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How to build tourism economic resilience in historical and cultural blocks?—A fsQCA study based on 21 blocks in Beijing

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The development of cities has resulted in the increasing importance of historical and cultural blocks as carriers cultural communication and valuable resources for urban and tourism development. However, there is a paucity of research on the economic resilience of historical and cultural blocks and its influencing factors in the context of tourism development. This study investigated 21 historical and cultural blocks in Beijing and employed fsQCA to identify factors influencing their tourism economic resilience. We found that:(1) the tourism economic resilience of historical and cultural blocks is jointly influenced by a combination of factors, among which high tourism element investment is necessary for high tourism economic resilience. (2) There are three high tourism economic resilience configurations of historical and cultural blocks: the cultural and creative industry empowerment-driven model, the folklore community collaborative governance model, and the cultural-resources-concentrated development model; along with two non-high tourism economic resilience configurations: the Tourism Investment Deficiency Model and the Single Tourism Resource Model. These results provide the theoretical foundation and practical guidance for strengthening the tourism economic resilience of historical and cultural blocks, updating the blocks, and improving their tourism development.

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Introduction

Historical and cultural blocks serve as important carriers of urban cultural resources, recording the historical development of urban culture and city growth. Since the 18th CPC National Congress, under the scientific guidance of General Secretary Xi Jinping's important expositions and instructions, the protection and inheritance of historical and cultural blocks have achieved significant progress. As for now, over 1200 historical and cultural blocks have been designated as protected areas nationwide. During urban development processes, these blocks have gradually lagged behind urban renewal in terms of cultural atmosphere preservation, architectural style maintenance, and commercial development, facing the dual challenges of imbalanced conservation efforts and diminished vitality. In recent years, cultural tourism integration has emerged as a significant trend, driven by shifting tourist demands toward experiential, quality-oriented, and diversified offerings. The growing public emphasis on cultural and educational motivations has driven the rapid development of tourism in historical and cultural neighborhoods, establishing them as a prominent tourism category. Consequently, exploring effective approaches to enhance the sustainable development capacity of historical and cultural blocks through tourism-oriented protection and development has become a crucial issue in contemporary urban preservation studies.

Resilience provides new ideas and innovative ways for the tourism economic development of historical and cultural blocks. Current research primarily addresses three dimensions: the first is conceptual research. Tourism economic resilience denotes a regional tourism system's capacity to recover from or adapt to disruptions caused by natural disasters, epidemics, or geopolitical shifts (Xing and Zhang, 2023). Secondly, it is the study of measurement methods. ZHANG P et al. used the ARIMA model and the POT model to evaluate Chinese tourism economic resilience from the perspective of resistance and recoverability, and divided Chinese tourism economic resilience into 4 kinds of robustness, self-reliance type, laissez-faire type, and fragility type (Zhang et al., 2022); WANG Xinyue et al. employed the entropy weight TOPSIS method to construct a framework of tourism economic resilience, including resistance, recovery, adjustment, and renewal capabilities, to evaluate the level of inbound tourism economic resilience (Wang and Guo, 2023). Third, the study of influencing factors. Tourism economic resilience is multifaceted and encompasses several critical dimensions, including the tourism industry environment, innovation capacity, intellectual reserves, local and tourism economic foundations, capital and human resource allocation (Chen and Zhou, 2024), ecological environment quality, government management capacity, and technological innovation levels. These factors collectively shape the adaptive and recovery capabilities of tourism economies in the face of shocks.

A review of the relevant literature reveals the following deficiencies in existing research: the evaluation index system for tourism economic resilience remains underdeveloped, with methodological refinement needed for assessment approaches and analysis of influencing factors. Prior research has predominantly relied on quantitative methods, overlooking the importance of integrating qualitative and quantitative approaches. Furthermore, studies on the economic resilience of historical and cultural blocks are notably underexplored, particularly within cultural and historical contexts. Employing resilience theory, this study investigates 21 historic-cultural blocks in Beijing using fuzzy-set qualitative comparative analysis (fsQCA). We examine how six antecedent variables across four capacities (resistance, recovery, restructuring, renewal) combine to differentiate between high and non-high tourism economic resilience,

thereby uncovering critical causal mechanisms and optimization strategies. Theoretically, it advances tourism resilience research by expanding theoretical and methodological frameworks. Practically, it offers strategic insights for heritage conservation, tourism development, and resilience enhancement in historical blocks.

Research review

Resilience. The term "resilience" originates from the Latin word "resilio" meaning the ability to return to an initial state after external pressure. Resilience is a multidisciplinary concept, and its theoretical development varies significantly across different academic domains (Downes et al., 2013). Initially, resilience originated in physics, referring to the ability of an object to return to its original state after experiencing external stress (Davoudi, 2012). Over time, the concept of resilience evolved through the cognitive shift from "engineering resilience" to "ecological resilience" and eventually to "evolutionary resilience" (Yang et al., 2021). Since the global financial crisis of 2008, economies worldwide have faced challenges such as sluggish growth, recurring financial crises, economic restructuring, and supply chain disruptions. In 2010, the concept and definition of economic resilience were systematically articulated for the first time. Scholars began to systematize the concept of economic resilience, using the theory of complex adaptive systems to establish a four-phase adaptive cycle theory model: reform and restructuring phase (restructuring stage), growth and opportunity capture phase (exploration stage), stability and high-growth phase (consolidation stage), and decline and recession phase (release stage). Economic resilience was thus recognized as a dynamic and adaptive process. They conceptualize economic resilience through four dimensions: shock resistance, post-shock recovery, resource-based adaptability, and innovation capacity (Simmie and Martin, 2010). In recent years, tourism economic resilience, as a branch of economic resilience research, has garnered attention. Wei Min et al. proposed that tourism economic resilience is the ability of the tourism industry to respond to external disruptions and adjust its development path after withstanding shocks, including aspects such as resistance, recovery, reconstruction, and creativity under shocks (Wei et al., 2022).

Economic resilience is typically measured using two main methods: sensitivity analysis and comprehensive evaluation index systems. Sensitivity analysis determines the economy's ability to resist crises by analyzing the gap between the actual and trend values of key variables after an economic shock. Key variables commonly used by scholars include employment rates, trade change rates, and GDP growth rates. For example, studies on economic resilience post-financial crisis have used overall employment figures in the UK to represent resilience and applied the UK's city-level employment growth indicators to predict future resilience (Han and Goetz, 2015). The degree of decline in the import-export trade volume of different countries is also used to reflect the resilience of their economies after the financial crisis (Bergeijk et al., 2017). The comprehensive evaluation index system approach primarily involves reviewing and analyzing existing research to identify and select multidimensional indicators that are highly correlated with economic resilience, thereby constructing a scientifically grounded resilience evaluation index system. Existing studies identify four determinants of urban economic resilience: consumer market breadth, skilled labor availability, economic diversification, and ecological livability (Polese et al., 2015). Based on existing research, the resilience of urban economies has been analyzed from the perspectives of risk resistance, innovation and transformation

capabilities, and self-adaptive abilities, and an urban economic resilience evaluation system has been established (Qi et al., 2019). Tourism economic resilience measurement generally adopts the comprehensive evaluation index system approach, with scholars constructing tourism economic resilience evaluation frameworks based on four dimensions: resistance, recovery, reconstruction, and renewal capacities (Wang and Mei, 2022).

The factors influencing economic resilience vary by period and region, but some factors have long-term effects on economic resilience, such as a diversified economic base, modern infrastructure, a strong innovation system, and a well-developed workforce (Christensen and Krogman, 2012). Some scholars suggest that three key factors influence the level of economic resilience: the economic development model, a diversified economic structure, and long-term development planning. With scientific and reasonable planning, correct policy guidance, and forward-looking strategic management, these factors can have a positive and constructive impact on economic resilience (Davoudi, 2012). In terms of economic resilience, a comparison of two regions with similar industrial structures and geographical conditions shows that variations in resilience in response to external shocks stem from multiple factors, including institutional policies, labor structure, economic composition, technological innovation, and social culture (Chen and Li, 2018). The enhancement of tourism resilience requires specialized collaboration and network management between communities, governments, businesses, and other external actors (Tsao and Ni, 2016). Furthermore, tourism economic resilience is influenced by industrial upgrading, consumption upgrading, government leadership, and technological support (Wang and Mei, 2022). External factors such as economic crises, pandemics, and climate change also have a major impact on tourism resilience.

Resilience of historical and cultural blocks. Historical and cultural blocks are defined as areas that preserve immovable cultural relics, historic buildings, traditional-style architecture, historic alleys, and other elements of a historically authentic environment. These blocks exhibit relatively intact historical patterns and traditional characteristics at a meaningful spatial scale. Research on historical and cultural blocks primarily focuses on their conservation and renewal, evaluation frameworks, and social space. A synergistic analysis of the conservation renewal and tourism development of Dazhalan, a famous historical and cultural block in Beijing, was carried out, and corresponding planning schemes and suggested measures for the sustainable tourism development of the neighborhood were put forward from three dimensions: the evaluation of tourism resources, the zoning of land use, and the zoning of block protection (Ma and Wu, 2005). At the same time, suggestions and countermeasures for the specific implementation of protection and renewal methods and measures for the case site are proposed from three levels: restoration of the block texture, reconstruction of the block structure, and optimization of the block function (Ye et al., 2017). The value evaluation system of historical and cultural blocks is constructed from eight aspects: historical value, esthetic value, cultural value, social value, architectural value, economic value, and cultural lineage value (Yu and Luan, 2014). For the spatial reconstruction of historical and cultural blocks, based on the perspective of spatial production theory, it can be found to contain two different logics: one is the production logic dominated by social capital, which mainly consists of material consumption and cultural consumption; and the other is the experiential logic of social-emotional integration, which mainly consists of individual emotions and social memories (Sun, 2020). In recent years, scholars have increasingly focused on the tourism attributes of historical and cultural blocks.

Research attention has shifted from basic exploration to broader applications, such as tourism development models, tourist satisfaction, and image perception. Starting from the theory of tourism gaze, an empirical analysis model is constructed to explore and analyze the influence process of tourism gaze on historical and cultural blocks from the perspective of tourists (Liu and Yang, 2021). Focusing on nostalgia tourism in historical and cultural blocks, the relationship between tourists' nostalgia emotion and loyalty was explored, and an empirical model was constructed to analyze the influencing factors affecting tourists' loyalty (Fan et al., 2022). From the theory of cultural memory media, the elements of memory media heritage information and continuity under the influence of tourism development in historical and cultural blocks are explored (Guo et al., 2021).

The resilience of historical and cultural blocks is a critical component of urban development and renewal in China. Scholars acknowledge the material and cultural significance of these blocks, employing multi-disciplinary and cross-field approaches to explore them from diverse angles. Historically, research on historical and cultural blocks in China predominantly focused on enhancing the resilience of historical buildings and physical spaces. However, contemporary studies increasingly emphasize the improvement of spiritual culture and social space resilience. Based on the current state of research on historical and cultural blocks both domestically and internationally, three key characteristics emerge: First, in terms of research perspectives, there has been a gradual shift from single-discipline studies, such as architecture, to interdisciplinary integration involving fields like humanities and social sciences. Second, regarding research forms, at the macro level, investigations begin from an urban perspective to examine the intrinsic relationship between the whole and its parts, specifically the connection between urban resilience and block resilience; at the micro level, case studies dominate, with content primarily centered on resilience assessment and improvement strategies for specific areas. Third, concerning research methods, qualitative research remains predominant, while quantitative research remains relatively underdeveloped. The integration of research forms, resilience analysis, and information technology within the context of big data requires further exploration and advancement.

In summary, resilience provides new ideas and innovative ways for the tourism economic development of historical and cultural blocks. From a holistic perspective, examining the adaptability and transformation of historical and cultural blocks in response to economic and social structural changes offers insights into their evolution and responses to systemic, industrial, and demographic interventions in renewal practices. This paper studies 21 Beijing historical and cultural blocks by applying resilience theory. By examining four resilience dimensions—resistance, recovery, restructuring, and renewal—alongside six antecedent variables, this paper delves into the formation of high versus non-high tourism economic resilience in historical blocks. Through identifying optimal pathways to bolster resilience, the analysis contributes to theoretical advancements in resilience theory. The exploration aims to identify optimal pathways and strategies for enhancing tourism economic resilience while contributing to the advancement of resilience theory (see Fig. 1).

Research design

Research methods

Qualitative comparative analysis methods. Qualitative comparative analysis (QCA) is a Boolean set-based method for grouping small to medium number of cases, which is suitable for explaining multiple concurrent causal phenomena with outcome equivalence and causal asymmetry (FISS, 2007). The method is dedicated to

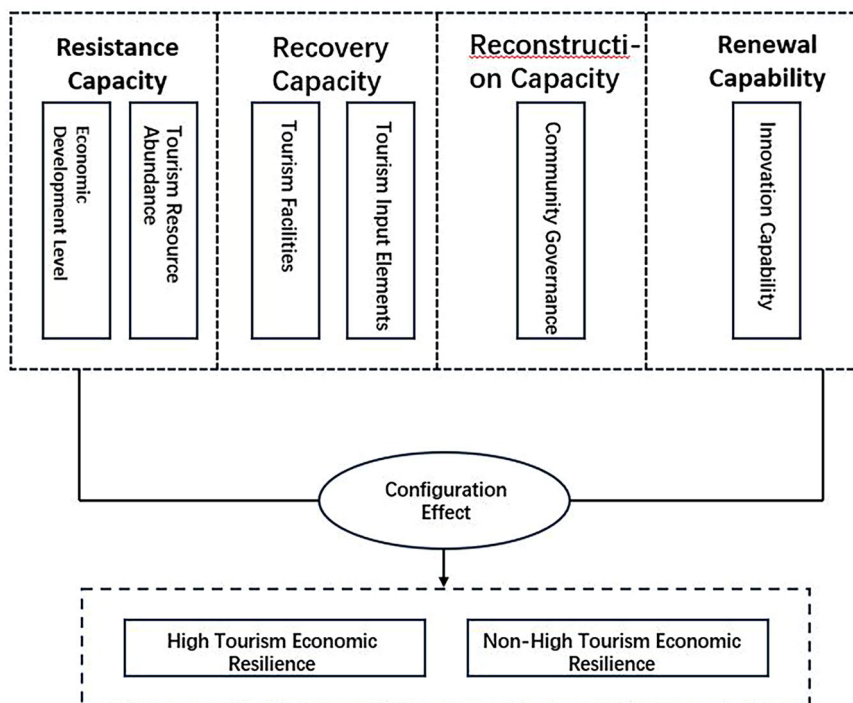


Fig. 1 Analytical framework.

exploring the complex causal and concurrent mechanisms behind social phenomena and can identify combinatorial configurations of multiple conditioning factors that produce a particular outcome variable (Rihoux and Ragin, 2009). The emergence of fsQCA enables QCA to handle both categorical distinctions and variations in degree and membership. FsQCA offers significant advantages in research and has become the preferred approach when applying QCA methods. The formation of tourism economic resilience in historical and cultural blocks is a complex and multifactorial process involving interdependent and interacting factors. FsQCA can effectively address this complex causal relationship by identifying the joint influence of multiple factor combinations on the outcome variable, whereas traditional quantitative methods often struggle to capture such intricate causal networks. In this study, 21 historical and cultural blocks in Beijing were selected as cases, forming a small and medium-sized sample. FsQCA is highly applicable to small and medium-sized samples and can effectively analyze the complex effects of factor combinations with a limited number of cases. In contrast, traditional statistical methods are often constrained by insufficient statistical power in small sample sizes.

Overview of case sites. Beijing ranks among the top cities in China in terms of the number of designated historical and cultural blocks, which are characterized by a rich cultural heritage, extensive geographical distribution, and diverse features (see Fig. 2). Over the past few decades, Beijing has made extensive preservation and revitalization efforts. These efforts have gradually expanded the scope of preservation, diversified protection methods, and enhanced public awareness, placing Beijing at the forefront of historical and cultural blocks preservation nationwide. In particular, the protection and development of historical and cultural blocks such as Dashilan, Nanluoguxiang, and Shichahai have achieved outstanding results, and all of them have successfully explored the tourism development mode, which has improved the resilience of these blocks, given them the ability of adaptive development, and successfully achieved the sustainable

development of the blocks. Accordingly, Beijing's historical and cultural blocks were chosen as case studies due to their representative and exemplary nature.

Given the large number of historical and cultural blocks in Beijing, this study adopted the following criteria for selection: ① classify and analyze the blocks according to their characteristics and tourism development, and select 2–3 blocks that are highly similar to each other as the representatives; ② discard the blocks that are geographically clustered, so as to ensure the comprehensiveness and heterogeneity of the research object as much as possible; ③ consider the accessibility of the data as well as the feasibility of the research. Finally, 21 historical and cultural blocks in the old city are identified as research objects.

Constructing a system of indicators for evaluating the resilience of tourism and economic systems in historical and cultural blocks. This study uses the entropy value method to objectively assign weights to each tourism economic resilience indicator based on data from historical and cultural blocks, avoiding subjective and random weighting. It then calculates comprehensive evaluation results for tourism economic resilience. The main calculation steps include the standardization of raw data, calculation of the proportion of each indicator, calculation of the entropy value of each indicator, calculation of the coefficient of variation of each indicator, calculation of the weight of each indicator, and calculation of the comprehensive evaluation value of each indicator.

Based on the universality and specificity of tourism development in historical and cultural blocks, and following the principles of scientific, comprehensive, objective and data accessibility in the selection of indicators, this study draws on the research results and mature scales of economic resilience and tourism economic influencing factors of researchers and scholars, such as Lu and Yu (2005); Wang et al. (2020); Yang et al. (2022), and constructs an evaluation index system of economic resilience of historical and cultural blocks tourism in four dimensions, namely, resilience, recovery capacity, reconstruction capacity, and renewal capacity.

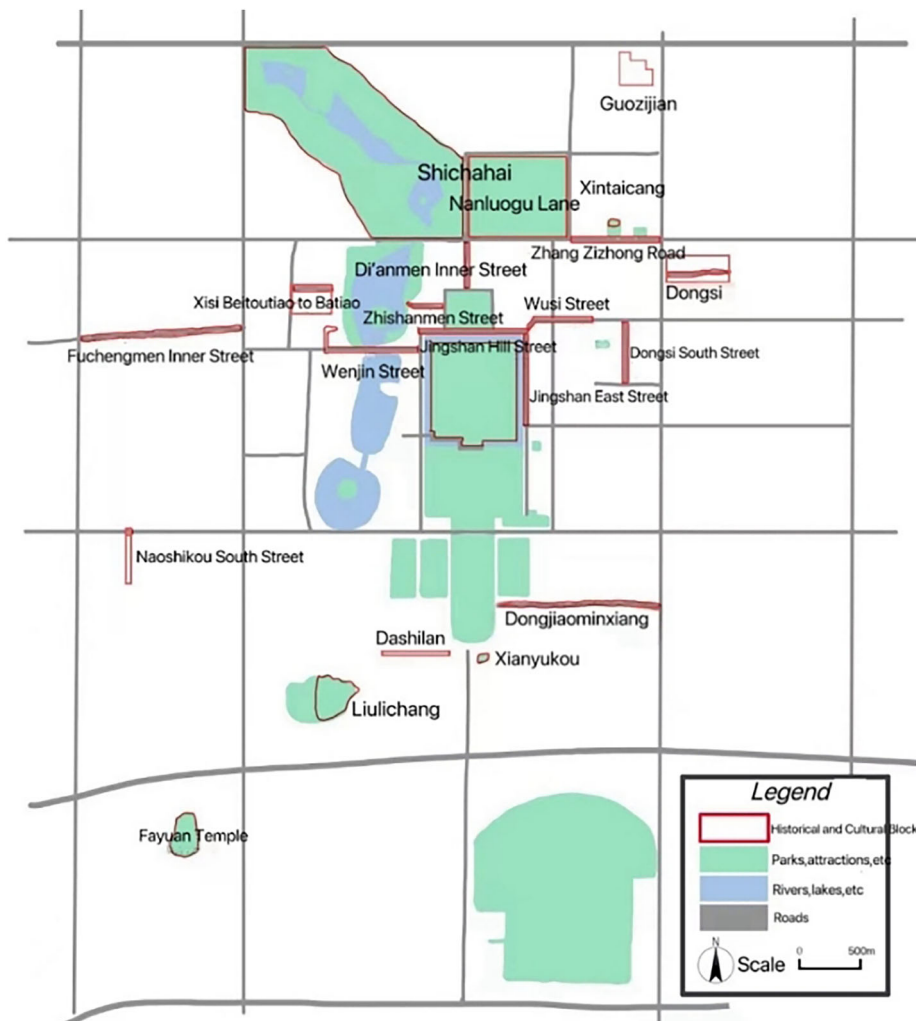


Fig. 2 Distribution of historic and cultural blocks in Beijing (Source: Self-drawn by the author).

Resistance reflects a tourism economic system’s ability to withstand internal and external risks, maintaining structural stability and functional integrity. Key determinants include tourism resource richness and economic development levels. Recovery capacity denotes the system’s ability to rebound to its original developmental and operational state following external disruptions, with tourism infrastructure and resource investment playing pivotal roles. Reconstruction capacity involves adaptive responses through structural adjustments, organizational innovation, and systemic reforms amid internal or external shocks, where community governance is a critical enabler. Renewal capacity refers to the system’s potential to develop novel approaches driven by scientific research and innovation, with innovation capacity being the primary driver for enhancing this aspect in historical and cultural blocks. The evaluation indexes and weights of tourism economic resilience of historical and cultural blocks are shown in Table 1.

Data collection. Data collection in this study followed the principle of multi-source complementarities, taking into account objectivity and authority: The richness of tourism resources was standardized according to the Classification, Survey and Evaluation of Tourism Resources (GB/T 8972-2003) for 21 historical and cultural blocks; Economic and demographic data (such as per capita fiscal income, cultural and tourism expenditure) were derived from the budgets of subblock offices published on the

official websites of Beijing block people’s governments in 2022, and the missing data were supplemented by historical trend estimation; Tourism infrastructure was measured by the length of roads in the blocks, service facilities were quantified by the number of hotels, homestays and travel agencies, and innovation capacity was based on the number of cultural and creative shops. Community governance data were collected by questionnaire survey, following the scale design by Zhang, Zhao (2019) and employing the Likert-5 scale method. In line with the theme and research objectives of this study, 648 valid questionnaires (with an effective response rate of 88.04%) were collected from four dimensions: community belonging, cognitive degree, participation intention and residents’ satisfaction. The reliability and validity test showed that the Cronbach’s α coefficient of the scale was 0.923, the KMO value of all dimensions was greater than 0.7, and the Bartlett sphericity test was significant ($p = 0.000$), confirming the scale’s statistical adequacy (see Table 2). In order to control potential bias, stratified sampling was used to ensure the balanced distribution of the sample covering 21 blocks, the questionnaire expression was optimized through pre-test, and investigators were trained to reduce the execution bias. After excluding the regular answers, 10% of the respondents were randomly selected for follow-up telephone interviews, achieving a feedback consistency rate of 92.3%. Methodological triangulation was strengthened through semi-structured interviews with 15 street governors, cross-validating residential survey outcomes to enhance analytical rigor.

Table 1 Weights of tourism economic resilience evaluation indicators for historical and cultural blocks.

Evaluation objective	Encodings	Evaluation level	Level 1 indicators	Encodings	Secondary indicators	Indicator weights
Tourism economic resilience	Y	Resilience	Tourism resource endowment	A	Richness of tourism resources	0.208
			Level of economic development	B	Per capita financial income	0.138
		Recovery ability	Tourist facility	C	Tourism infrastructure	0.081
			Tourism element investment	D	Tourist Service Facilities	0.073
		Reconstruction ability	Community governance	E	Number of people employed in tourism	0.128
			Resident perception and participation		Expenditures on culture and tourism	0.165
Renewal ability	Innovation capacity	F	product innovation	0.102		
					0.105	

Table 2 Results of the reliability test.

Measured variable	Number of questions	Cronbach's alpha coefficient	KMO	Bartlett's test of sphericity		
				Approximate chi-square (math.)	(Number of) degrees of freedom (physics)	Significance
Sense of community belonging	3	0.873	0.816	345.639	7	0.000
Cognitive level	3	0.902	0.754	529.703	7	0.000
Willingness to participate	3	0.869	0.821	541.336	6	0.000
Residents' satisfaction	3	0.886	0.850	627.191	5	0.000
Overall scale	12	0.923	0.878	3233.141	171	0.000

Table 3 Necessity analysis of tourism economic resilience.

Antecedent variable	High tourism economic resilience		Non-high tourism economic resilience	
	Consistency	Degree of coverage	Consistency	Degree of coverage
High tourism resource endowment	0.797	0.791	0.497	0.572
Non-high tourism resource endowment	0.569	0.494	0.819	0.823
High level of economic development	0.700	0.727	0.610	0.733
Non-high level of economic development	0.743	0.622	0.773	0.749
High tourism facilities	0.886	0.828	0.509	0.551
Non-high tourism facilities	0.520	0.478	0.841	0.895
High tourism element investment	0.937	0.828	0.469	0.480
Non-high tourism element investment	0.411	0.401	0.831	0.939
High community governance	0.583	0.535	0.759	0.807
Non-high community governance	0.789	0.738	0.563	0.610
High innovation capacity	0.880	0.821	0.545	0.589
Non-high innovation capacity	0.559	0.515	0.834	0.889

Data calibration. In this study, fuzzy set qualitative comparative analysis (fsQCA) was used to transform continuous variables into fuzzy set membership degrees in the interval (0,1) by the indirect calibration method (Rihoux and Ragin, 2009). Calibration anchors were set based on theoretical significance and data distribution: full membership (1.0) corresponded to 95% of the original data quantile, crossover (0.5) corresponded to the median (50% quantile), and no membership at all (0) corresponded to 5% quantile. In the calibration of specific variables, economic variables such as economic development level and tourism facilities referred to the threshold value of the World Tourism Organization (UNWTO). For example, when per capita GDP was 1.5 times

higher than the regional average, it was calibrated as “high” (membership degree ≥ 0.8). Social variables such as innovation ability and community governance were distributed according to the quantile of the sample. The first 25% of cases were defined as “high” (membership ≥ 0.8), and the last 75% were defined as “non-high” (membership ≤ 0.2). After the standardization of tourism facilities and tourism element investment indicators by the value-added method, they were uniformly calibrated according to the above standards. The calibrated membership degree was used for subsequent univariate necessity analysis (Table 3) and configuration path test, and the calculations for consistency and coverage were based on this framework to ensure

the theoretical rationality and data robustness of the classification logic.

Analyses and results

Univariate necessity analysis. The necessity analysis of a single condition refers to the necessary condition to detect whether each condition variable is a result variable, that is, to explore the extent to which the result set constitutes a subset of the condition set fsQCA3.0 software is used to conduct univariate necessity analysis. Table 3 shows that high tourism element investment, with a consistency of 0.937, is an essential factor influencing high tourism economic resilience. The consistency of the five conditional variables, tourism resource endowment, economic development level, tourism facilities, community governance and innovation ability, is all lower than 0.9, indicating that these five antecedents have some explanatory power to the outcome variables but do not constitute approximate necessary conditions. Therefore, this study further uses configuration analysis to determine the combination of antecedent variables affecting the resilience of tourism economy.

Combined path analysis. The case frequency threshold is set to 1, the original consistency threshold is set to 0.8, and the PRI consistency threshold is set to 0.7. Three solutions, namely, simple solution, intermediate solution, and complex solution, are obtained, and the intermediate solution with reasonable evidence and moderate complexity is selected for analysis and interpretation. According to the operational recommendations of existing studies, the conditions that both appear in the intermediate and simple solutions are regarded as core conditions, and the conditions that only appear in the intermediate solution are regarded as marginal conditions. The causal configurations of high tourism economic resilience and non-high tourism economic resilience are derived.

Group analysis of high tourism economic resilience. Table 4 demonstrates robust model validity, with overall solution consistency reaching 0.946 and individual configuration consistency exceeding 0.9. The solution coverage of 0.728 indicates these four configurations effectively account for 72.8% of observed cases, demonstrating strong explanatory capacity.

This study classifies the four groupings obtained based on the core conditions and summarizes three types of paths to promote the improvement of tourism economic resilience in historical and cultural blocks, namely, the cultural and creative industry empowerment-driven model, folklore community collaborative

governance model, and intensive development model of cultural resources.

(1) Cultural and creative industry empowerment-driven model

Grouping Y1 takes high economic development level and high tourism element investment as the core conditions, and high tourism facilities, high innovation capacity, and non-high tourism resource endowment as the edge conditions. This indicates that strong economic development, substantial tourism input, robust facilities, and high innovation can generate high tourism economic resilience in historical and cultural blocks, regardless of community governance effectiveness or tourism resource abundance. The consistency of this grouping is 0.938, the original coverage is 0.468, and the unique coverage is 0.017, which means that this path can explain about 46.8% of the cases of historic and cultural blocks, and the other about 1.7% of the cases of historic and cultural blocks can only be explained by this path.

The grouping Y2, with high economic development level and high tourism element investment as the core conditions and high tourism facilities, high innovation capacity and non-high community governance as the edge conditions, suggests that historical and cultural blocks are able to generate high tourism economic resilience in the absence of efficient community governance as long as they have a high level of economic development and high tourism inputs, as well as better tourism facilities and high innovation capacity. The consistency of this grouping is 0.935, the original coverage is 0.534, and the unique coverage is 0.004, indicating that this path explains about 53.4% of the cases of historical and cultural blocks, and about 0.4% of the cases of historical and cultural blocks can be explained only by this path.

As can be seen from Fig. 3, the cases of cultural and creative industry empowerment-driven explanations include Nanluoguxiang, Shichahai, Dazhalan, Liulichang, Wenjinjie, and Shichahai, all of which are well-known cultural and creative blocks. As exemplified by Nanluoguxiang (see Fig. 4), the block leverages its robust economic development, substantial tourism investments, well-established infrastructure, and profound cultural heritage to revitalize the area through cultural and creative industries, allowing more tourists to experience its rich history and culture. Statistical data indicate that Nanluoguxiang currently accommodates approximately 200 cultural and creative establishments, comprising artisanal craft studios, innovative fashion boutiques, specialty dining venues, designer guesthouses, and café-bars, representing diverse original business models in the cultural sector. In order to have a more in-depth understanding of the development of cultural and creative industries in Nanluoguxiang, the author went to Nanluoguxiang on July 27, 2022, for a field trip and conducted random interviews with some local store owners and residents about the development of cultural and creative industries. The interviews found that the historical buildings preserved in Nanluoguxiang are the foundation and support for the development of the entire cultural and creative industry, providing material space and a place for the development of block tourism and the cultural and creative industry in Nanluoguxiang, “A lot of the products in my house are designed based on the architectural features here. (Owner of a cultural and creative store, July 27, 2022)” At the same time, many stores in Nanluoguxiang, on the basis of its distinctive block culture, have added creative thinking, design and processing, production, and sales to form a cultural and creative industry. “The whole street everyone sells pretty much the same thing, and I added a little of my own, and the business is much better than the next few shops. Business is much better than the next few. (Owner of a cultural and creative store, July 27, 2022)” This approach improves the competitiveness of the store’s own market while increasing the

Table 4 Grouping of high tourism economic resilience.

	Y1	Y2	Y3	Y4
A	⊗		●	●
B	●	●	●	⊗
C	•	•	⊗	•
D	●	•	●	●
E		⊗	•	⊗
F	•	•	⊗	
Consistency	0.938	0.935	0.984	0.982
Original coverage	0.468	0.534	0.321	0.519
Unique coverage	0.017	0.004	0.042	0.109
Consistency of solutions			0.946	
Coverage of solutions			0.728	

Note: ● means that the core condition exists, ⊗ means that the core condition is missing, • means that the marginal condition exists, ⊗ means that the marginal condition is missing, and “blank” means that the condition is optional.

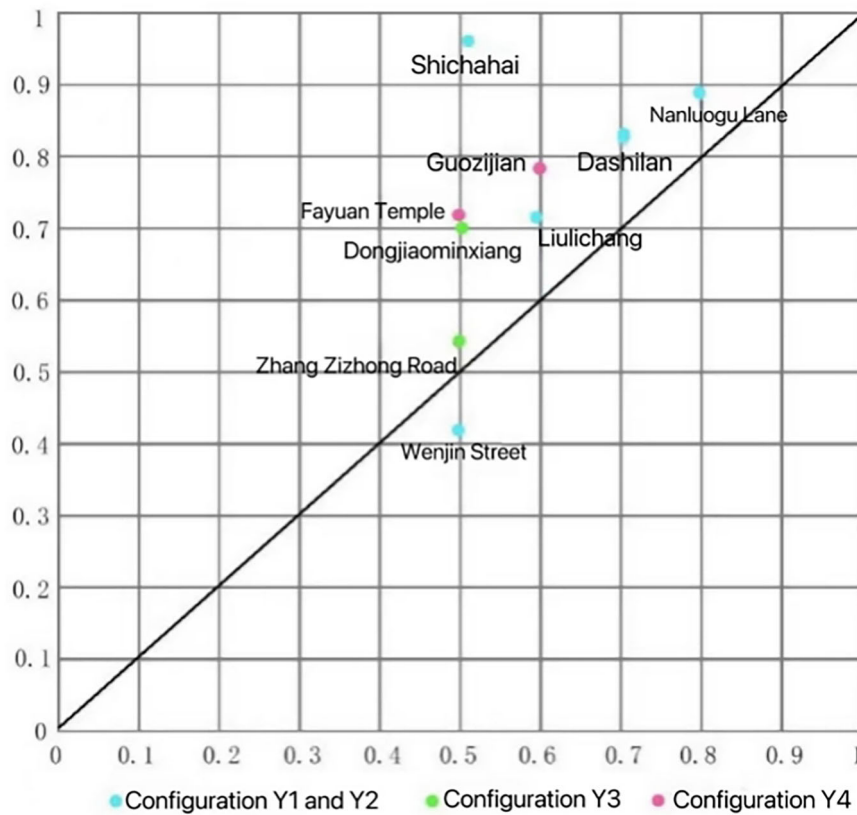


Fig. 3 Explanation case for each grouping of high tourism economic resilience.



Fig. 4 Cultural and creative shops in Nanluoguxiang.

creativity of its products. In addition, catering, accommodation, leisure facilities and other industries have also been developed on the basis of the cultural and creative industries, and the development of such facilities has provided an important creative space and physical place for the cultural and creative industries on the one hand, and on the other hand, the construction of bars

and cafes incorporating cultural and creative ideas has met the needs of the majority of tourists and residents for leisure and entertainment. As one of the residents living in the block said, “I often ask my friends to come to this cafe to have a chat when I’m not doing anything, and several of my friends think the environment here is good. (A block resident, July 27, 2022)”



Fig. 5 Community volunteers on Zhang Zizhong Road guiding tourists for civilized tourism.

(2) Folklore community collaborative governance model

Group Y3 takes high tourism resource endowment, high level of economic development, and high input of tourism factors as the core conditions, and non-high tourism facilities, high community governance, and non-high innovation capacity as the marginal conditions. The consistency of this grouping is 0.984, the original coverage is 0.321, and the unique coverage is 0.042.

Figure 3 illustrates the implementation of the Folklore Community Collaborative Governance Model through two representative cases: Zhang Zizhong Road and Dongjiaominxiang. The urban planning framework of Zhang Zizhong Road exemplifies a tripartite developmental strategy integrating heritage-based recreation, cultural curation, and community service optimization. First of all, Zhang Zizhong Road boasts a wealth of historical and cultural resources, not only the former residence of Ouyang Yuqian and the ruins of Princess Hejing's residence, but also the typical hutongs. The block exudes a profound historical atmosphere and a deep connection to the city's cultural legacy. Secondly, local residents, intimately familiar with the area's history and architectural landmarks, hold a strong emotional bond with their surroundings. As one resident shared, "Every day when I walk down this road, I'm reminded of General Zhang Zizhong (A local resident, July 28, 2022)". Meanwhile, the local community actively fosters historical awareness by organizing cultural events, strengthening residents' sense of identity and pride in their heritage. Another resident remarked, "The community frequently hosts events to promote local history. I often take my children, and sometimes they even receive small gifts. (A local resident, July 28, 2022)". In addition, the community is known for its warm hospitality. Residents often engage with tourists, enthusiastically sharing stories about the local historical and cultural sites, and also give a very high evaluation of the architectural style of the block and the changes in the living environment brought about by tourism. The positive interaction of residents has a significant effect on the tourist experience, which is a very important factor in improving the economic resilience of tourism (see Fig. 5).

(3) Intensive development model of cultural resources

The grouping Y4 takes high tourism resource endowment and high tourism element investment as the core conditions, and non-

high economic development level, high tourism facilities, and non-high community governance as the edge conditions. This suggests that historical and cultural blocks can achieve high tourism economic resilience even in the absence of strong economic development and community governance, as long as they possess abundant tourism resources, significant tourism investments, and well-established tourism infrastructure. The consistency of this grouping is 0.982, the original coverage is 0.519, and the unique coverage is 0.109. These metrics show the path accounts for 51.9% of historical and cultural blocks' cases, with 10.9% solely explained by this configuration.

Figure 3 illustrates the application of the intensive development model of cultural resources through representative cases, notably exemplified by Fayuan Temple and the Imperial College. Fayuan Temple serves as a prime example, with its well-preserved traditional architecture, maintaining the "vertical hutong" pattern from the Ming and Qing dynasties and boasting abundant historical and cultural resources. To gain deeper insight into the tourism development of Fayuan Temple, the author conducted a field study on New Year's Day 2023, engaging in spontaneous conversations with tourists. The findings revealed the following key characteristics: First, Fayuan Temple has rich cultural resources and high recognition. As a national 4A-level tourist attraction and a key cultural relic under state protection, it is the oldest surviving ancient temple complex in Beijing, housing an astonishing collection of artistic and cultural artifacts, which deserves significant fame both in Beijing and nationwide. "Fayuan Temple is too famous, I rarely come to Beijing, definitely want to come to see. (A tourist, January 2, 2023)". Secondly, the region exhibits substantial capital allocation in tourism infrastructure development, underpinned by comprehensive ancillary service networks. The nine hutongs in the Fayuan Temple have retained the traditional street pattern, and while improving infrastructure and residential environments, it also emphasizes cultural preservation. For example, tourist guide signs are designed with guild culture, lilacs, celebrity stories, and other elements, highlighting the cultural characteristics of "Xuannan impression", and displaying the uniqueness and culture of the block through visual image design. In addition, new business formats and scenes, such as cultural and creative shops and cultural commerce, continue to flourish. "The atmosphere here is lively, it's easy to get to, and I

think it's definitely worth visiting (A tourist, January 2, 2023)". It can be found that the historical and cultural blocks have enhanced the tourist experience of the visitor group through larger inputs of tourism elements and perfect tourism supporting facilities, thus ultimately increasing the economic resilience of tourism.

Group analysis of economic resilience in non-high tourism economies. As can be seen from Table 5, the consistency level of the overall solution reaches 0.994, and the consistency levels of the individual grouping solutions are all above 0.9, which is much higher than the consistency criterion of 0.8, indicating that the model consistency is high; the coverage rate of the overall solution is 0.682, which indicates that these four groupings are

effective in explaining 68.2% of the cases in the practice, and they have a strong explanatory power.

This study categorizes the four groupings obtained based on the core conditions and summarizes two types of pathways that lead to low tourism economic resilience in historical and cultural blocks: the tourism investment deficiency model and the single tourism resource model.

(1) Tourism investment deficiency model

The histogram ~Y1, with non-high tourism facilities, non-high tourism element investment and non-high innovation capacity as the core conditions and non-high economic development level and high community governance as the edge conditions, indicates that in the case of poor tourism facilities, low tourism element investment, weak innovation capacity, and low level of economic development, even with high community governance capacity, it leads to lower tourism economic resilience in the historical and cultural blocks. The consistency of this grouping is 0.992, the original coverage is 0.552, and the unique coverage is 0.202.

The grouping pattern ~Y2, with non-high tourism facilities, non-high tourism element investment and non-high innovation capacity as the core conditions, and high tourism resource endowment and high community governance as the marginal conditions, suggests that in the case of poor tourism facilities, low tourism element investment, and weak innovation capacity, even with high tourism resource endowment and community governance capacity, it leads to lower tourism economic resilience in historical and cultural blocks. The consistency of this grouping is 0.986, the original coverage is 0.322, and the unique coverage is 0.02.

As can be seen from Fig. 6, the explanatory cases of the tourism investment deficiency model include Xisi Beitoutiao to Batiao, Dongsì, Dongsì South Street, Xintaicang, Naoshikou South Street,

	-Y1	-Y2	-Y3	-Y4
A		●	⊗	⊗
B	⊗		●	●
C	⊗	⊗	●	
D	⊗	⊗	⊗	⊗
E	●	●	⊗	⊗
F	⊗	⊗		●
consistency	0.992	0.986	1.000	1.000
Original coverage	0.552	0.322	0.315	0.310
Unique coverage	0.202	0.020	0.004	0.017
Consistency of solutions	0.994			
Coverage of solutions	0.682			

Note: ● means that the core condition exists, ⊗ means that the core condition is missing, ● means that the marginal condition exists, ⊗ means that the marginal condition is missing, and "blank" means that the condition is optional.

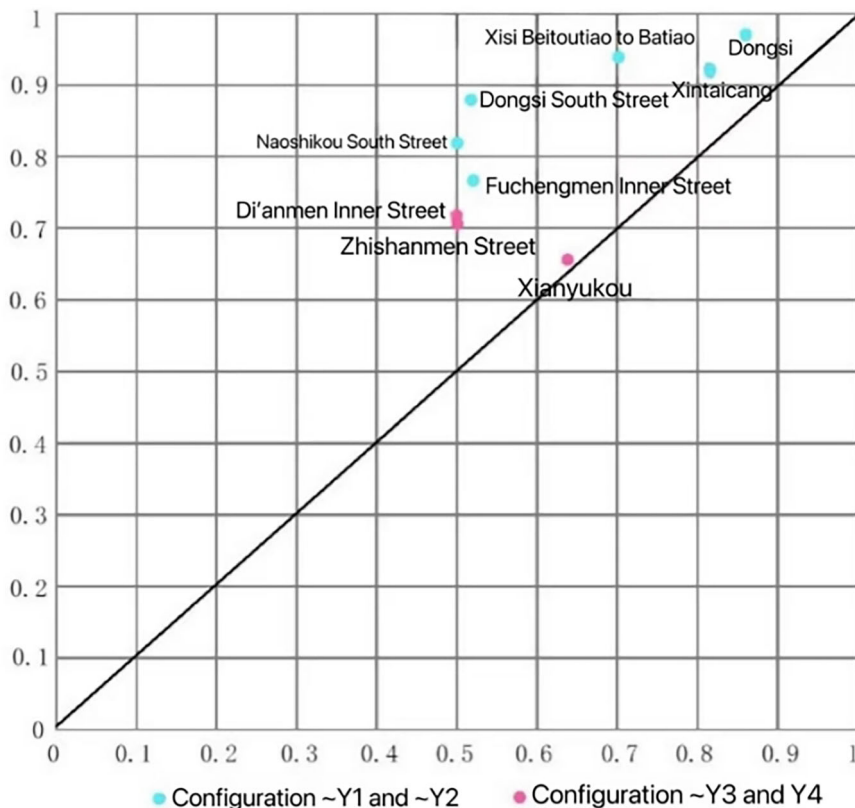


Fig. 6 Explanatory cases for each grouping of non-high tourism economic resilience.

and Fuchengmen Inner Street. Taking Xisi Beitoutiao to Batiao as an example, the block possesses historical legacy and abundant cultural assets, yet suffers from insufficient tourism investment and underdeveloped infrastructure. There are two reasons for this: on the one hand, the block primarily serves as a residential zone, with urban planning focused on meeting residents' daily needs and improving community services rather than tourism development. As a result, tourism-related services, employment opportunities, and visitor capacity remain limited, which to a large extent restricts the development of the tourism economy and leads to a non-high tourism economic resilience. "I've heard this area is steeped in culture, and today's visit confirms its distinctive local character and profound cultural depth. However, my tour is limited to walking around the hutongs. The siheyuans are accessible, but the narrow passages make entry inconvenient. (A tourist in Xisi Beisantiao, August 21, 2022)". On the other hand, the protection and space capacity of the hutong in the Xisi area are limited, which makes it difficult to balance residential demand and tourism infrastructure development. This scarcity of space fundamentally limits the commercial construction of hotel services, cultural venues, and supporting facilities, while also impeding capital inflow and human resource allocation. Thus, it affects the innovation ability of the block and leads to the non-high tourism economic resilience under the combined influence. "My main purpose is to experience Beijing's hutong culture. The restaurants here don't appeal enough for me to have lunch. (A tourist in Xisi Beisantiao, August 21, 2022)".

(2) Single tourism resource model

The grouping pattern $\sim Y3$, with non-high tourism resource endowment and non-high tourism element investment as the core conditions, and high economic development level, high tourism facilities and non-high community governance as the edge conditions, suggests that despite the high level of economic development and better tourism facilities, singular tourism resources, lower tourism element investment and ineffective community governance still lead to lower tourism economic resilience in historical and cultural blocks. The original coverage of this grouping is 0.315, and the unique coverage is 0.004, indicating that this path explains about 31.5% of the cases of historical and cultural blocks, and about 0.4% of the cases of historical and cultural blocks can be explained only by this path.

The grouping pattern $\sim Y4$, with non-high tourism resource endowment and non-high tourism element investment as the core conditions, and high economic development level, non-high community governance and high innovation capacity as the edge conditions, indicates that despite the high economic development level and high innovation capacity, single tourism resources, lower tourism element investment and ineffective community governance still lead to low tourism economic resilience of historical and cultural blocks. The original coverage of this grouping is 0.310, and the unique coverage is 0.017, indicating that this path explains about 31% of the cases of historical and cultural blocks, and about 1.7% of the cases of historical and cultural blocks can be explained only by this path.

Figure 6 shows that the single tourism resource model's interpreted cases include Xianyukou, Di'anmen Inner Street, and Zhishanmen Street. Di'anmen Inner Street, as a critical segment of Beijing's central axis conservation strategy, showcases exemplary vermilion-walled urban landscapes with meticulously maintained greenbelts. However, its tourism ecosystem exhibits structural limitations due to overdependence on singular heritage assets, primarily historical architecture encompassing imperial wall remnants and traditional hutong networks. Such architectural homogenization constrains socioeconomic diversification by marginalizing community participation mechanisms and

suppressing cultural innovation capacities within the tourism value chain. At the same time, a limited range of tourism resources can lead to visual fatigue, while short visit durations may reduce tourists' willingness to spend, posing challenges to the sustainable growth of the tourism economy. "The hutongs and ruins over here are still quite famous, and there will be more tourists on weekend vacations, but it's just a simple visit. (Resident of a hutong, October 4, 2022)".

Complementarity and substitution of conditioning elements. In terms of the relationships within the grouping, "tourism facilities" and "community governance" do not appear simultaneously, with tourism facilities existing in Y2 and Y4 and community governance not existing, and community governance existing in Y3 and tourism facilities not existing, indicating that The relationship between "tourism facilities" and "community governance" is one of substitution; "tourism facilities" and "innovation capacity" appear simultaneously (Y1); "tourism facilities" and "innovation capacity" appear simultaneously (Y2) and "community governance". The presence of both "tourism facilities" and "innovation capacity" (Y1 and Y2) or the absence of both (Y3) suggests that the relationship between "tourism facilities" and "innovation capacity" is complementary and requires synergy to be effective. If only one of them is present ($\sim Y3$ and $\sim Y4$), historical and cultural blocks can only be non-highly resilient to tourism.

Conclusions and discussion

Conclusions. Based on the perspective of evolutionary resilience, this study constructs a tourism economic resilience evaluation index system for historical and cultural blocks from four dimensions: resilience, recovery, reconstruction, and renewal. It uses the fsQCA methodology to explore and analyze in depth the influencing factors of the 21 historical and cultural blocks of Beijing with high tourism economic resilience and non-high tourism economic resilience, and obtains the following conclusions:

(1) This study examines the formation mechanisms of tourism economic resilience in historical blocks, revealing it emerges from complex factor interactions rather than isolated elements, of which a high input of tourism factors is a necessary condition for high tourism economic resilience. The economic resilience of tourism in historical and cultural blocks is not only determined by the inherent attributes of the blocks themselves (such as the richness of tourism resources, the degree of perfection of tourism facilities and the scale of inputs of tourism factors, etc.), but also profoundly affected by external macro-environmental factors (such as the level of economic development, the efficacy of community governance, and the construction of innovation capacity, etc.). The synergy between community governance effectiveness and tourism investment demonstrates that resident engagement elevates cultural authenticity while refining visitor experiences via spontaneous interpretation initiatives, as evidenced in Zhang Zizhong Road's operational model, consequently strengthening systemic resilience capacities. This finding is generalizable to regions with large differences in resource endowments: less-developed regions should prioritize community governance capacity building, while developed regions must focus on innovation ecosystems and infrastructure upgrading.

(2) Four factor combinations enhance tourism economic resilience in historical and cultural blocks, categorized into three types: the cultural and creative industry empowerment-driven model, the folklore community collaborative governance model, and the intensive development model of cultural resources with different influencing factors for each of the three types. The cultural and creative industry empowerment-driven model

Table 6 Sustainable development pathways for historical and cultural blocks.

Serial number	Type	Model	Specific strategy	Case	Characteristics
1	Cultural and creative industry Empowerment-driven model	Integration and development	Excavating culture and blending old with new	Nanluoguxi-ang	Holistic development
2	Folklore community collaborative governance model	Community building	Improving facilities and shared use by residents and visitors	Zhang Zizhong Road	Improving tourism infrastructure, encouraging residents to inherit local culture, achieving co-governance and shared management of community affairs, and creating harmonious social relationships.
3	Intensive development model of cultural resources	Cultural regeneration	Theme-driven and scene-creation	Fayuan Temple	Leveraging locational and market advantages to provide opportunities for foreign investment
4	Tourism investment deficiency model	Event-led development	Resource integration and immersive experience	Xisi north first to eighth lane historical and cultural block	Integrating characteristic cultural resources to create distinctive tourism activities and services
5	Single tourism resource model	Regional collaboration	Leveraging strengths and synergistic development	Dianmen Inner Street	Jointly designing tourism routes and product combinations with surrounding scenic areas, co-hosting tourism festivals and events, and achieving resource sharing and mutual tourist referral.

demonstrates optimal applicability in regions exhibiting advanced economic development and adequate tourism capital inputs, yet comparatively limited natural tourism resource endowments. This approach facilitates tourism competitiveness enhancement through the strategic infusion of creative capital into existing socioeconomic infrastructures. The folklore community collaborative governance model proves most effective in contexts with established participatory governance frameworks and high resident engagement indices. By institutionalizing cultural stewardship mechanisms and amplifying place-based identity construction, this paradigm systematically elevates experiential resilience metrics within visitor ecosystems. The intensive development model of cultural resources addresses spatial contexts characterized by abundant cultural heritage assets yet underdeveloped economic foundations and fragmented community governance capacities. Through targeted resource intensification and tourism infrastructure modernization, this model attracts high-yield experiential travelers while optimizing tourism-economic resilience coefficients. In short, different combinations of factors constitute different paths, all of which can generate high tourism economic resilience in historical and cultural blocks, with a certain degree of universality and uniqueness(see Table 6).

(3) The factors leading to high tourism economic resilience and non-high tourism economic resilience of historical and cultural blocks have asymmetric characteristics, that is, the causes of non-high tourism economic resilience are not completely opposite to those of high tourism economic resilience. This paper summarizes two types of combination factors that lead to the non-high tourism economic resilience of historical and cultural blocks: the tourism investment deficiency model and the single tourism resource model. The tourism investment deficiency model is due to the limitation of the economic development level of the block, resulting in the lack of tourism investment in tourism facilities, manpower, capital and other aspects of the historical and cultural block, and low innovation ability, unable to resist and adapt to the impact and interference, which hinders the development of tourism economy. The single tourism resource model is less attractive to tourists because of its more homogeneous tourism resources, small inputs of tourism elements, lower willingness to

be replaced by other blocks, and lower community governance and weaker ability of the community to withstand shocks and return to a normal state of functioning, which leads to lower resilience of the tourism economy.

(4) “Host-guest symbiosis” (resident-friendly) and “scenario creation” represent two major pathways for enhancing tourism economic resilience in historical and cultural blocks. Configurations Y1, Y3, and Y4 illustrate the “scenario creation” approach, which caters to diverse tourist experiences by recreating historical streetscapes, cultural immersion zones, and creative markets. This strategy combines modern tourism infrastructure with emerging technologies and business models, such as digital navigation and VR experiences, to boost visitor engagement. The block’s focus on innovation and cultural creativity further drives product upgrades, addressing evolving tourist demands and injecting vitality into the local tourism economy. Configuration Y2 reflects the “host-guest symbiosis” model, emphasizing harmonious coexistence between residents and tourists. This approach enhances community governance and encourages active resident participation in management, cultural preservation, and services, fostering a unique community culture. It also prioritizes in-depth, personalized tourist experiences, allowing visitors to engage with local culture while feeling the community’s warmth. This symbiotic atmosphere strengthens social cohesion and tourism competitiveness, ensuring stable economic development. The applicability of these two pathways is evident in cross-regional cases like Shanghai’s Tianzifang and Suzhou’s Pingjiang Road, where artist-resident collaboration and classical garden scenarios respectively, drive vitality and cultural tourism.

Theoretical contributions. Innovation of this research using fsQCA method breaks through traditional single factor analysis framework, reveals the historical and cultural blocks multiple condition combination effect of tourism economic resilience. Through causal asymmetry analysis, it is proved that there are essential differences in the configuration of factors that promote and inhibit toughness, which provides a new perspective for the toughness theory of complex systems. Compared with the market-led model of European heritage cities (such as Florence),

the resilience of Chinese neighborhoods highlights the two-wheel drive of economy and community, providing a new paradigm for cultural heritage management in developing countries.

Management insights. This paper explores three types of high tourism economic resilience paths and two types of non-high tourism economic resilience paths by constructing a tourism economic resilience evaluation index system, and the two major construction paths for forming a high tourism economic resilience in historical and cultural blocks are “host-guest symbiosis” (resident-friendly) and “scenario creation”. Therefore, the following management suggestions are proposed at five different levels: host-guest symbiosis, scenario creation, financing channels, industry innovation, and human nature mechanism, to provide inspiration and guidance for the sustainable development of historical and cultural blocks and the improvement of tourism economic resilience.

Strengthening “host-guest symbiosis” community participation and benefit-sharing. In the development of historical and cultural blocks, strengthening community participation and benefit-sharing in a symbiotic manner is the key to enhancing the resilience of the tourism economy. This necessitates institutionalized resident engagement mechanisms ensuring inclusive decision-making agency across urban regeneration phases, particularly in planning parameterization, developmental prioritization, and operational governance frameworks. Simultaneously, a fair and reasonable benefit distribution strategy is implemented to ensure that tourism proceeds benefit local residents through tax breaks, rent concessions, dividends, etc., thus promoting harmonious coexistence between residents and tourists while bringing lasting economic vitality to the block. When applying cross-regionally, the combination of core conditions can be adjusted with reference to the above logic. For example, an ancient town in Jiangnan can draw on “community governance” to form a “host-guest symbiosis” through the participation of residents; however, it is necessary to incorporate the cultural characteristics of the water village to enhance the competitiveness of differentiation.

Deepening the innovation and diversification of “scenario creation”. Deepening the innovation and diversification of “scenario creation” is the core of enhancing the tourism appeal of historical and cultural blocks. This requires an in-depth exploration of the historical and cultural resources of the block and the creation of unique and attractive cultural scenes through creative design and modern technological means. Strategic diversification of tourism product portfolios necessitates developing experiential cultural programming, recreational amenities, and pedagogical tourism modules that cater to heterogeneous tourist demographics. In terms of improving the quality of services, the training of tourism practitioners should be strengthened to enhance their professionalism and service level, so as to ensure that tourists have a high-quality tourism experience. Continuous innovation and diversified development approaches make historical and cultural blocks become tourist destinations.

Broaden financing channels and optimize the use of funds. Addressing capital inadequacies in tourism development requires multidimensional financing solutions. Governments must mobilize private capital participation through policy incentives and fiscal subsidies for block revitalization, while strategically deploying bond issuance, specialized funds, and public-private partnerships to optimize capital acquisition costs and enhance fiscal efficacy. Institutionalized fiscal governance frameworks ensure strategic capital allocation with regulatory compliance. Concurrent implementation of rigorous monitoring protocols

and systematic impact evaluations guarantees cost-benefit optimization and long-term fiscal sustainability.

Integration of resources and cross-border integration to innovate the tourism industry. Inter-regional collaboration and resource integration can shape tourism routes and product systems, enriching visitor experiences. Meanwhile, cross-sector integration of tourism with culture, technology, and agriculture can yield diversified products to meet varied visitor demands. In terms of innovative tourism experience, modern technological means such as virtual reality (VR) and augmented reality (AR) are used to create an immersive tourism experience to provide tourists with a unique cultural experience. Personalized services can further boost visitor satisfaction and loyalty, thereby enhancing the area’s tourism competitiveness.

Building mechanisms for resilience management and sustainable development. Building resilience management and sustainable development mechanisms is a guarantee for the long-term prosperity of historic and cultural blocks. This requires the establishment of a scientific resilience assessment system to regularly evaluate the economic resilience of the block’s tourism, identify potential risks and challenges, and formulate strategies to deal with them. Strengthening ecological and environmental protection achieves coordinated development between tourism and the environment, while encouraging active community participation in block management and development fosters shared governance and promotes sustainable development. By building resilient management and sustainable development mechanisms, historic and cultural blocks will be better able to cope with challenges and changes and achieve long-term prosperity and development.

Research limitations and prospects. The study acknowledges several limitations due to the unique nature of the research subject. First, data for historical and cultural blocks often lack comprehensive statistical sources and were self-estimated by researchers, which may introduce errors. Second, the design and distribution of questionnaires posed challenges in ensuring data authenticity and objectivity, influenced by communication methods and tourist characteristics. Additionally, data accessibility and research constraints limited the number and diversity of case study sites, meaning findings may not generalize to all historical and cultural blocks nationwide. Future research could build on this foundation by employing case analysis and more rigorous data collection methods to deepen insights into the factors driving or hindering tourism economic resilience in such contexts.

Data availability

Data is provided within the supplementary information files.

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Author contributions

Conceptualization, original draft preparation, investigation and data analysis: JT, HT, and JL; Methodology and software: JT, HT, and JL; Validation and formal analysis: HT, JW, and JL; Resources, and data curation: JT, HT, and JL; Supervision, reviewing and editing: JT, HT, JW, and JL; Revision and polishing: JT, HT, JW, and JL; All authors have read and agreed to the published version of the paper.

Competing interests

The authors declare no competing interests.

Ethical approval

This study was conducted according to the guidelines of the Declaration of Helsinki. The author sought and obtained ethical approval from the Research Ethical Board of the School of Management, Minzu University of China, and the study complied with ethical standards throughout the research period from July 2022 until submission (approval date: May 1, 2022). No number was attached to the approval.

Informed Consent

Written informed consent was obtained from all individual participants involved in this study. Consent was secured by the authors directly from each participant prior to their participation in the respective interview session. The consent process occurred on the specific dates each interview was conducted, spanning multiple phases between July 2022 and January 2023. Participants received a comprehensive written consent form detailing the study's purpose, procedures, voluntary nature of participation, confidentiality measures (including anonymization of personal identifiers like names and contact details, and secure data storage), the scope of their consent (specifically covering participation, use of their anonymized data for research purposes, and consent to publish findings derived from their anonymized responses), and their rights to withdraw at any time without penalty. All participants acknowledged their understanding and agreement by signing the consent form. No minors or vulnerable individuals were included.

Additional information

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