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The Dynamics and Driving Mechanisms of Rural Revitalization in Western China

Xiaojuan Yang [1], Weiwei Li [2], Ping Zhang [3,4], Hua Chen [3,4], Min Lai [5,*] and Sidong Zhao [6,*]

[1] Shaanxi Institute of Urban & Rural Planning and Design, Xi'an 710072, China; xiaojuan_yang2008@163.com
[2] Urban-Rural Construction College, Guangxi Vocational University of Agriculture, Nanning 530007, China; wwli2021@163.com
[3] College of Civil Engineering and Architecture, Jiaxing University, Jiaxing 314001, China; ppqzhangp@zjxu.edu.cn (P.Z.); chjx@zjxu.edu.cn (H.C.)
[4] College of Architecture and Urban Planning, Lanzhou Jiaotong University, Lanzhou 730070, China
[5] Guangxi-ASEAN Finance and Economics Research Center, Guangxi University of Finance and Economics, Nanning 530003, China
[6] School of Architecture, Southeast University, Nanjing 210096, China
* Correspondence: lm65389@gxufe.edu.cn (M.L.); 230189013@seu.edu.cn (S.Z.)

Abstract: By constructing a rural revitalization index evaluation system and using measurement models and software such as AHP, the entropy method, the BCG matrix, and GeoDetector, this paper quantitatively analyzed the evolution mode and driving mechanism of rural revitalization performance based on the research of 131 cities and autonomous prefectures in western China to further put forward relevant policy suggestions and establish a new framework that integrates "performance evaluation, evolution model, driving mechanism, and management strategy". Findings: firstly, rural revitalization in western China showed slow development and significant regional heterogeneity, with a coefficient of variation of 0.46 or even higher; secondly, the different dimensions of rural revitalization and development varied greatly, with the order being: thriving businesses (about 0.04) < effective governance (about 0.06) < pleasant living environment (about 0.09) < social etiquette and civility (about 1.0) < prosperity (about 0.23); thirdly, the growth and decline of rural revitalization performance coexisted in the context of rapid development in western China, and the evolution was in diversified patterns; fourthly, there were many factors affecting the change of rural revitalization performance, and different factors exhibited significant synergistic effects with each other, with super-interacting factor pairs having a force of over 0. 7 (maximum 1), including permanent population, urbanization rate, added value of primary industry, and per capita GDP as key factors; fifthly, based on the superposition analysis of the evolution pattern and driving forces of rural revitalization, western cities are classified into 8 types (including external assistance zone, general development zone, general retention zone, general demonstration zone, internal governance zone, important development zone, important retention zone, important demonstration zone) for establishment of a zoning planning and management system and design of differentiated development policies, providing a basis for "evidence-based decision-making" for the government.

Keywords: rural revitalization; evolution model; sustainable development; influencing factors; management policy

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1. Introduction

With the rapid advancement of urbanization and industrialization, rural decline has gradually become a major challenge faced by countries all over the world [1,2]. Problems of increasingly serious village decay and hollowing out, land degradation, especially arable land abandonment, population loss, ecological damage, and environmental pollution have long plagued the sustainable development of villages, leading to the decreasing livability and vitality of villages [3,4]. They are found in developed countries and regions such as the

United States, the European Union, Japan, and South Korea, and are also common in China, India, Egypt, Mexico, Iran, and developing countries in Africa [5,6]. To boost the vitality of rural development, governments have promulgated a series of rural revitalization plans and policies. For example, developed countries such as the United Kingdom, Germany, Japan, and South Korea formulated and implemented rural revitalization strategies in the 1930s and 1970s [7,8]. The EU has implemented a series of new plans for rural revitalization and development in recent years, including the Rural Development Programme [9], the New Common Agricultural Policy [10], and LEADER (Liaisons Entre Activites de Developpement de l'Economie Rural) [11,12]. In addition, Finland sees vitality policy as a tool to promote rural revitalization [13], Vietnam implements the National Target Program for New Rural Development [14], and China has set "rural revitalization" as a national strategy [15]. In general, faced with the increasing marginalization of rural development, governments are designing and implementing proactive intervention policies to promote rural revitalization [16].

To address the backwardness and decline of rural development, the Chinese Government has implemented national strategies such as the "New Countryside" and "Rural Revitalization", which have achieved some success in promoting sustainable rural development [17,18]. In addition, due to the huge disparity in development between the eastern and western regions of China, the Chinese government has introduced the "Western Region Development Strategy" to promote coordinated development across the country, and in its latest policy, the Chinese government has explicitly called on the western region to promote rural revitalization, consolidate the gains of poverty eradication, and promote the integration of urban and rural areas, based on the full completion of poverty eradication tasks [19,20]. The core of China's rural revitalization strategy is to accelerate the modernization of agriculture and rural development in the five areas of "thriving businesses, pleasant living environments, social etiquette and civility, effective governance, and prosperity", to achieve the overall goal of strong agriculture, a beautiful countryside, and well-off farmers. To sum up, enhancing rural vitality has become an urgent task in western China, and it is of great practical value and theoretical significance to study the dynamic development and driving mechanisms of rural revitalization in western China.

Therefore, by constructing an index system for evaluating the rural revitalization performance in 131 cities in western China, this paper quantitatively analyzes the evolution patterns and driving mechanisms of rural revitalization in different cities using research methods such as Entropy, the Boston Consulting Group Matrix, and GeoDetector to provide experiences for sustainable rural development in western China and similar regions around the world. This study aims to address the following questions:

First, how do we construct a quantitative rural revitalization performance evaluation index system (referred to as the rural revitalization index in this paper) based on China's rural revitalization planning and policies to lay the foundation for the evaluation and comparison of the implementation of policies and plans for rural revitalization and development in different regions?

Second, how do we quantitatively measure the rural revitalization evolution patterns of different cities in western China with the rural revitalization index and provide a basis for scientifically identifying problematic and leading cities in rural revitalization?

Third, what factors influence changes in the rural revitalization performance in western China and provide a basis for decision-making on relevant policy design and planning optimization?

The main contributions of this paper are: first, quantitatively assessing the performance and change patterns of rural revitalization in western China, providing a basis for related policy design and management optimization; second, identifying and deconstructing the driving mechanisms of rural revitalization in the western region using the spatial econometric model; and third, establishing a new framework that integrates "performance evaluation, evolving patterns, driving mechanisms, and management strategies", which provides an emerging management tool for policymakers of rural revitalization.

2. Literature Review

Rural areas have a non-negligible role in global sustainable development and have long been a hotspot for academic research. A review of related literature reveals that more than 3000 scholars from 60 countries and regions around the world are currently involved in rural revitalization research, with the majority of papers published by Chinese and American scholars [21]. Recent years have witnessed an increasing number of papers on rural revitalization and sustainable rural development, as well as an increasing diversity of research contents and methodological pluralism.

In terms of research content, international scholars focus on discussing rural decline [22], sustainable rural development [23,24], urban-rural integration and urbanization [25], and smart rural construction [26,27]; Chinese scholars prefer to analyze rural governance in the context of rural revitalization [28], digital countryside [29,30], rural land consolidation and rural land use change [31,32], rural carbon emission [33], and rural habitat transformation [34,35]. Rural revitalization and rural sustainable development are generally equivalent [36], where digital countryside, smart countryside, and low-carbon countryside are the latest development trends and policy design directions. Based on the analysis of a large number of cases and index studies, scholars generally agree that rural revitalization is the core content of urbanization, and the development of rural revitalization and the rise of its research indicate that urbanization research gradually changes from "urban bias" to "urban-rural integration" [37,38]. It should be noted that the paths of rural revitalization vary significantly across countries and regions, with rural tourism [39], local agricultural or mineral resources [40,41], institutions and organizations [42], farmer entrepreneurship [43], and partnerships for sustainable rural development [44] being of significant value in most cases.

According to the research methodology, most of the papers were qualitative and used case studies. The studies on rural revitalization are in their infancy, and most of the papers try to summarize experiences, discover models, and develop technologies mainly by analyzing representative cases in old revolutionary areas [45], autonomous minority regions [46], historical and cultural villages and traditional villages [47], urban agglomerations and metropolitan areas [48], remote mountainous areas [49], poverty-stricken areas [50], and low-density population areas [51]. It is a remarkable fact that some scholars have already attempted the study of the theoretical construction of rural revitalization development based on case analysis and put forward three fundamental functions and four critical tasks of rural revitalization in China. Based on the study of rural decline and rural revitalization strategies in China, Liu constructed a theoretical framework of rural revitalization based on the two-way integration and interaction of population, land, industry, and rights between urban and rural areas and considered land system reform as the key point for management policy design [52]. Giving full play to the functions of the countryside is a prerequisite for truly revitalizing rural development. Guaranteeing national food security, providing high-quality ecological products/environments/barriers (ecological barriers), and passing on the excellent traditional Chinese culture, especially the farming culture, are the three fundamental functions of the Chinese countryside, and they are also the focus of efforts that should be made in the design of rural revitalization planning and policies [53]. Rural civilization is the guarantee of rural revitalization. Emphasis is placed on both material and spiritual civilization together to inherit, develop, and enhance the excellent traditional culture of rural areas, to improve the spiritual outlook of farmers, to cultivate a civilized countryside, a good family culture, and a simple folk culture, and thus to continuously improve the civilization of rural society. Prosperity is fundamental to the revitalization of the countryside, so environmentally friendly enterprises should be encouraged in rural areas to diversify the rural economy, provide more jobs, raise farmers' incomes, and keep rural residents' incomes growing at a faster rate than those of urban residents. Efforts should be made to continuously improve the rural habitat, build beautiful villages that are pleasant to live in and work in, and narrow the gap between urban and rural living environments. By studying the development problems of China's rural areas,

agriculture, and farmers, especially the weak points, we identified and determined four critical tasks for the development of China's rural revitalization, that is, winning the battle against poverty, stabilizing agricultural and rural development, completing the initial tasks of rural revitalization, and establishing an effective policy framework, while mobilizing and gathering development factors around the four priorities of personnel, resources, funding, and public service allocation to support the development of rural revitalization [54].

To sum up, the research on rural revitalization and sustainable rural development has received increasing attention, with some scholars devoted to case, phenomenon, and empirical analyses, while others are devoted to law discovery and theory construction, all of which have made breakthroughs in research depth and width. However, it is worthwhile to note that the existing studies also have some shortcomings, which limit the application value of the findings. The research gap is in three main areas:

First, there are relatively few quantitative empirical studies; most papers use case studies and qualitative analysis methods, except for some scholars who have conducted exploratory studies using econometric models [55]. Qualitative and quantitative studies are equally important, and both are complementary and indispensable. As the development of rural revitalization moves from the stage of theoretical construction to the stage of practical guidance, developing a quantitative evaluation scale for rural revitalization performance to reveal the evolution pattern of rural revitalization and its driving mechanisms is of great value for the design of development and management policies and the formulation of village and spatial planning related to rural revitalization.

Second, there are relatively few micro-scale studies, and most papers place their focus on macro-scale studies of countries, provinces, and regions while ignoring mesoscale and micro-scale studies of cities, counties, and towns [56]. Given that any single scale cannot satisfy all the needs of consumers, multi-scale analysis is necessary for rural revitalization research, and the micro-scale should not be marginalized. With the in-depth implementation of the rural revitalization strategy, more and more cities, counties, and towns have started to formulate and implement their own rural revitalization development plans and programs under the guidance of the national strategic planning outline and provincial master plans. Therefore, the practice of rural revitalization development requires scholars to conduct micro-scale research to provide a basis for government decision-making.

3. Research Design

3.1. Study Area

The study area covers 131 cities and ethnic minority autonomous prefectures under the jurisdiction of 12 provincial-level administrative regions in China, that is, Sichuan, Shaanxi, Gansu, Qinghai, Yunnan, Guizhou, Chongqing, Guangxi Zhuang Autonomous Region, Inner Mongolia Autonomous Region, Ningxia Hui Autonomous Region, Xinjiang Uygur Autonomous Region, and Tibet Autonomous Region, involved in the Western Region Development Strategy (Figure 1). It is noteworthy that Yangling Demonstration Zone in Shaanxi Province, Shihezi, Aral, Tumxuk, Wujiaqu, Beitun, Tiemenguan provincial county-level city, and the Xinjiang Production and Construction Corps in Xinjiang Uygur Autonomous Region are excluded from the study area due to a lack of data. Since Enshi Tujia and Miao Autonomous Prefecture in Hubei Province, Xiangxi Tujia and Miao Autonomous Prefecture in Hunan Province, and Yanbian Korean Autonomous Prefecture in Jilin Province, which enjoy China's western development policy, are not part of the western region, they are also excluded from the study area.

Unlike the central and eastern regions, the western region has lagged behind in economic and social development due to the constraints of the natural environment, geographical location, and transportation facilities for a long time, with an excessively wide gap between urban and rural areas and a particularly prominent rural decline, so the revitalization of the western region has become a critical part of China's overall promotion of rural revitalization. A comprehensive assessment of the level of rural revitalization from a quantitative point of view makes it possible to identify the effectiveness of rural

revitalization strategies and policies at the stage of implementation while allowing for the establishment of rural development goals for each region, analysis of existing problems, promotion of construction through assessment, and extracting and popularizing useful experience. At a critical period when western China is consolidating and expanding the achievements of poverty alleviation and rural revitalization, it is of great theoretical and practical significance to construct an index system for objectively evaluating the implementation effect of rural revitalization, understanding the development of rural revitalization, assessing the problems in the implementation of relevant policies and plans, and deeply analyzing the external factors affecting the implementation effect of rural revitalization in western China.

Figure 1. Study area.

3.2. Research Steps and Methods

This study includes three critical steps. The first step is to construct the rural revitalization index through the analytic hierarchy process to lay the foundation for quantitative evaluation of rural revitalization development performance; the second step is to quantitatively analyze the evolution pattern of rural revitalization using the Boston matrix; and the third step is to quantitatively analyze the regional differences of rural revitalization and the driving mechanism of development evolution based on the GeoDetector. The operational steps of the significant components of the study implementation process are detailed below:

3.2.1. Rural Revitalization Index and Analytic Hierarchy Process

According to the *Strategic Plan for Rural Revitalization (2018–2022)* and *Opinions on the Implementation of Rural Revitalization Strategy* issued by the State Council of the Central Committee of the Communist Party of China, governments at all levels should promote the revitalization of rural industries, talents, culture, ecology, and organization in a scientific and orderly manner in accordance with the general requirements of thriving businesses, a pleasant living environment, social etiquette and civility, effective governance, and prosperity. To implement rural revitalization, the focus is on thriving businesses; the key is a pleasant living environment; the guarantee is social etiquette and civility; the foundation is effective governance; and the core is prosperity. The literature review shows that most scholars have constructed the evaluation index system of rural revitalization around the

overall plan for promoting "all-round economic, political, cultural, social, and ecological progress", but the applicability of the index system varies.

According to the above explanations and analyses as well as the studies of scholars such as Xu [57], Wan [58], and Yang [59], we constructed a rural revitalization index evaluation system containing five subsystems and 30 measurement indicators based on the actual conditions of rural development in western China as well as the available data and the hierarchical evaluation system using the AHP method (Table 1) in a scientific, feasible, and measurable manner. Notably, the primary task of rural revitalization in the western region is to crack the predicament of a large rural poverty population, deep poverty, extensive poverty-stricken areas, accumulated poverty, and multi-dimensional poverty, while the revitalization of rural industry is a powerful support to eradicate poverty, the improvement of rural governance is a basic guarantee, the revitalization of rural ecology is a powerful way, and social etiquette and civility are a basic premise. Therefore, the revitalization of the countryside in western China is a comprehensive development based on getting the population out of poverty, and is a holistic enhancement of rural industry, economy, ecology, culture, and governance.

Table 1. Indicator system of the rural revitalization index.

Subsystem	Indicator	Code	Weight	Implication
Thriving Businesses	Per capita, the total power of agricultural machinery (KW)	Z_1	0.023	Agricultural Production Capacity
	Comprehensive grain production capacity (10,000 Tons)	Z_2	0.001	
	Agricultural labor productivity (Yuan/Person)	Z_3	0.041	Agricultural Production Efficiency
	Main business income of agricultural product processing enterprises above the designated size (100 Million Yuan)	Z_4	0.001	Industry Convergence
Pleasant Living Environments	Consumption of pesticides and fertilizers (10,000 Tons)	Z_5	0.098	Greenization of Agriculture
	Comprehensive utilization rate of livestock and poultry manure (%)	Z_6	0.032	
	The proportion of administrative villages that treat household sewage (%)	Z_7	0.03	Rural Living and Ecological Environment Governance
	The proportion of administrative villages that manage household waste (%)	Z_8	0.032	
	Coverage rate of sanitary toilets (%)	Z_9	0.033	
	Rural greening rate (%)	Z_{10}	0.025	
Social Etiquette and Civility	Proportion of education, culture, and entertainment expenses of rural residents (%)	Z_{11}	0.033	Education Level of Farmers
	The proportion of full-time teachers in rural compulsory education schools with a bachelor's degree or above (%)	Z_{12}	0.031	
	Average education time of rural residents (Years)	Z_{13}	0.038	
	Coverage ratio of cable Television (%)	Z_{14}	0.029	Dissemination and Construction of Traditional Culture
	The proportion of administrative villages that have opened internet broadband services (%)	Z_{15}	0.034	
	Number of rural cultural stations (Units)	Z_{16}	0.001	

Table 1. *Cont.*

Subsystem	Indicator	Code	Weight	Implication
Effective Governance	Proportion of village directors and secretaries; "one shoulder multi-task"(%)	Z_{17}	0.037	Governance Capability and Measures
	Proportion of administrative villages that have prepared village plans (%)	Z_{18}	0.027	
	Proportion of administrative villages that have undergone village renovation (%)	Z_{19}	0.032	
Prosperity	Per capita net income of farmers (Yuan)	Z_{20}	0.047	Farmers' Economic and Consumption Structure
	Growth rate of per capita net income of farmers (%)	Z_{21}	0.052	
	Income ratio of urban and rural residents (%)	Z_{22}	0.036	
	Rural poverty incidence rate (%)	Z_{23}	0.043	
	Engel's coefficient of rural residents (%)	Z_{24}	0.037	
	Car ownership per 100 households (Vehicles)	Z_{25}	0.036	Farmers' Living Conditions
	Per capita housing area of rural residents (Square Meters)	Z_{26}	0.026	
	Number of health technicians per thousand people in rural areas (Person)	Z_{27}	0.031	
	Popularization rate of safe drinking water (%)	Z_{28}	0.034	Rural Infrastructure
	Village Road Hardening Rate (%)	Z_{29}	0.040	
	Per capita road area (Square Meters)	Z_{30}	0.040	

The selection of indicators of livelihood affluence should take into account the critical needs of farmers such as transportation, housing, health care, and water safety in an integrated manner and should give prominence to transportation. Since the Chinese embrace the belief that "transportation infrastructure is fundamental for a region's development", poor transportation is also a major reason why most villages fall into poverty. Now that rural China has entered a critical period of automobile penetration, automobiles rather than motorcycles (bicycles, e-bikes, and motorcycles have become completely commonplace and are in every household) are seen by farmers as a key indicator of affluence, so we take the number of automobiles owned as an important indicator. Televisions and refrigerators have completely covered Chinese rural households, and smartphones have achieved full penetration except for children, the elderly, the illiterate, and other unsuitable populations. As a result, these indicators are not regarded by farmers as signs of a prosperous life and are not included in the government's assessment, so they are excluded from the indicator system. However, strengthening rural public health services and building healthy villages is a concern for villagers and a key task in assessing the government. Therefore, the number of health technicians per thousand people in rural areas, one of the most commonly written indicators, is incorporated into the indicator system. Furthermore, transferring the rural population to live in cities and towns and modernizing agriculture are two core objectives of rural revitalization, so agricultural labor productivity is included in the indicator system.

Since the hierarchical analysis method allows better consideration of multiple dimensions of rural revitalization and the entropy method has the advantage of objective weighting, this paper adopts the AHP and entropy methods to calculate the rural revitalization index. The calculation steps are presented as follows: First, given that all indicators are in different units of measurement, standardize the indicators before the calculation and non-negatize the positive and negative indicators by adding 0.01 to them all to prevent the logarithm calculation from being meaningless when finding the entropy value. It is calculated by the following equation:

$$Positive\ indicators: Z'_{ij} = \frac{Max - Z_{ij}}{Max - Min} + 0.01 \quad (1)$$

$$egative\ indicators: Z'_{ij} = \frac{Z_{ij} - Min}{Max - Min} + 0.01 \quad (2)$$

where Z'_{ij} is standardized data, Max is the maximum value of all cities for an indicator, Min is the minimum value of all cities for an indicator, i and j are the serial numbers of cities and indicators, respectively, $i = 1, 2, 3, \ldots\ldots, n; j = 1, 2, 3, \ldots\ldots, m$.

Second, calculate the proportion of the j-th indicator of the i-th city as follows:

$$P_{ij} = \frac{Z'_{ij}}{\sum_{i=1}^{n} Z'_{ij}} \quad (3)$$

Third, calculate the entropy value of the j-th indicator, with $0 \leq e_j \leq 1$, as follows:

$$e_j = \frac{-1}{\ln(n)} \sum_{i=1}^{n} P_{ij} \ln\left(P_{ij}\right) \quad (4)$$

Fourth, calculate the difference coefficient of the j-th indicator, with $0 \leq g_j \leq 1$, as follows:

$$g_j = 1 - e_j \quad (5)$$

Fifth, calculate the weight of the j-th indicator as follows:

$$w_j = \frac{g_j}{\sum_{j=1}^{m} g_j} \quad (6)$$

Sixth, calculate the overall score of each city (weighted sum, i.e., the rural revitalization index value), as follows:

$$RRI_i = \sum_{j=1}^{m} w_j Z'_{ij} \quad (7)$$

3.2.2. Evolution Model and Boston Consulting Group Matrix

In traditional trend analysis, the growth rate is one of the most commonly used indicators to characterize the growth of the rural revitalization index (RRI). However, the growth rate does not measure the regional status of the RRI. To this end, this paper introduces the Boston matrix method of business management to analyze the evolution patterns of the RRI, which was created by the Boston Consulting Group in response to the need to manage business analysis and the selection of growth strategies. It classifies corporate products and businesses into four types: star, gazelle, cow, and dog, based on a combination of two indicators of product sales growth rate and market share.

The assessment of the dynamics of rural revitalization requires consideration of trends in the time dimension as well as the regional position in the spatial dimension. Based on the combination of rural revitalization indices of relative share (RS) and growth rate (GR), this paper classifies the evolution model of rural revitalization into four types. Where RS is based on the comparison of spatial dimension, representing the regional status of rural revitalization, and a larger value represents a higher degree of leadership; GR is based on the evaluation of temporal dimension, representing the growth ability of rural revitalization development, and a larger value represents a faster speed of improvement. The calculation equations are as follows [60]:

$$\text{Relative Share} = \frac{RRI_i}{RRI_{max}} \times 100\% \quad (8)$$

$$\text{Growth Rate} = \left(\frac{RRI_{end} - RRI_{star}}{RRI_{star}} - 1\right) \times 100\% \quad (9)$$

where RRI_{max} is the maximum rural revitalization index in the study area, RRI_{end} is the final rural revitalization index, and RRI_{star} is the base rural revitalization index. To exclude artificial interference, this paper uses the median of RS and GR as the threshold for the evolutionary pattern division. The star indicates that both RS and GR are greater than the median, representing strong strength and good growth of rural revitalization in the most ideal state, which is the best choice to build a regional demonstration point and leader. Cow indicates that RS is greater than the mean but GR is smaller than the median, representing the leading position in rural revitalization but small potential in future growth, which requires that the input of related resources be appropriately controlled in the future. Gazelle indicates that RS is smaller than the mean but GR is larger than the median, representing the serious lag but good growth of rural revitalization, which requires that the government increase resource input and policy support to induce them to grow into new leaders of regional rural revitalization by means of reasonable intervention and guidance. Dog indicates that both RS and GR are smaller than the median, representing a serious lag and poor growth of rural revitalization, which requires the government to strengthen targeted research and problem analysis and introduce reasonable and strong intervention policies to trigger rural revitalization and prevent rural returns to poverty.

3.2.3. Driving Mechanism and GeoDetector

The developmental stages and resource endowments of different cities vary greatly, leading to significant differences in the developmental performance, evolutionary patterns, and trends of rural revitalization. Policymakers want to measure the level of rural revitalization and, more importantly, figure out what factors affect its performance. Rural revitalization, as a complex, systematic project, is directly affected by a variety of factors, and when different factors work together, they also interact with each other to form a complex mechanism of action. Based on GeoDetector, this paper quantitatively measured the degree of influence of different factors on the spatial difference and evolution pattern of the rural revitalization index and revealed the interaction of different factors.

GeoDetector is an emerging spatial statistical model developed by Wang that is widely used in the analysis of factors affecting the humanities and social sciences [61]. The model is based on the fundamental assumption that the geographic space of the study area is divided into multiple partitions, and if the independent variable (X_i) and the dependent variable (Y_i) converge in spatial distribution, the former is considered to be able to explain the latter well. The software output index q represents the degree of explanation of the dependent variable by the independent variable. In the analysis of direct influence and interactive influence, the maximum value of the index q is 1 and the minimum value is zero, with a larger value representing a stronger explanatory power. In this paper, $q(X_i)$ is used to denote direct influence, and $q(X_i \cap X_j)$ is used to denote interactive influence. The index q is calculated by the following equation [62]:

$$q = 1 - \frac{\sum_{h=1}^{l} N_h \sigma_h^2}{N\sigma^2} = 1 - \frac{SSW}{SST} \tag{10}$$

$$SSW = \sum_{h=1}^{l} N_h \sigma_h^2 \tag{11}$$

$$SST = N\sigma^2 \tag{12}$$

where h is the number of spatial partitions, N_h and N are the numbers of cities in partition h and the study area, σ_h^2 and σ^2 are the squares of partition h and the study area, respectively; SSW is the within sum of squares in the partition; and SST is the total sum of squares in the study area. Interaction effects are classified into five types based on the relationship between interactive influence and direct influence [63]. Nonlinear weakening and single nonlinear weakening represent antagonistic effects between different factors, and measures should be taken to prevent the pairing of the two factors. The bifactor enhancement and

nonlinear enhancement imply a synergy effect between different factors, and measures should be taken to push the pairing of the two factors in the policy design [64,65] (Figure 2).

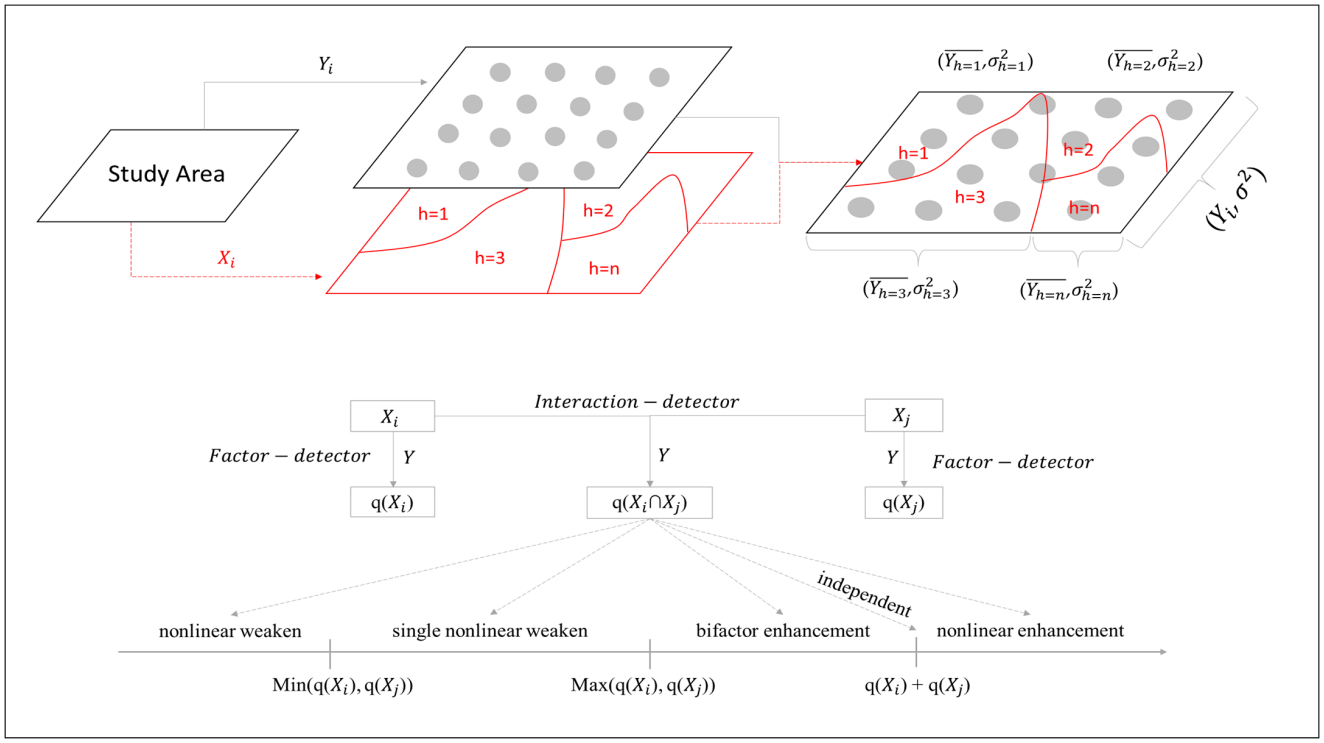

Figure 2. Factor and interaction detector of the GeoDetector.

In this paper, the rural revitalization index and evolution model of the rural revitalization index are used as dependent variables in the driving mechanism analysis, and the independent variables are chosen to combine demand creativity with supply support (Table 2). Demographic and economic demand is the basis of rural revitalization, represented in this paper using the permanent population and gross domestic product (GDP) [66]. Rural revitalization is an inevitable phenomenon and trend that comes into being when urbanization and industrialization reach a specific stage, and this paper uses the urbanization rate and per capita GDP to characterize their effects [67]. As a final demand, consumption is not only the ultimate goal and driving force of production but also a direct reflection of people's needs for a better life. The central and local governments have long been committed to promoting the expansion and upgrading of rural residents' consumption and gradually narrowing the consumption gap between urban and rural residents. This paper uses total retail sales of consumer goods to analyze the impact of consumption on rural revitalization and development [68]. Industrial structure is the basis for supporting the transformation and upgrading of agriculture and improving the level of industrial integration, with the added value of primary industry, the added value of secondary industry, and the added value of tertiary industry being common indicators [69]. The economic development of western China lags behind, and the development of rural revitalization relies more on government investment and transfer payments, so government financial expenditure is adopted in this paper to represent the government's ability to intervene [70]. In addition, poverty and return to poverty in the context of common prosperity and the urban-rural gap remain long-term challenges to rural revitalization in the western region, and this paper borrows the urban-rural income gap index to measure their impact [71].

Table 2. Indicator selection of the driving mechanism.

Variable	Indicator	Code
Dependent (Y_i)	Evolution Model of Rural Revitalization Index	Y_1
Independent (X_i)	Permanent Population	X_1
	Urbanization Rate	X_2
	Urban-Rural Income Gap Index	X_3
	Total Retail Sales of Consumer Goods	X_4
	Government Financial Expenditure	X_5
	Gross Domestic Product (GDP)	X_6
	Added Value of the Primary Industry	X_7
	Added Value of the Secondary Industry	X_8
	Added Value of the Tertiary Industry	X_9
	Per capita GDP	X_{10}

3.3. Data Source and Processing

Most of the data in this paper comes from the statistical yearbooks of 12 provinces, autonomous regions, and municipalities directly under the central government, and a small portion of the data comes from the statistical yearbooks and statistical bulletins of prefecture-level cities and autonomous regions, the Wind database, and China's economic and social big data research platform. For some missing data (e.g., pesticide and chemical fertilizer consumption, comprehensive utilization rate of livestock and poultry waste, cable TV coverage rate, and the proportion of village chiefs and secretaries who are "concurrently" employed), they are estimated at the rate of change in the previous year by assuming that they maintain the same rate of change. In view of the fact that the average years of education of rural residents are transformed by the education level, education is classified into seven levels: never finishing primary school, finishing primary school, finishing junior high school, finishing senior high school, finishing junior college, finishing undergraduate education, and finishing postgraduate education, assigned values of 0, 6, 9, 12, 15, 16, and 19, respectively. In the analysis of driving mechanisms, the evolution model of rural revitalization index is a textual variable that needs to be transformed into a quantitative indicator before being imported into the software for calculation, so star, cow, gazelle, and dog are assigned values of 4, 3, 2, and 1, respectively. According to the top-level design of the central government, the master plan for the development of western China consists of three stages: 2001–2010 as the stage of laying the foundations, 2011–2030 as the stage of accelerating development, and 2031–2050 as the stage of achieving modernization. To analyze the rural revitalization performance in western China during the stage of accelerating development, this paper sets 2010–2020 as the study period.

4. Results

4.1. Development Performance Appraisal

The measurement results of the rural revitalization index of western China are shown in Appendix A. In 2010, Tulufan had the best performance in rural revitalization, with an index of 0.81. Kezilesu, Eerduosi, Kashi, Xilinguole, Tongliao, Bayinguoleng, Wuhai, Hulunbeier, and Zhongwei also had excellent performances in rural revitalization, ranking among the top 10 in the western region of China. Nanning had the worst rural revitalization performance, with an index of 0.24. Baotou, Alashan, Yili, Akesu, Chifeng, Wulumuqi, Changji, and Xingan also had poor rural revitalization performances, ranking among the bottom ten in the western region of China. In 2020, Wulumuqi had the best rural revitalization performance, with an index of 0.81. Wuhai, Huhehaote, Bayannaoer, Xingan, Changji, Tacheng, Aletai, Baotou, and Yili also had excellent rural revitalization development performances, ranking among the top 10 in western China. Nanning had the worst rural revitalization performance, with an index of 0.24. Wulanchabu, Chifeng, Zhongwei, Akesu, Kashi, Tulufan, Bayinguoleng, Boerta, and Tongliao also had poor rural revitalization per-

formances, ranking in the bottom ten of western China. The maximum value in 2010 was 5.77 times the minimum value, further increased to 5.97 times in 2020, with the coefficient of variation remaining at 0.47 for a long time, much larger than 0.36, indicating significant spatial heterogeneity of rural revitalization performance between cities in western China (Table 3). Overall, rural revitalization in the western region is generally in a stable state with relatively small changes, and further investment is needed in future development for a better result. However, rural revitalization in the western region shows significant spatial heterogeneity and varies greatly across different regions, making it more difficult to manage.

Table 3. Statistical analysis of the rural revitalization index in Western China.

Variable	Year	Max	Min	Coefficient Variation	Average	Median
Rural Revitalization Index	2010	0.8216	0.1424	0.4704	0.5253	0.5531
	2020	0.8206	0.1375	0.4728	0.5187	0.5261
Thriving Businesses	2010	0.0646	0.0054	0.5197	0.0396	0.0403
	2020	0.0664	0.0060	0.5419	0.0398	0.0400
Pleasant Living Environments	2010	0.1624	0.0194	0.5155	0.0994	0.1047
	2020	0.1535	0.0192	0.5146	0.0936	0.0943
Social Etiquette and Civility	2010	0.1623	0.0154	0.5562	0.0975	0.1022
	2020	0.1666	0.0094	0.5740	0.0972	0.1000
Effective Governance	2010	0.0970	0.0031	0.5625	0.0581	0.0631
	2020	0.0961	0.0021	0.5717	0.0562	0.0577
Prosperity	2010	0.3364	0.0788	0.3877	0.2307	0.2458
	2020	0.3390	0.0872	0.3822	0.2318	0.2362

The indices for 2010 and 2020 were generally stable with little change, ranked as thriving businesses (about 0.04), effective governance (about 0.06), a pleasant living environment (about 0.09), social etiquette and civility (about 1.0), and prosperity (about 0.23). The coefficients of variation were all greater than 0.36, indicating large spatial differences in the rural revitalization sub-indexes. A list of the top 10 and bottom 10 cities in rural revitalization in western China is presented in Table 4. The former are regional leaders with a leading advantage in specific areas of rural revitalization and are eligible for future demonstration sites; the latter are regionally lost or diseased cities that are facing great challenges in sustainable rural development and are key areas for spatial governance by the government.

Table 4. Cluster analysis of the rural revitalization index in western China.

Grade	Year	Top 10	Bottom 10
Thriving Businesses	2010	Tulufan, Eerduosi, Kashi, Kezilesu, Wuhai, Tongliao, Xilinguole, Zhongwei, Bayinguoleng, Boerta	Aletai, Akesu, Kelamayi, Hetian, Wulumuqi, Yili, Chifeng, Changji, Xingan, Nanning
	2020	Bayannaoer, Xingan, Wuhai, Wulumuqi, Huhehaote, Changji, Tacheng, Baotou, Hami, Aletai	Kelamayi, Zhongwei, Akesu, Wulanchabu, Boerta, Kashi, Tulufan, Tongliao, Bayinguoleng, Nanning
Pleasant Living Environments	2010	Kezilesu, Tulufan, Eerduosi, Kashi, Xilinguole, Tongliao, Wuhai, Bayinguoleng, Hami, Hulunbeier	Kelamayi, Bayannaoer, Tacheng, Yili, Chifeng, Wulumuqi, Akesu, Xingan, Changji, Nanning
	2020	Wulumuqi, Wuhai, Huhehaote, Bayannaoer, Changji, Xingan, Aletai, Tacheng, Yili, Hetian	Wulanchabu, Kelamayi, Chifeng, Bayinguoleng, Kashi, Boerta, Akesu, Tongliao, Tulufan, Nanning

Table 4. *Cont.*

Grade	Year	Top 10	Bottom 10
Social Etiquette and Civility	2010	Eerduosi, Tulufan, Kezilesu, Xilinguole, Tongliao, Kashi, Wuhai, Bayinguoleng, Hulunbeier, Boerta	Kelamayi, Tacheng, Baotou, Yili, Chifeng, Akesu, Wulumuqi, Xingan, Changji, Nanning
	2020	Wuhai, Wulumuqi, Bayannaoer, Huhehaote, Xingan, Changji, Aletai, Tacheng, Baotou, Hami	Wulanchabu, Zhongwei, Kashi, Chifeng, Akesu, Tulufan, Boerta, Bayinguoleng, Tongliao, Nanning
Effective Governance	2010	Tongliao, Tulufan, Kezilesu, Xilinguole, Eerduosi, Kashi, Wuhai, Bayinguoleng, Hulunbeier, Huhehaote	Baotou, Tacheng, Yili, Akesu, Alashan, Xingan, Wulumuqi, Chifeng, Changji, Nanning
	2020	Huhehaote, Wulumuqi, Wuhai, Bayannaoer, Xingan, Changji, Tacheng, Bao-tou, Aletai, Hetian	Akesu, Zhongwei, Chifeng, Tulufan, Kelamayi, Kashi, Boerta, Tongliao, Bay-inguoleng, Nanning
Prosperity	2010	Tulufan, Kezilesu, Eerduosi, Tongliao, Xilinguole, Kashi, Bayinguoleng, Hulunbeier, Wuhai, Zhongwei	Bayannaoer, Baotou, Akesu, Chifeng, Yili, Alashan, Changji, Wulumuqi, Xingan, Nanning
	2020	Wulumuqi, Wuhai, Bayannaoer, Huhehaote, Xingan, Changji, Tacheng, Aletai, Baotou, Yili	Hulunbeier, Wulanchabu, Zhongwei, Tulufan, Bayinguoleng, Akesu, Kashi, Tongliao, Boerta, Nanning

4.2. Evolution Model Identification

From 2010 to 2020, the rural revitalization index in western China experienced both growth and decline, with 44.3% of cities seeing positive growth with a maximum value of 7.6% (Dingxi) and 55.7% experiencing decline with a minimum value of −4.2% (Lanzhou). The mean rural revitalization index in western China was −0.1%, and the coefficient of variation was 1.8, indicating that the development trend of rural revitalization is diversified and heterogeneous. The median relative share of the rural revitalization index in western China in 2020 was 64.1%, and the median growth rate from 2010 to 2020 was −0.2%, based on which the 131 cities are classified into four types: star, gazelle, cow, and dog (Table 5).

Table 5. Evolution model of the rural revitalization index in western China.

Grade	Cities
Star	Huhehaote, Baotou, Wuhai, Chifeng, Bayannaoer, Xingan, Alashan, Leshan, Ya'an, Kunming, Yuxi, Baoshan, Zhaotong, Lijiang, Lincang, Nujiang, Diqing, Ali, Linzhi, Xining, Haidong, Haibei, Hainan, Yushu, Haixi, Yinchuan, Wuzhong, Guyuan, Wulumuqi, Kelamayi, Hami, Changji, Akesu, Hetian, Yili, Tacheng, Aletai
Cow	Tongliao, Eerduosi, Hulunbeier, Wulanchabu, Xilinguole, Zigong, Guangyuan, Qujing, Pu'er, Chuxiong, Honghe, Wenshan, Xishuangbanna, Dali, Dehong, Lasa, Changdu, Shannan, Rikaze, Naqu, Huangnan, Guoluo, Shizuishan, Zhongwei, Tulufan, Boerta, Bayinguoleng, Kezilesu, Kashi
Gazelle	Nanning, Wuzhou, Beihai, Fangchenggang, Yulin-GX, Hechi, Laibin, Chongzuo, Chongqing, Chengdu, Panzhihua, Luzhou, Guang'an, Liangshan, Guiyang, Liupanshui, Zunyi, Tongren, Qiandongnan, Tongchuan, Baoji, Weinan, Hanzhong, Shangluo, Jiayuguan, Baiyin, Zhangye, Dingxi, Linxia
Dog	Liuzhou, Guilin, Qinzhou, Guigang, Baise, Hezhou, Deyang, Mianyang, Suining, Neijiang, Nanchong, Meishan, Yibin, Dazhou, Bazhong, Ziyang, Aba, Ganzi, Anshun, Bijie, Qianxinan, Qiannan, Xi'an, Xianyang, Yan'an, Yulin-SX, Ankang, Lanzhou, Jinchang, Tianshui, Wuwei, Pingliang, Jiuquan, Qingyang, Longnan, Gannan

Huhehaote, Baotou, Wuhai, and Chifeng are star cities, and they are the future leaders and early demonstration areas for rural revitalization in western China. Tongliao, Eerduosi, Hulunbeier, Wulanchabu, and Xilinguole are cow cities. They are the leaders of the regions with weak development potential and growth capacity for rural revitalization, and the government should moderately control future investment in them. Wuzhou, Beihai, Fangchenggang, Yulin-GX, Hechi, and Laibin are gazelle cities that are lagging behind in rural revitalization performance but have better growth prospects. Liuzhou, Guilin, Qinzhou, Guigang, Baise, Hezhou, Deyang, Mianyang, and Suining are dog cities, and they become losers in regional competition under the condition of limited resources for rural revitalization in western China.

4.3. Driving Mechanism Analysis

In terms of direct influence, the added value of primary industry, permanent population, per capita GDP, total retail sales of consumer goods, and urbanization rate have a strong direct influence (q has a higher value), while government financial expenditure, GDP, the added value of secondary industry, and the added value of tertiary industry have a weak direct influence (q has a lower value) (Table 6). Of note is that the urban-rural income gap index has a weak influence and fails the significance test of 0.05. The other factors passed a significance test of 0.05 or even 0.01, indicating that the impact of these factors on rural revitalization is extremely statistically significant. The mean force of the 10 influencing factors was 0.14, and the coefficient of variation was 0.37, greater than 0.36, indicating that different factors vary greatly in their driving effect on rural revitalization.

Table 6. Factor detection analysis results.

Code	Indicator	q Statistic	*p* Value
X_1	Permanent Population	0.18	0.00
X_2	Urbanization Rate	0.16	0.00
X_3	Urban-Rural Income Gap Index	0.02	0.09
X_4	Total Retail Sales of Consumer Goods	0.17	0.00
X_5	Government Financial Expenditure	0.11	0.04
X_6	Gross Domestic Product (GDP)	0.14	0.02
X_7	Added Value of the Primary Industry	0.20	0.01
X_8	Added Value of the Secondary Industry	0.14	0.05
X_9	Added Value of the Tertiary Industry	0.10	0.02
X_{10}	Per capita GDP	0.18	0.01

In terms of interactive influence, all the different factors show synergistic effects, with the urban-rural income gap index (X_3) ∩ ("∩" represents the joint action of two factors, with the same meaning in the following text), government financial expenditure (X_5), total retail sales of consumer goods (X_4) ∩ added value of tertiary industry (X_9), and GDP (X_6) ∩ added value of tertiary industry (X_9) being of bifactor enhancement, while all the rest are of nonlinear enhancement. Per capita GDP (X_{10}), added value of primary industry (X_7), added value of secondary industry (X_8), permanent population (X_1), and urbanization rate (X_2) are super interaction factors with a high mean interaction force, which can significantly amplify the actual effect of the factors and play the role of "catalyst" or "accelerator". Notably, per capita GDP (X_{10}) ∩ added value of secondary industry (X_8) is far ahead in the interactive influence, up to 0.7; per capita GDP (X_{10}) ∩ permanent population (X_1), per capita GDP (X_{10}) ∩ GDP (X_6), per capita GDP (X_{10}) ∩ added value of primary industry

(X_7), per capita GDP (X_{10}) ∩ total retail sales of consumer goods (X_4), per capita GDP (X_{10}) ∩ urbanization rate (X_2), total retail sales of consumer goods (X_4) ∩ added value of primary industry (X_7), permanent population (X_1) ∩ added value of primary industry (X_7), urbanization rate (X_2) ∩ added value of primary industry (X_7), urbanization rate (X_2) ∩ added value of secondary industry (X_8), permanent population (X_1) ∩ added value of secondary industry (X_8), urbanization rate (X_2) ∩ permanent population (X_1) have an interactive influence greater than 0.5 as super interaction factor pairs (Table 7). The comparative analysis in Tables 6 and 7 shows that the interaction force when different factors work together is much higher than the direct force, and the interaction effect should not be ignored. As a complex, systematic project, rural revitalization requires the government to adopt a variety of measures in designing, implementing, and managing the policies and plans in parallel rather than simply relying on a single strategy, which will help to bring a better result.

Table 7. Interaction detection analysis results.

Code	Indicator	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}
X_1	Permanent Population	0.18									
X_2	Urbanization Rate	0.53	0.16								
X_3	Urban-Rural Income Gap Index	0.26	0.25	0.02							
X_4	Total Retail Sales of Consumer Goods	0.38	0.48	0.26	0.17						
X_5	Government Financial Expenditure	0.40	0.47	0.14	0.34	0.11					
X_6	Gross Domestic Product (GDP)	0.46	0.49	0.22	0.38	0.36	0.14				
X_7	Added Value of the Primary Industry	0.53	0.52	0.28	0.51	0.46	0.49	0.20			
X_8	Added Value of the Secondary Industry	0.56	0.55	0.21	0.44	0.48	0.33	0.49	0.14		
X_9	Added Value of the Tertiary Industry	0.37	0.41	0.16	0.20	0.29	0.22	0.38	0.39	0.10	
X_{10}	Per capita GDP	0.64	0.51	0.24	0.57	0.49	0.62	0.63	0.70	0.47	0.18
AVG	Average Interaction Force	0.43	0.44	0.20	0.37	0.35	0.37	0.45	0.43	0.30	0.50

5. Discussion

The constraints of geographical location, natural environment, and development foundation have long led to the prominent problems of regional imbalance and the slow development of rural revitalization in western China [72,73]. Regional comparisons show huge differences between cities [74,75]. Currently, Wulumuqi, Wuhai, Huhehaote, Bayannaoer, Xingan, Changji, Tacheng, Aletai, Baotou, Yili, Hetian, Alashan, Hami, Liuzhou, and Guilin have excellent performance in rural revitalization and have achieved high quality development; in contrast, Kelamayi, Wulanchabu, Chifeng, Zhongwei, Akesu, Kashi, Tulufan, Bayinguoleng, Boerta, Tongliao, and Nanning exhibit poor performance in rural revitalization and low development quality, making them typical problem cities or lost cities. From the perspective of growth and change, growth and decline coexist, and rural revitalization in more than half of the cities is in decline, indicating that the sustainable development of the rural areas in western China is facing a great obstacle and threat. According to the rural revitalization sub-index, the differences and differentiation characteristics of different dimensions are significant. Although the poverty alleviation strategy has pushed development far ahead in the prosperity dimension, the lag in business prosperity, effective governance, and a pleasant living environment should not be overlooked, as they have been key drags on rural revitalization and sustainable development in the western region [76,77]. Many villages in western China, especially those located in mountainous areas or border regions, have beautiful ecological environments but are not easily accessible, which has led to lagging agricultural development, poverty among farmers, and low livability in rural areas, which are key areas for future investment and governance in rural revitalization.

The evolutionary pattern of rural revitalization in western China is diversified, and the influence of different factors varies widely [78,79]. This paper integrates the two dimensions of temporal change and spatial pattern based on the Boston matrix and classifies the

evolutionary patterns of rural revitalization in western cities into four types: star, gazelle, cow, and dog. The government should invest more resources, capital, and funds in star cities in the future to further improve the quality and speed of their rural revitalization so that they can become the name card of the West to rival and compete with the eastern region. The government should encourage in-depth research on gazelle cities, analyze the real reasons for the rapid development of rural revitalization, and select some cities with suitable conditions for additional investment to induce them to grow into the new stars of rural revitalization in western China. The government should hire professional teams to conduct specialized and detailed research and studies in cow and dog areas, identify the obstacles and factors that limit rural revitalization, and design targeted and practical new development policies, plans, and programs for rural revitalization in each city. The results of the GeoDetector-based analysis showed that the influence of different factors on the changes in western rural revitalization varied widely, and the factors were classified into three levels based on their direct and interactive influences. Permanent population, urbanization rate, added value of primary industry, and per capita GDP had a strong direct and interactive influence as key factors; urban-rural income gap index, government financial expenditure, and added value of tertiary industry had a weak direct and interactive influence as auxiliary factors; total retail sales of consumer goods, GDP, and added value of secondary industry were important factors [80,81].

In summary, the performance of rural revitalization in the western region is characterized by large urban differences, diverse trends of change, and complex mechanisms of influence; the government should implement a zoning planning and management system and formulate differentiated development policies [82]. In addition, the interactions between different factors should not be ignored, and there is a need to design policy combinations based on the interactions in zoning plans for the best results. In the zoning planning and development policy design, the evolutionary model of rural revitalization is integrated with the driving mechanism, and the western cities are classified into eight zones: external assistance zone, general development zone, general retention zone, general demonstration zone, internal governance zone, important development zone, important retention zone, and important demonstration zone. The driving force was calculated by weighted summation of 10 independent variables and classified into high and low, with the median as the threshold (0.86) (Table 8). In this case, the weight calculation is based on the average interaction force and is represented by the specific gravity of each factor. High-type areas have a strong development momentum in rural revitalization, with self-generated growth capacity, and are in a favorable state so that they can achieve rural revitalization simply by relying on their own capacity; in contrast, low-type areas are weak in rural revitalization and are in an unfavorable state, so they need support from higher levels and even the central government, as well as external assistance, to achieve the rural revitalization goals.

Table 8. The level of driving force for rural revitalization.

Level	Cities
High	Wulanchabu, Xingan, Wuzhou, Qinzhou, Baise, Hezhou, Hechi, Laibin, Chongzuo, Guangyuan, Guang'an, Bazhong, Ziyang, Aba, Ganzi, Liupanshui, Anshun, Tongren, Qianxinan, Qiandongnan, Baoshan, Lijiang, Pu'er, Lincang, Chuxiong, Wenshan, Xishuangbanna, Dali, Dehong, Nujiang, Diqing, Changdu, Shannan, Rikaze, Ali, Linzhi, Tongchuan, Ankang, Shangluo, Jiayuguan, Jinchang, Baiyin, Tianshui, Wuwei, Zhangye, Pingliang, Jiuquan, Qingyang, Dingxi, Longnan, Linxia, Gannan, Haidong, Haibei, Huangnan, Hainan, Guoluo, Yushu, Wuzhong, Guyuan, Zhongwei, Tulufan, Kezilesu, Kashi, Hetian, Aletai
Low	Huhehaote, Baotou, Wuhai, Chifeng, Tongliao, Eerduosi, Hulunbeier, Bayannaoer, Xilinguole, Alashan, Nanning, Liuzhou, Guilin, Beihai, Fangchenggang, Guigang, Yulin-GX, Chongqing, Chengdu, Zigong, Panzhihua, Luzhou, Deyang, Mianyang, Suining, Neijiang, Leshan, Nanchong, Meishan, Yibin, Dazhou, Ya'an, Liangshan, Guiyang, Zunyi, Bijie, Qiannan, Kunming, Qujing, Yuxi, Zhaotong, Honghe, Lasa, Naqu, Xi'an, Baoji, Xianyang, Weinan, Yan'an, Hanzhong, Yulin-SX, Lanzhou, Xining, Haixi, Yinchuan, Shizuishan, Wulumuqi, Kelamayi, Hami, Changji, Boerta, Bayinguoleng, Akesu, Yili, Tacheng

Liuzhou, Guilin, Guigang, Deyang, Mianyang, Suining, and Neijiang are in the external assistance zone with weak competitiveness, growth, and driving forces, making it difficult for them to promote rural revitalization by themselves. As the lost cities of rural revitalization in western China, they need to rely on external forces and external assistance to reverse the unfavorable development situation in the future. It is suggested that the central government should increase transfer payments and investment to these cities and help them establish "one-to-one" partnerships with developed cities in the east to help them revitalize the countryside with strong government intervention and foreign aid. Nanning, Beihai, Fangchenggang, Yulin-GX, Chongqing, and Chengdu are in the general development zone with a weak driving force and competitiveness but good growth. They need external assistance to accelerate the cultivation of endogenous development momentum, maintain or further improve their growth capacity, and gradually improve the regional competitiveness of rural revitalization. Tongliao, Eerduosi, Hulunbeier, and Xilinguole are in the general retention zone, weak in driving force and growth capacity but good in competitiveness and better in development performance than in investment. They should control the amount of investment and distribution plan in the future and try to maintain the current development. Huhehaote, Baotou, Wuhai, Chifeng, Bayannaoer, and Alashan are in the general demonstration zone with good competitiveness and growth capacity but a weak driving force. They should make additional investments in the future, control investment priorities, and give priority to strengthening the endogenous driving force of rural revitalization. Qinzhou, Baise, Hezhou, Bazhong, Ziyang, Aba, Ganzi, and Anshun are in the internal governance zone with a high driving force but weak competitiveness and growth capacity. These cities are experiencing input overload, and there are barriers to the transformation of momentum into performance. These cities should take measures to strengthen internal governance, smooth the transformation mechanism of rural revitalization, and improve the efficiency of transformation. Wuzhou, Hechi, Laibin, Chongzuo, and Guang'an are in an important development zone with a high driving force and growth capacity but weak competitiveness. The government should put forward the testing and research of these cities, carefully analyze the reasons for the inadequate transformation of drivers to competitiveness, identify cities with better prospects and potential, and develop them into the new stars of the region. Wulanchabu, Dali, Dehong, Zhongwei, Tulufan, and Rikaze are in the important retention zone with a high driving force and competitiveness but weak growth capacity, resulting in excess investment. They should actively participate in cross-regional or cross-domain transactions of development elements related to rural revitalization on the basis of maintaining the current state and transferring the surplus resources, capital, and funds to other cities or industries. Xingan, Baoshan, Lijiang, Lincang, Nujiang, Diqing, and Ali are in the important demonstration zone, all with a high driving force, competitiveness, and growth capacity. They should further expand their investment and put in more resources to make them the most beautiful name cards for rural revitalization in western China (Table 9).

Promoting rural revitalization requires both top-level institutional design and regional policy innovation; therefore, strategic planning for rural revitalization should be formulated in accordance with local conditions, avoiding "one-size-fits-all" policies [83,84]."One-size-fits-all" is the practice of local governments in the central and western regions of implementing the central rural revitalization policy in a simple way to push forward the implementation of the policy in a sloppy manner, without regard for the specific realities of the target group, the policy environment, and the stage of development. China's central government regularly promulgates and implements unified policies and plans for rural revitalization, with the same requirements imposed on all regions. At present, the practice of "one size fits all" is found from time to time. In mountainous or ecologically fragile areas where ethnic minorities are concentrated, it is not possible to indiscriminately require all farmers to relocate to county towns or plains; instead, it is necessary to respect the wishes of farmers of different ethnic groups by implementing differentiated management methods and solutions. Furthermore, to push forward rural revitalization, the central

government has vigorously promoted the construction of digital villages and given local governments substantial investment, resources, and policies. Although the conditions, capabilities, foundations, and stages of digital development in western and eastern rural areas differ greatly, differentiated management policies have not yet been formulated [85].

Table 9. Design ideas for planning zoning.

		Evolution Model			
		Dog	**Gazelle**	**Cow**	**Star**
Driving Force	Low	External Assistance Zone	General Development Zone	General Retention Zone	General Demonstration Zone
		Liuzhou, Guilin, Guigang, Deyang, Mianyang, Suining, Neijiang, Nanchong, Meishan, Yibin, Dazhou, Bijie, Qiannan, Xi'an, Xianyang, Yan'an, Yulin-SX, Lanzhou	Nanning, Beihai, Fangchenggang, Yulin-GX, Chongqing, Chengdu, Panzhihua, Luzhou, Liangshan, Guiyang, Zunyi, Baoji, Weinan, Hanzhong	Tongliao, Eerduosi, Hulunbeier, Xilinguole, Zigong, Qujing, Honghe, Lasa, Naqu, Shizuishan, Boerta, Bayinguoleng	Huhehaote, Baotou, Wuhai, Chifeng, Bayannaoer, Alashan, Leshan, Ya'an, Kunming, Yuxi, Zhaotong, Xining, Haixi, Yili, Yinchuan, Wulumuqi, Kelamayi, Hami, Changji, Akesu, Tacheng
	High	Internal Governance Zone	Important Development Zone	Important Retention Zone	Important Demonstration Zone
		Qinzhou, Baise, Hezhou, Bazhong, Ziyang, Aba, Ganzi, Anshun, Qianxinan, Ankang, Jinchang, Tianshui, Wuwei, Pingliang, Jiuquan, Qingyang, Longnan, Gannan	Wuzhou, Hechi, Laibin, Chongzuo, Guang'an, Liupanshui, Tongren, Qiandongnan, Tongchuan, Shangluo, Jiayuguan, Baiyin, Zhangye, Dingxi, Linxia	Wulanchabu, Dali, Dehong, Zhongwei, Tulufan, Rikaze, Guangyuan, Pu'er, Guoluo, Chuxiong, Wenshan, Kashi, Xishuangbanna, Changdu, Shannan, Kezilesu, Huangnan	Xingan, Baoshan, Lijiang, Lincang, Nujiang, Diqing, Ali, Linzhi, Haidong, Haibei, Hainan, Yushu, Wuzhong, Guyuan, Hetian, Aletai

The following key points should be noted in designing differentiated management policies for rural revitalization: First, it is necessary to identify the three key demand elements of urbanization, industrialization, and agricultural modernization and try to seek breakthroughs in rural revitalization relying on the coordinated development of the three. Rural revitalization is one of the key tasks of China's new urbanization strategy and an inevitable product of the development of China's new industrialization and agricultural modernization to a specific stage. The results of GeoDetector-based analysis also confirmed the strong influence of the added value of primary industry, permanent population, per capita GDP, total retail sales of consumer goods, and urbanization rate, which are indicators all closely related to the development of urbanization, industrialization, and agricultural modernization. Second, given that the revitalization of rural areas in western China cannot be separated from the national strategy and policy of western development and precise poverty alleviation, they should continue to strengthen government macro-control and incorporate rural revitalization into the performance assessment system of local governments. Third, due to the complex development environment in western China and the large differences in rural revitalization development in all five dimensions, the simultaneous development of all dimensions should not be pursued mechanically. Local governments should, according to their own resources and conditions, carry out an in-depth analysis of the driving mechanism of local rural revitalization, locate the starting point and the leverage point of a dimension, and create a rural revitalization model with special characteristics according to local conditions. Fourth, the central government should strengthen macro-planning guidance for rural revitalization in the western region, build a scientific and balanced spatial distribution pattern for rural revitalization, encourage communication and interactive cooperation between different cities, and promote coordinated rural revitalization across regions. Fifth, the central government should, while increasing the support of transfer payments, establish a counterpart assistance channel for rural revitalization between the west and the east based on the mechanism of counterpart assistance for western development and give play to the driving role of cities with high quality development of rural revitalization in the east to cities with low quality development in the west through targeted assistance, experience exchange, project cooperation, and talent flow [86].

The marginal contribution of this paper is in three main areas. First, it establishes a new framework that integrates "performance evaluation, evolution model, driving mechanism, and management strategy" and builds a bridge between the application of theoretical research and translation. Although some scholars have conducted studies on the performance, changes, influencing factors, and management policies of rural revitalization, they are separated from each other and characterized by fragmentation, resulting in the unsatisfactory guidance of the analysis results on practice. Second, it promotes the paradigm shift of rural revitalization research from "qualitative" to "quantitative" and improves the accuracy and application value of analysis results based on the combination of AHP, the entropy method, BCG, GeoDetector, and other measurement models and software. Third, it reveals the driving mechanism of the evolution of rural revitalization and applies it to planning, zoning, and policy design. Although the influencing factors of rural revitalization have been discussed by scholars [87,88], the innovation of this paper is to further reveal the interaction effects of different factors.

6. Conclusions

Based on the combination of the entropy method, BCG matrix, GeoDetector, and other measurement models and software, this paper calculated the rural revitalization index of 131 cities in western China from 2010 to 2020, analyzed the evolutionary pattern of rural revitalization performance and its driving mechanisms, and put forward suggestions for policy design. The main findings are as follows:

First, the rural revitalization index has great application value with the ability to better reflect the sustainable development level of rural areas and is applicable to the performance evaluation of rural revitalization in western regions.

Second, the significant spatial imbalance and heterogeneity of rural revitalization in western China and the huge inter-urban differences suggest that a "one-size-fits-all" governance strategy should be avoided (the strategic planning for rural revitalization should be formulated according to local conditions to avoid "one-size-fits-all" policies).

Third, rural revitalization in the western region has progressed slowly, with both development and decline showing a variety of development patterns. The 131 cities were classified into four types: star, gazelle, cow, and dog, according to the BCG matrix, where the star type represents the ideal state of rural revitalization and characterizes the lost state.

Fourth, there are many factors affecting changes in the performance of rural revitalization in the west, which can be classified into three levels of key, important, and auxiliary factors, and the impact of different factors varies greatly.

Fifth, there are significant synergistic effects between the different factors, mainly in the form of non-linear enhancement, and it should be noted that super-interacting factors and pairs of factors arise from the interaction effects of the different factors and act as "catalysts" or "accelerators".

Sixth, based on the results of the superposition analysis of evolutionary patterns and driving forces, a zoning planning and management system for rural revitalization is established, and the 131 cities in western China are classified into 8 zones: external assistance zone, general development zone, general retention zone, general demonstration zone, internal governance zone, important development zone, important retention zone, and important demonstration zone, and it is suggested that a differentiated development policy should be adopted in a zone.

There are also some shortcomings in this paper. First, there were few indicators about effective governance in the rural revitalization evaluation index system, and the impact of digitalization on rural governance was neglected, mainly due to the difficulty in data acquisition. Second, natural and ecological environmental factors were not taken into account in the driving mechanism analysis, mainly influenced by the study period. On the one hand, the natural factors have a long period of change, and the study period of this paper is short (10 years), so their influence remained stable during the study; on the other hand, the period from 2010 to 2020 was the stage of accelerating development with

the social and economic environment changing to a much greater extent than the natural environment, which is the influencing factor that deserves more attention and analysis.

In addition, each method has both advantages and limitations, and a single method does not solve all problems. In the spatial measurement model, GeoDetector has the advantage of allowing for measuring the interaction effects of different factors (synergistic or antagonistic effects) and being immune to multifactor covariance, with the limitation that it is unable to measure the direction of each factor's effect (positive or negative); the geographically weighted regression model is just the opposite, with the advantage that it is able to measure the direction of the factor's effect, but it is unable to measure the interaction effects and is greatly affected by factor covariance. Given the complexity of the rural revitalization process, the fact that development performance is affected by many factors, and the extensive and profound interactions between different factors (a hypothesis or prediction confirmed by the results of the study), the GeoDetector rather than the geographically weighted regression model was used in the study. Therefore, due to the limitations of the research methodology, this paper cannot measure the direction of action of each factor. It should be noted that it is entirely possible to change the methodology (e.g., geographically weighted regression models, spatial Durbin models, etc.) in future studies so as to measure whether a factor plays a negative or positive role.

In summary, it is of great importance to carry out a quantitative evaluation of rural revitalization performance, identify evolutionary patterns, and analyze driving mechanisms in the era of rural decline and marginalization. The analysis results and research framework of this paper are applicable to western China and provide a basis for the design of relevant rural revitalization policies, and they can also provide reference and guidance for sustainable rural development in other regions of China or developing countries with similar development conditions and environments as western China.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Analysis of the Rural Revitalization Index and its evolution model in western China.

No.	Cities	Rural Revitalization Index		Thriving Businesses		Pleasant Living Environment		Social Etiquette and Civility		Effective Governance		Prosperity	
		2010	2020	2010	2020	2010	2020	2010	2020	2010	2020	2010	2020
1	Huhehaote	0.77	0.81	0.06	0.06	0.15	0.15	0.15	0.16	0.09	0.10	0.32	0.33
2	Baotou	0.74	0.78	0.06	0.06	0.14	0.14	0.14	0.16	0.09	0.09	0.31	0.32
3	Wuhai	0.79	0.81	0.06	0.06	0.15	0.15	0.16	0.17	0.09	0.10	0.32	0.34
4	Chifeng	0.72	0.72	0.05	0.06	0.14	0.13	0.14	0.14	0.08	0.08	0.30	0.31
5	Tongliao	0.80	0.70	0.06	0.06	0.15	0.13	0.16	0.14	0.10	0.08	0.33	0.30
6	Eerduosi	0.80	0.76	0.06	0.06	0.16	0.14	0.16	0.15	0.09	0.09	0.33	0.32
7	Hulunbeier	0.78	0.74	0.06	0.06	0.15	0.14	0.16	0.15	0.09	0.09	0.32	0.31
8	Bayannaoer	0.74	0.81	0.06	0.07	0.14	0.15	0.14	0.16	0.09	0.09	0.31	0.33
9	Wulanchabu	0.76	0.73	0.06	0.06	0.15	0.13	0.15	0.14	0.09	0.09	0.32	0.31
10	Xingan	0.70	0.80	0.05	0.06	0.14	0.15	0.14	0.16	0.08	0.09	0.29	0.33
11	Xilinguole	0.80	0.74	0.06	0.06	0.16	0.14	0.16	0.15	0.09	0.08	0.33	0.31
12	Alashan	0.73	0.77	0.06	0.06	0.14	0.14	0.14	0.15	0.08	0.09	0.30	0.32
13	Nanning	0.24	0.24	0.02	0.02	0.03	0.04	0.04	0.04	0.02	0.03	0.14	0.13
14	Liuzhou	0.29	0.21	0.02	0.01	0.05	0.03	0.04	0.03	0.03	0.01	0.14	0.13
15	Guilin	0.27	0.21	0.02	0.01	0.05	0.03	0.04	0.02	0.02	0.02	0.14	0.13
16	Wuzhou	0.15	0.23	0.01	0.01	0.03	0.04	0.02	0.04	0.01	0.01	0.08	0.13
17	Beihai	0.17	0.27	0.01	0.02	0.02	0.05	0.02	0.04	0.01	0.03	0.11	0.14
18	Fangchenggang	0.19	0.28	0.01	0.02	0.02	0.04	0.02	0.04	0.01	0.02	0.12	0.15
19	Qinzhou	0.19	0.18	0.01	0.01	0.03	0.03	0.02	0.03	0.02	0.01	0.11	0.11
20	Guigang	0.28	0.28	0.02	0.02	0.05	0.05	0.05	0.04	0.02	0.03	0.15	0.14
21	Yulin-GX	0.20	0.25	0.02	0.01	0.03	0.04	0.03	0.04	0.02	0.03	0.11	0.13
22	Baise	0.21	0.14	0.01	0.01	0.04	0.02	0.03	0.02	0.01	0.00	0.12	0.09
23	Hezhou	0.26	0.18	0.02	0.01	0.05	0.02	0.04	0.02	0.03	0.01	0.12	0.12
24	Hechi	0.17	0.27	0.02	0.02	0.02	0.05	0.02	0.04	0.02	0.02	0.10	0.14
25	Laibin	0.22	0.26	0.02	0.02	0.03	0.04	0.02	0.04	0.02	0.02	0.12	0.15
26	Chongzuo	0.18	0.21	0.01	0.01	0.03	0.04	0.02	0.02	0.00	0.02	0.11	0.12
27	Chongqing	0.31	0.32	0.01	0.01	0.13	0.13	0.03	0.03	0.02	0.02	0.12	0.13
28	Chengdu	0.42	0.49	0.03	0.04	0.07	0.08	0.07	0.09	0.05	0.06	0.19	0.22
29	Zigong	0.56	0.53	0.04	0.04	0.10	0.09	0.10	0.10	0.07	0.06	0.25	0.24
30	Panzhihua	0.45	0.45	0.03	0.03	0.08	0.08	0.08	0.08	0.05	0.05	0.20	0.21
31	Luzhou	0.48	0.48	0.04	0.04	0.08	0.09	0.09	0.09	0.06	0.05	0.22	0.22
32	Deyang	0.55	0.46	0.04	0.03	0.10	0.08	0.10	0.09	0.06	0.05	0.25	0.21
33	Mianyang	0.53	0.48	0.04	0.03	0.10	0.09	0.10	0.09	0.06	0.05	0.24	0.22
34	Guangyuan	0.57	0.53	0.04	0.04	0.11	0.09	0.11	0.10	0.07	0.06	0.25	0.24
35	Suining	0.53	0.49	0.04	0.04	0.10	0.09	0.10	0.09	0.05	0.06	0.23	0.23
36	Neijiang	0.56	0.44	0.04	0.04	0.11	0.08	0.10	0.07	0.06	0.04	0.25	0.22
37	Leshan	0.47	0.56	0.03	0.04	0.09	0.10	0.09	0.10	0.06	0.06	0.21	0.26
38	Nanchong	0.52	0.46	0.04	0.04	0.09	0.08	0.09	0.08	0.06	0.05	0.24	0.22
39	Meishan	0.55	0.47	0.04	0.04	0.10	0.09	0.10	0.08	0.06	0.05	0.24	0.21
40	Yibin	0.49	0.45	0.04	0.03	0.10	0.08	0.09	0.08	0.05	0.04	0.22	0.21
41	Guang'an	0.49	0.50	0.03	0.04	0.09	0.09	0.09	0.09	0.05	0.05	0.22	0.23
42	Dazhou	0.52	0.44	0.04	0.03	0.10	0.08	0.10	0.08	0.05	0.04	0.23	0.21
43	Ya'an	0.51	0.55	0.04	0.04	0.09	0.10	0.10	0.10	0.06	0.06	0.23	0.24
44	Bazhong	0.54	0.45	0.04	0.03	0.10	0.08	0.10	0.08	0.05	0.05	0.24	0.21
45	Ziyang	0.54	0.42	0.04	0.03	0.10	0.08	0.10	0.08	0.06	0.04	0.24	0.19
46	Aba	0.53	0.52	0.04	0.04	0.10	0.09	0.10	0.10	0.06	0.06	0.23	0.23
47	Ganzi	0.53	0.48	0.04	0.04	0.10	0.09	0.10	0.09	0.06	0.05	0.23	0.22
48	Liangshan	0.53	0.52	0.04	0.04	0.10	0.09	0.10	0.10	0.06	0.05	0.23	0.24
49	Guiyang	0.26	0.29	0.02	0.02	0.04	0.05	0.03	0.04	0.02	0.03	0.14	0.15
50	Liupanshui	0.19	0.20	0.01	0.01	0.03	0.03	0.03	0.03	0.02	0.01	0.10	0.12
51	Zunyi	0.20	0.20	0.01	0.01	0.03	0.04	0.03	0.03	0.01	0.01	0.11	0.12
52	Anshun	0.27	0.21	0.02	0.01	0.05	0.03	0.04	0.02	0.03	0.02	0.13	0.13
53	Bijie	0.27	0.18	0.02	0.01	0.05	0.03	0.04	0.02	0.03	0.01	0.14	0.12
54	Tongren	0.15	0.22	0.01	0.01	0.03	0.04	0.02	0.03	0.02	0.02	0.08	0.13
55	Qianxinan	0.26	0.20	0.01	0.02	0.04	0.03	0.04	0.03	0.02	0.02	0.14	0.11
56	Qiandongnan	0.21	0.24	0.02	0.01	0.03	0.04	0.03	0.03	0.01	0.03	0.12	0.13
57	Qiannan	0.20	0.18	0.01	0.01	0.03	0.04	0.03	0.01	0.01	0.01	0.12	0.11
58	Kunming	0.77	0.79	0.06	0.06	0.15	0.15	0.15	0.16	0.09	0.09	0.32	0.33
59	Qujing	0.74	0.70	0.06	0.05	0.14	0.13	0.14	0.14	0.09	0.08	0.31	0.30
60	Yuxi	0.70	0.81	0.05	0.06	0.14	0.15	0.14	0.16	0.08	0.10	0.29	0.34

Table A1. *Cont.*

No.	Cities	Rural Revitalization Index		Thriving Businesses		Pleasant Living Environment		Social Etiquette and Civility		Effective Governance		Prosperity	
		2010	2020	2010	2020	2010	2020	2010	2020	2010	2020	2010	2020
61	Baoshan	0.73	0.79	0.06	0.06	0.14	0.15	0.14	0.16	0.09	0.09	0.31	0.33
62	Zhaotong	0.79	0.79	0.06	0.06	0.15	0.15	0.15	0.16	0.09	0.09	0.33	0.33
63	Lijiang	0.69	0.73	0.05	0.06	0.13	0.13	0.13	0.15	0.08	0.08	0.29	0.31
64	Pu'er	0.76	0.73	0.06	0.06	0.15	0.14	0.15	0.15	0.09	0.08	0.31	0.31
65	Lincang	0.78	0.78	0.06	0.06	0.15	0.14	0.16	0.16	0.09	0.09	0.32	0.33
66	Chuxiong	0.78	0.70	0.06	0.06	0.15	0.13	0.16	0.14	0.09	0.08	0.32	0.30
67	Honghe	0.73	0.72	0.06	0.06	0.14	0.13	0.14	0.14	0.09	0.08	0.31	0.30
68	Wenshan	0.77	0.73	0.06	0.06	0.15	0.13	0.15	0.15	0.09	0.08	0.32	0.31
69	Xishuangbanna	0.75	0.72	0.06	0.06	0.14	0.13	0.15	0.14	0.09	0.08	0.31	0.30
70	Dali	0.77	0.71	0.06	0.06	0.15	0.13	0.15	0.14	0.09	0.08	0.32	0.31
71	Dehong	0.82	0.80	0.06	0.06	0.16	0.15	0.16	0.16	0.10	0.09	0.33	0.33
72	Nujiang	0.76	0.79	0.06	0.06	0.15	0.15	0.15	0.16	0.09	0.09	0.32	0.33
73	Diqing	0.78	0.81	0.06	0.07	0.15	0.15	0.15	0.17	0.09	0.09	0.32	0.33
74	Lasa	0.76	0.71	0.06	0.06	0.15	0.13	0.15	0.14	0.09	0.08	0.32	0.30
75	Changdu	0.75	0.73	0.06	0.06	0.15	0.13	0.15	0.15	0.09	0.08	0.31	0.31
76	Shannan	0.75	0.72	0.06	0.06	0.15	0.13	0.15	0.14	0.09	0.08	0.31	0.31
77	Rikaze	0.78	0.70	0.06	0.06	0.15	0.13	0.15	0.14	0.09	0.08	0.32	0.30
78	Naqu	0.81	0.76	0.06	0.06	0.16	0.14	0.16	0.15	0.10	0.09	0.33	0.32
79	Ali	0.74	0.76	0.06	0.06	0.14	0.14	0.14	0.15	0.08	0.09	0.31	0.32
80	Linzhi	0.78	0.82	0.06	0.07	0.15	0.15	0.15	0.17	0.09	0.10	0.32	0.34
81	Xi'an	0.28	0.20	0.02	0.02	0.05	0.03	0.04	0.03	0.02	0.02	0.15	0.11
82	Tongchuan	0.17	0.22	0.01	0.02	0.02	0.03	0.02	0.02	0.01	0.02	0.11	0.12
83	Baoji	0.20	0.23	0.02	0.02	0.03	0.04	0.02	0.03	0.02	0.02	0.11	0.13
84	Xianyang	0.21	0.14	0.01	0.01	0.03	0.02	0.03	0.01	0.01	0.00	0.12	0.10
85	Weinan	0.15	0.23	0.01	0.01	0.02	0.04	0.02	0.04	0.01	0.01	0.10	0.12
86	Yan'an	0.24	0.18	0.02	0.01	0.04	0.03	0.03	0.02	0.01	0.02	0.14	0.11
87	Hanzhong	0.17	0.26	0.02	0.02	0.03	0.04	0.02	0.04	0.02	0.02	0.09	0.13
88	Yulin-SX	0.25	0.22	0.01	0.01	0.05	0.03	0.04	0.03	0.03	0.02	0.13	0.12
89	Ankang	0.25	0.23	0.02	0.01	0.03	0.03	0.04	0.02	0.03	0.02	0.13	0.14
90	Shangluo	0.18	0.24	0.01	0.01	0.03	0.04	0.03	0.04	0.02	0.02	0.10	0.13
91	Lanzhou	0.29	0.19	0.02	0.01	0.05	0.04	0.04	0.02	0.03	0.02	0.15	0.10
92	Jiayuguan	0.27	0.28	0.02	0.02	0.04	0.04	0.05	0.05	0.03	0.02	0.13	0.15
93	Jinchang	0.28	0.28	0.01	0.02	0.05	0.04	0.05	0.04	0.03	0.03	0.15	0.14
94	Baiyin	0.25	0.28	0.02	0.02	0.04	0.04	0.04	0.05	0.02	0.03	0.13	0.14
95	Tianshui	0.22	0.19	0.01	0.02	0.03	0.02	0.03	0.02	0.02	0.01	0.12	0.12
96	Wuwei	0.20	0.18	0.01	0.01	0.03	0.02	0.03	0.02	0.01	0.01	0.12	0.11
97	Zhangye	0.20	0.23	0.01	0.02	0.03	0.04	0.03	0.02	0.01	0.03	0.11	0.13
98	Pingliang	0.26	0.24	0.01	0.02	0.05	0.04	0.04	0.04	0.02	0.02	0.14	0.12
99	Jiuquan	0.29	0.22	0.02	0.02	0.05	0.04	0.05	0.03	0.03	0.02	0.15	0.11
100	Qingyang	0.21	0.18	0.01	0.01	0.03	0.03	0.03	0.02	0.02	0.01	0.11	0.10
101	Dingxi	0.14	0.30	0.01	0.03	0.02	0.05	0.02	0.05	0.00	0.02	0.09	0.15
102	Longnan	0.28	0.21	0.02	0.01	0.05	0.03	0.04	0.03	0.03	0.01	0.14	0.13
103	Linxia	0.20	0.24	0.01	0.01	0.03	0.04	0.03	0.03	0.01	0.01	0.11	0.14
104	Gannan	0.30	0.26	0.02	0.02	0.05	0.04	0.05	0.04	0.03	0.02	0.15	0.14
105	Xining	0.78	0.82	0.06	0.07	0.15	0.15	0.15	0.17	0.09	0.10	0.32	0.34
106	Haidong	0.81	0.80	0.06	0.07	0.16	0.15	0.16	0.16	0.10	0.09	0.33	0.33
107	Haibei	0.72	0.73	0.06	0.06	0.14	0.13	0.14	0.15	0.08	0.08	0.30	0.31
108	Huangnan	0.79	0.74	0.06	0.06	0.15	0.14	0.15	0.15	0.09	0.08	0.33	0.31
109	Hainan	0.76	0.81	0.06	0.07	0.15	0.15	0.15	0.17	0.09	0.10	0.31	0.33
110	Guoluo	0.72	0.71	0.06	0.06	0.14	0.13	0.14	0.14	0.08	0.08	0.30	0.30
111	Yushu	0.74	0.78	0.06	0.06	0.14	0.15	0.15	0.16	0.09	0.09	0.31	0.33
112	Haixi	0.74	0.80	0.06	0.06	0.14	0.15	0.15	0.16	0.09	0.09	0.31	0.33
113	Yinchuan	0.70	0.72	0.05	0.06	0.14	0.13	0.14	0.14	0.08	0.08	0.30	0.31
114	Shizuishan	0.82	0.73	0.06	0.06	0.16	0.13	0.16	0.14	0.10	0.08	0.34	0.31
115	Wuzhong	0.81	0.80	0.06	0.07	0.16	0.15	0.16	0.16	0.10	0.09	0.33	0.33
116	Guyuan	0.76	0.74	0.06	0.06	0.15	0.14	0.15	0.15	0.09	0.09	0.31	0.31
117	Zhongwei	0.77	0.72	0.06	0.06	0.15	0.13	0.15	0.14	0.09	0.08	0.32	0.30
118	Wulumuqi	0.71	0.81	0.06	0.06	0.14	0.15	0.14	0.16	0.08	0.10	0.30	0.34
119	Kelamayi	0.74	0.74	0.06	0.06	0.14	0.13	0.14	0.15	0.09	0.08	0.31	0.32
120	Tulufan	0.81	0.71	0.06	0.06	0.16	0.13	0.16	0.14	0.10	0.08	0.33	0.30

Table A1. *Cont.*

No.	Cities	Rural Revitalization Index		Thriving Businesses		Pleasant Living Environment		Social Etiquette and Civility		Effective Governance		Prosperity	
		2010	2020	2010	2020	2010	2020	2010	2020	2010	2020	2010	2020
121	Hami	0.77	0.76	0.06	0.06	0.15	0.14	0.15	0.15	0.09	0.09	0.32	0.32
122	Changji	0.70	0.79	0.05	0.06	0.14	0.15	0.13	0.16	0.08	0.09	0.30	0.33
123	Boerta	0.76	0.70	0.06	0.06	0.15	0.13	0.15	0.14	0.09	0.08	0.31	0.30
124	Bayinguoleng	0.79	0.71	0.06	0.05	0.15	0.13	0.16	0.14	0.09	0.08	0.33	0.30
125	Akesu	0.72	0.71	0.06	0.06	0.14	0.13	0.14	0.14	0.08	0.08	0.30	0.30
126	Kezilesu	0.81	0.75	0.06	0.06	0.16	0.14	0.16	0.15	0.09	0.09	0.33	0.32
127	Kashi	0.80	0.71	0.06	0.06	0.16	0.13	0.16	0.14	0.09	0.08	0.33	0.30
128	Hetian	0.74	0.77	0.06	0.06	0.14	0.14	0.15	0.15	0.09	0.09	0.31	0.32
129	Yili	0.73	0.77	0.06	0.06	0.14	0.14	0.14	0.15	0.08	0.09	0.30	0.32
130	Tacheng	0.74	0.79	0.06	0.06	0.14	0.15	0.14	0.16	0.09	0.09	0.31	0.33
131	Aletai	0.75	0.78	0.06	0.06	0.15	0.15	0.15	0.16	0.09	0.09	0.31	0.33

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