at the level of 0.000, indicating that the scale has high efficiency and could be used for validity analysis.

### 3.3.4. Confirmatory factor analysis of SEM

*3.3.4.1. Test of measurement model.* The test analysis of measurement model is to investigate whether the observed variable correctly measures its corresponding latent variable and verify the degree of influence of the observed variable on the latent variable. Table 4 shows the value of X2/DF is 5.206, greater than 3. GFI is 0.835, less than 0.9; AGFI is 0.813, less than 0.9; RMR is 0.048, less than 0.05; RMSEA is 0.077, less than 0.08; NFI is 0.852, RFI is 0.839, IFI is 0.877, CFI is 0.876, all less than 0.9. It can be seen that most of the adaptation indicators of the hypothesis model do not meet the basic requirements, and the model needs to be modified.

According to the model "*Modification Indices*" and the outlier values "Observations farthest from the centroid" in AMOS26.0, the bidirectional arrows in the model diagram were added and the deviations of sample data were adjusted before model fitting was conducted again. It was found that all the indexes of the model improved significantly after modification. Although GFI = 0.880 and AGFI = 0.863 were not in the best range >0.9, but it has reached the acceptable range >0.85. Other indicators meet the fitting requirements, and the adjusted results are shown in Table 5. This model was also the final measurement model of this study (see Table 6).

*3.3.4.2. The structural model test.* The hypotheses of this study are verified by AMOS26.0 software, and the maximum likelihood estimation method is used for calculation. If the absolute value of C.R is greater than 1.96, and the standard regression coefficient P-value of 0.05, the relationship is assumed to be valid. The path relationship between each potential variable and the standardised path coefficient are shown in Fig. 3.

*3.3.4.3. Analysis of results.* It is shows of the 19 hypotheses, with the exception of 17th and 18th, all else are verified and valid. The analysis reveals the internal influencing path mechanism process of the hypotheses all play a role in different degrees. It's worth noting the impacts of CTR, TL and TI on the development of tourism destinations are very obvious, and the index value reaches respectively are 0.158, 0.114, 0.118, and their influence on the development of the tourism destination is positively significant. This shows that in choosing a rural destination, resources, location and innovations are more important, and are more likely to encourage further development, thus making the destination even more popular.

The H17 and H18 fail to pass the verification, the results may be because rural tourism in Guizhou, especially in minority areas, are rich in tourism resources, but with the growing development of tourism industry and changes in tourism demands of tourists, there are still insufficient advantages of accessibility, lagging concept of tourism development, and single monopoly of sightseeing or leisure tourism products. As a result, local governments, tourism enterprises, local residents and other stakeholders have insufficient

**Table 5**

Index values of the modified model.

| Category | Index | Test criterion | Fitted value | Fit judgment |
|---|---|---|---|---|
| | X2/df | <3 | 2.589 | Y |
| | GFI | >0.9 | 0.880 | N |
| Absolute fit index | AGFI | >0.9 | 0.863 | N |
| | RMR | <0.05 | 0.046 | Y |
| | RMSEA | <0.05 (Adaptation is good) | 0.047 | Y |
| | | <0.08 (Adaptation is reasonable) | | |
| | NFI | >0.9 | 0.927 | Y |
| Incremental fit index | RFI | >0.9 | 0.920 | Y |
| | IFI | >0.9 | 0.954 | Y |
| | CFI | >0.9 | 0.954 | Y |

**Table 6**
Path coefficient and test results of significance.

| Hypothesis | Influence path | Coefficient | T value | Significance level | Verification result | (C.R.) (P) |
|---|---|---|---|---|---|---|
| H1 | CTR→TPa | 0.381 | 9.554 | *** | | Positive and significant effect |
| H2 | CTR→TDE | 1.224 | 7.953 | *** | | Positive and significant effect |
| H3 | CTR→TD | 0.158 | 3.441 | *** | | Positive and significant effect |
| H4 | TL→TPa | 0.170 | 5.968 | *** | | Positive and significant effect |
| H5 | TL→TDE | 0.324 | 4.993 | *** | | Positive and significant effect |
| H6 | TL→TD | 0.114 | 4.165 | *** | | Positive and significant effect |
| H7 | TPa→TPb | 0.550 | 6.806 | *** | | Positive and significant effect |
| H8 | TPa→TD | 0.193 | 3.127 | * | | Positive and significant effect |
| H9 | TDE→TS | 1.052 | 12.783 | *** | | Positive and significant effect |
| H10 | TDE→TPb | 0.499 | 7.058 | *** | | Positive and significant effect |
| H11 | TDE→TD | 0.126 | 2.558 | ** | | Positive and significant effect |
| H12 | TPb→TD | 0.071 | 2.742 | * | | Positive and significant effect |
| H13 | TI→TPb | 0.172 | 4.373 | *** | | Positive and significant effect |
| H14 | TI→TDE | 0.746 | 7.549 | *** | | Positive and significant effect |
| H15 | TI→TD | 0.118 | 4.156 | *** | | Positive and significant effect |
| H16 | TS→TPa | 0.483 | 9.362 | *** | | Positive and significant effect |
| H17 | TS→TDE | −1.425 | −5.289 | *** | | Rejected |
| H18 | TS→TPb | −0.203 | −2.194 | ** | | Rejected |
| H19 | TS→TD | 0.133 | 2.280 | ** | | Positive and significant effect |

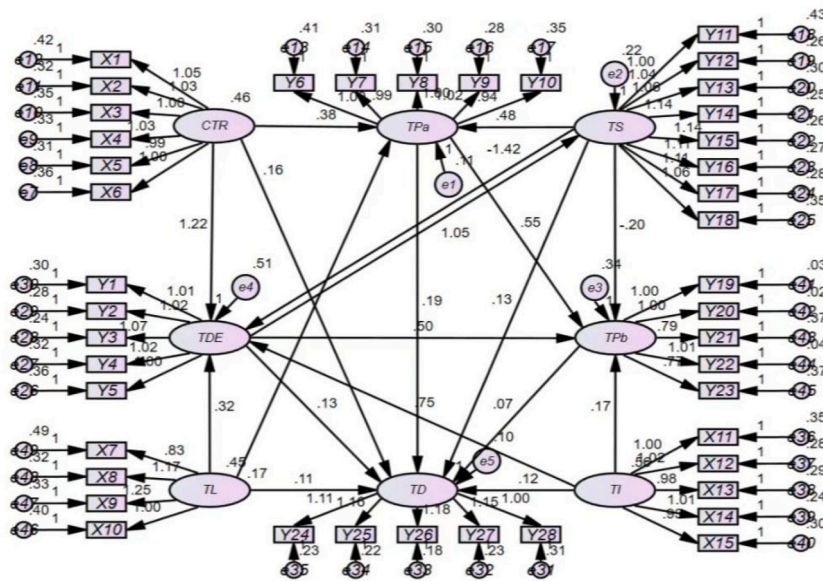Note: *** denotes $P < 0.001$, ** denotes $P < 0.05$, * denotes $P < 0.01$.



**Fig. 3.** Test of model hypothesis.

perception of the impact of tourism development.

## 4. Conclusions and Implications

### 4.1. Conclusions

Literature analysis and qualitative research are used to summarize the factors important to ethnic village tourism. Exploratory factor analysis and confirmatory factor analysis are employed to verify and adjust the structure and measures of the scale in the quantitative research phase. The driving factor scale of ethnic village tourism with 8 dimensions and 43 items are obtained with high reliability and validity. The tourism driving forces status are measured. The main conclusions are shown as following.

1) The key factors closely related to tourism development of ethnic villages in China include resources, location, development environment, tourist preferences, stakeholders, products, and innovations.
2) Driving factors show certain differentiation. Unique resources are the most important structures to explain these differences, followed by tourist locations and level of innovation. These factors are the most central to predicting the development of rural

tourism. Their data have shown that the highest among the natural magnetism factors included scenic, climate, and weather. They also believed that the quality of roads and public transport are crucial.

3) All factors interact with each other to drive the development of rural tourism destinations. That is, the factors driving the development of tourism destinations are not single, but a combination of various factors, which jointly promote the development of tourism destinations. Therefore, in addition to the most critical factors, other factors should be not be ignored.

4) The structural relationship model has revealed that geographical location, surrounding scenic spots, and business environment are the three variables which show the more prominent effects. Although the hypothesis 17 and 18 fail to pass verification, the data results show the impact of tourism development environment and tourism products on stakeholders, especially the former is absolutely important. There are also warnings for tourism development of the minority villages.

5) While some of these factors are related to minority ethnic villages, others can equally well apply to local governments themselves, suggesting that a greater focus would benefit the whole region.

### 4.2. Implications

1) Of the most important driving factors which marketing managers and their agencies as well as the service providers is to recognize the advantages in developing rural tourism. For example, ethnic cultures, agriculture, rural handicrafts, residential ethnic houses, and food sources and culinary traditions can become a specialty brand which is different from other rural tourism destinations [63, 64]. In turn, the unique charm of rural ethnic tourism when developed can provide additional pockets of sustainable local tourism.

2) Destinations should have access to modern tourism-related facilities, including information and reliable communication technologies. They should be enhanced to a higher level. In addition, as mentioned above, a healthy and positive external tourism environment and internal business environment are crucial to the development of rural tourism destinations

3) Tour operators and their agencies and service providers are encouraged to work together to create a culturally unique, novel, meaningful, and happy tourist experience. For example, in crafts production such as making souvenirs, even involving the visitors -"an immersive experience"and "an interactive experience".

4) Folk festivals, history and culture, residential buildings, natural landscape and characteristic aspects such as typical diets, children's play activities, hobbies, their schools and their teachers, for exam-levels of interest, give full consideration to rural tourists of different ages, different types of travel preferences and consumer psychological characteristics, optimize the innovation unceasingly, meet the diversified tourism needs of tourists.

5) Local governments, supported by the national Tourism Authority, are encouraged to assist in their support, including courses for prospective managers for rural tourist sites, including financial management, and working with the local residents.

6) Regarding product development, local industries could become involved in construction and restoration work, costume making, marketing handicrafts, and packaging, for example. And local residents should become deeply involved.

## 5. Limitations and future research directions

Some limitations of this study should be acknowledged in determining future research directions.

Firstly, this study takes the villages of Xijiang Qianhu Miao village in southeast, Minzu village in north and Nahui Village in southwest of Guizhou Province as cases to questionnaire distribution. Tourists' perception has distinct regional characteristics. In the future, the model construction and dynamic mechanism of tourism driving factors can be further improved based on more different types of tourism destinations.

Secondly, on the phase of quantitative research, the study explores the value perception of tourism development from the perspective of tourists, so as to further it is worth exploring the perception differences of different groups such as local residents and tourism enterprises in the future.

Thirdly, in the process of visiting these villages, the authors found a series of representative villages in tourism development. The comparative analysis based on the development patterns among them is worth exploring, so as to expolre the general rules of tourism development of ethnic minority villages. It can also provide referential value for other villages in China.

## Author contribution statement

Chen Pindong: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Nutteera Phakdeephirot; Chai Ching Tan: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data.

Yan Yaoyao:Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data.

## Data availability statement

Data included in article/supplementary material/referenced in article.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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