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Effectiveness, Problems, and Transformation of Geographical Indications in the Context of Rural Revitalization: Evidence from Pengshui in Chongqing

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Abstract: In China, geographical indications (GIs) are seen as certificates or collective trademarks, as well as representations of quality agricultural products, and are important in revitalizing the countryside. Therefore, a combined qualitative and quantitative method was employed to examine the operational practices of GIs at the relatively micro-level of the municipality in order to identify their effectiveness and challenges in rural revitalization and propose more targeted optimization suggestions. Pengshui Miao and Tujia Autonomous County, located in the Wuling Mountains in southeastern Chongqing, is an excellent example of the positive impact GIs can have on rural development, boasting the highest number of GI trademarks in the region. Despite the large number of GIs in Pengshui, there are several issues that need to be addressed, including low brand awareness, lack of product enhancement, and poor market competitiveness. To overcome these challenges, there must be a shift from a quantity-based to a quality-based approach to GI trademark declarations. This requires promoting the transformation of traditional agriculture into modern agriculture, investing in rural infrastructure, and improving the efficiency and quality of GI product production. By doing so, individuals in the local community will be able to reap the benefits of GI trademarks, improving their income and standard of living. In view of the fact that administrative divisions and cultural regions overlap, it is important to promote interregional cooperation and encourage declarations of GI trademarks in neighboring counties. This will help to preserve the area's local cultural heritage and promote its heritage through GIs. By taking a targeted approach to GI trademark declarations and promoting cooperation between regions, Pengshui, and other rural communities can maximize the benefits of GIs and support sustainable rural development.

Keywords: geographical indications; rural revitalization; interregional cooperation; sustainable development

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1. Introduction

The unique geographical characteristics and traditional production methods of certain products in different regions and countries contribute to their authenticity and uniqueness, creating a competitive advantage in the market. The popularity of these products extends beyond local consumers and has resulted in a lucrative market for producers. These traditional and unique products are highly valued by consumers looking for authentic experiences [1]. GIs are certified products that have received special status from the State. This certification process distinguishes agricultural products, reflecting their unique qualities and the good ecological practices used in their production. These nominations are critical to promoting agricultural development, increasing farmers' incomes, and driving rural development and revitalization. As such, they represent a crystallization of agricultural production, emphasizing the importance of preserving local traditions and promoting sustainable agriculture.

GIs have emerged as a crucial policy tool for promoting sustainable rural development. The main role of GIs is to support rural development through fair incentives for producers

and to promote knowledge and innovation with a direct impact on sustainability, in line with European Union Regulation No.1151/2012 of the European Parliament [2]. In July 2021, China's State Intellectual Property Office issued the "Notice on the Organization and Implementation of Geographical Indications to Support Rural Revitalization Measures", urging local departments to "take the implementation of projects to promote the use of geographical indications as a handle, … … to help poor areas win the battle against poverty". Irene Calboli (2020) argues that the exclusivity of the GI can be transformed into an engine of local and rural development [3]. Chan-Yuan Wong and Mergen Elbegsaikhan (2020) argue that, as rural communities modernize their agricultural production, GIs can pave the way for them to compete in a globalized economy. More importantly, it provides opportunities for these communities to develop their local economies. In addition to economic benefits, GIs will help spread native cultural qualities to the world [4]. Cerkia Bramley (2020) argues that GIs have a special significance for developing countries. In addition to identifying the quality and origin of goods, capturing market opportunities, and passing on traditional knowledge, they can lead to sustainable rural economic development. In particular, the experience of many wine regions shows that GIs have the potential to positively impact rural tourism. In Ecuador, the proper use of designations of origin is a powerful tool for the social and economic development of its various regions. Promoting GI products ensures that the country maintains its cultural heritage and geographical advantages [5]. Dwi Tiara Kurnilasari believes that the government and indigenous people will benefit from GIs if used properly and effectively. Indonesia relied on GI products for export growth during the new coronavirus outbreak. GI practices in a growing number of ASEAN (Association of Southeast Asian Nations) countries have also demonstrated the ability of GIs to drive economic development in local communities and improve the living standards of their inhabitants [6].

The international community attaches great importance to the issue of geographical indications. Designations or indications of origin are included in the scope of industrial property protection under the Paris Convention for the Protection of Industrial Property. The Convention states that "industrial property shall be understood in the broadest sense and shall apply not only to commerce and industry as such, but also to agriculture and the extractive industries and to any product, whether manufactured or natural". Article II of the Lisbon Agreement for the Protection of Appellations of Origin and their International Registration defines appellations of origin. According to the Lisbon Treaty, an indication of source means a geographical name of a country, region, or place used to indicate that a product comes from that place and that its quality or characteristics depend wholly or mainly on the geographical environment, including natural and human factors. The TRIPs (Agreement on Trade-Related Aspects of Intellectual Property Rights) agreement defines a geographical indication as "an indication identifying a product as originating in the territory of a member or in a region or place within that territory".

Specifically, in China's domestic law, for a while, the GI of origin has been under the management of three different administrative departments. First, the Ministry of Agriculture and Rural Affairs of the People's Republic of China was the main authority for the certification and protection system of GIs of agricultural products, mainly based on the "Measures for the Administration of Geographical Indications for Agricultural Products". Second, the former General Administration of Quality Supervision, Inspection, and Quarantine (AQSIQ) was responsible for the registration and protection system of "products with geographical indications" based on the "Regulations on the Protection of Products with Geographical Indications". The third is the registration and protection system of "Collective Trademarks" and "Certification Trademarks", which is conducted by the former State Intellectual Property Office (Trademark Office). This system is mainly based on the Trademark Law. The State Intellectual Property Office was re-established after integrating the trademark administration functions of the State Administration of Industry and Commerce and the GI administration functions of the State General Administration of Quality Supervision, Inspection, and Quarantine under the administration of the State

Administration of Market Supervision and Administration. The number of government agencies was reduced from three to nominally two. However, there are still three parallel systems at the regulatory level. Article 22 of the TRIPs requires that, in the case of GIs, each member provides interested parties with legal means to avoid public misunderstandings about the origin of the goods and unfair competition.

Although China has three regulatory systems for GIs, only the Trademark Law is the national law, and the regulatory documents in the other systems are departmental regulations, which have a lower degree of effectiveness. Some scholars have commented that China's non-unified GI protection system may weaken legal protection because it conflicts and overlaps [6]. In most countries, among branches of intellectual property law, GIs most closely resemble trademark law, and the regulation of GIs generally belongs to the branch of trademark law [6]. In the case of China, based on administrative incentives, grassroots governments and autonomous organizations encourage producers to apply for three types of GIs. This means that the three types of GI recognition in China overlap. Therefore, this article focuses on GIs in the sense of "legal means" under the TRIPs agreement, that is, GIs under the Trademark Law of the People's Republic of China.

The Chinese Trademark Law defines a GI as "an indication that a product originates in a particular region and that the natural or human factors of the region mainly determine the product's specific quality, reputation or other characteristics". Article 4 of the Regulations on the Implementation of the Trademark Law of the People's Republic of China (2014) and Article 16 of the State Trademark Law of the People's Republic of China clearly state that GIs may be applied for registration as certification marks or collective trademarks in accordance with the provisions of the Trademark Law and these regulations. Therefore, in the normative sense, a GI is a particular type of trademark that distinguishes and proves trademarks based on natural or human factors that characterize a certain quality, goodwill, or tradition. Ordinary brands need to gain the reputation of "famous trademarks" or "well-known trademarks" by improving the quality of their products and gaining space in the market. The logic of GIs is exactly the opposite: first, have a unique quality product, and then apply for a GI backed by the credibility of the national intellectual property administration. If the credibility of the local government guarantees the exact geographical origin and quality of the product, this is crucial for the GI to maintain its historical reputation [7]. GIs are closely linked to the ideal natural environment and the credibility of public authorities. They are, therefore, a kind of "well-known natural trademark" [8].

In studying the social history of China, Xie Henai (Jacques Gernet) observed that the history of developed agricultural forms in East Asia is vibrant and complex. In particular, the transplanting of sweet potatoes, peanuts, corn, potatoes, and other American crops in the 16th century led to the emergence of the Chinese agricultural form. This form has continued to change and evolve for over 1000 years [9]. China's agriculture has made significant progress since the founding of New China in 2012. Grain production increased from 226.4 billion kg when New China was founded and grew to 1339 billion kg in 2020, an increase of 491.43%. A new trend has become the integration of rural primary, secondary, and tertiary industries [10]. However, the level of agriculture in China is still at the stage where "food security is assured". China is still a big agricultural country and not a powerful one in the international market. Professor Xu Zhihong believes that all links in China's agricultural industrial chain, from production to market entry, must be better connected. Agricultural products are at a low level of commodity circulation, leading to problems such as a large urban–rural gap and low income for farmers [11]. The central government and relevant ministries and commissions issued a series of policies to support the development of characteristic agricultural products and promote rural revitalization through GI products, based on the particular importance of characteristic agricultural products to solve the problems of "agriculture, countryside and farmers". There is a consensus among all circles that GIs will contribute to increasing farmers' incomes and promoting rural revitalization [12]. Geographical indications, as intellectual property tools,

facilitate the creation of sources of employment, access to productive direct investment (domestic and foreign), sustainable tourism flows, increased foreign exchange earnings, and increased government revenues.

GIs and designations of origin are valuable intangible assets that can benefit rural communities and smallholders around the world. However, they are still undervalued in many countries, and these intellectual property tools do not protect many agricultural products. However, China's GI business is proliferating. According to the World Intellectual Property Indicators 2022 published by WIPO in 2021, there will be about 63,600 protected GIs in force worldwide, with 9052 valid GIs from China representing 14.23% of the valid GIs in the world. In 2022, there were 286 GI trademarks in Chongqing, ranking second in the country, and the number of GI trademarks in Pengshui ranked first in Chongqing. Pengshui Miao and Tujia Autonomous County of Chongqing is located in a combination of southwestern and central China. This place lies in the Wuling Mountains and Wujiang River basin, with a unique climate environment, geographical endowment, cultural traditions, and ethnic customs.

Based on the above assumptions, this paper adopts an empirical research method to understand the scale of GI registration in Pengshui County by retrieving GI registration in Pengshui County. Meanwhile, to understand the positive effects of GIs in Pengshui County and the problems that exist, news reports from Chongqing and Pengshui County and interviews with some GI practitioners are retrieved. We structured our study as follows: (1) introduce the current status and characteristics of GI development in Pengshui County, Chongqing; (2) analyze the positive effects of GIs on rural economic and social development in Pengshui County; (3) list the problems and causes in the practice of GIs in Pengshui County; (4) and make suggestions on how to improve GIs at the county level, taking into account the Pengshui County analysis.

2. Current Status and Characteristics of Geographical Indication Development in Pengshui County

Pengshui Miao and Tujia Autonomous Districts are located in the southeast of Chongqing Municipality on the lower reaches of the Wujiang River. They extend from 28°57′ to 29°50′ latitude north and 107°48′ to 108°35′ longitude east. The surface area is 77.88 km wide from east to west and 96.4 km long from south to north. The area covers 3903 square kilometers and has 3 counties, 18 cities, and 18 counties. Pengshui is located in the ancient Wuling Mountain range area. It is one of the four districts with the poorest population in Chongqing. After receiving national recognition in February 2020, Pengshui County officially withdrew from the critical national counties of poverty alleviation and development. The area is located at a high altitude in the northwest and a low altitude in the southeast. The main geomorphological feature is that "two mountains merge into a depression". The trend of the mountains is north-northeast. There are valleys, low terraces, foothills, karst depressions, and small basins between mountains. The relief is divided into a middle mountainous area, a low mountainous area, and a hilly valley area. The highest elevation is 1859.60 m and the lowest is 190 m. With a mild climate and abundant rainfall, Pengshui belongs to the humid subtropical monsoon climate zone.

First, a GI is growing rapidly, and the total number of products involved is high (Figure 1). The first GI in Pengshui County was born in 2010 when the county's agricultural technology promotion center hired an intellectual property intermediary to apply for "Pengshui konjac" and "Pengshui native chicken" in the following year. In 2013, the number of GI applications in Pengshui peaked at 14, accounting for 56% of the current 25 GI trademarks, and the scope was expanded to include Class 29 "Pickled, frozen, dried and cooked fruits and vegetables". Particularly, 12 of these applications were the subject of 2 central registrations in April. Four were filed on April 11th and eight on April 15th. Since then, GI trademark applications in Pengshui have stabilized, with no applications or one application in a few years. Four applications were filed in the eight years from 2014 to 2021, mainly in Class 31. By the end of 2021, there were 286 GI trademarks in Chongqing,

of which 25 were in Pengshui. Pengshui accounts for 9.1% of the city and ranks first in Chongqing (see Table 1) [13].

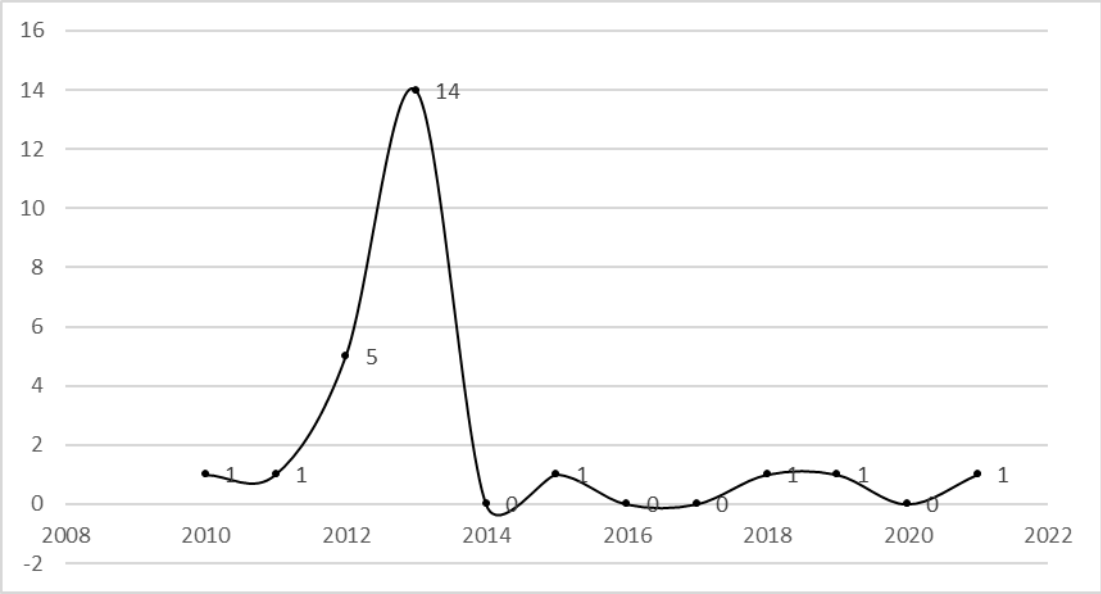

Figure 1. Changes to the declaration of GIs in Pengshui County.

Table 1. Pengshui County geographical indication certification trademarks overview.

Name	Applicant	International Classification	Date of Application
Pengshui Honey	Pengshui Miao Tujia Autonomous County Animal Husbandry Technology Promotion Station	30	10 May 2021
Peng Shuixiang Li	Pengshui Miao Tujia Autonomous County Rural Cooperative Economic Organizations Federation	31	19 April 2019
Pengshui Sweet Potato	Pengshui Miao and Tujia Autonomous County Internet Merchants Association	31	15 May 2018
Pengshui Kiwi	Pengshui Miao and Tujia Autonomous County Kiwi Association	31	2 March 2015
Pengshui Soybean	Pengshui Miao Tujia Autonomous County Soybean Management Association	31	23 December 2013
Pengshui Leigong Covers Radish	Pengshui Miao and Tujia Autonomous County Leigonggai Autumn Vegetable Planting Association	31	15 April 2013
Pengshui Millet Peanut	Xiaomi Peanut Association of Pengshui Miao and Tujia Autonomous County	31	15 April 2013
Pengshui Chili	Pepper Management Association of Pengshui Miao and Tujia Autonomous County	31	15 April 2013
Pengshui Watermelon	Pengshui Miao Tujia Autonomous County Watermelon Association	31	15 April 2013
Pengshui Potatoes	Potato Management Association of Pengshui Miao and Tujia Autonomous County	31	15 April 2013

Table 1. *Cont.*

Name	Applicant	International Classification	Date of Application
Pengshui Sorghum	Pengshui Miao Tujia Autonomous County Agricultural Development and Management Association	31	15 April 2013
Pengshui Ginger	Pengshui Miao Tujia Autonomous County Ginger Management Association	31	15 April 2013
Pengshui Tartary Buckwheat	Tartary Buckwheat Association of Pengshui Miao and Tujia Autonomous County	31	15 April 2013
Peng Crystal Sweet Potato Powder	Pengshui Miao and Tujia Autonomous County Sweet Potato Association	30	11 April 2013
Indigo Dried Radish	Agricultural Service Center, Indianshui Street, Pengshui Miao and Tujia Autonomous County	29	11 April 2013
Bigfoot Fungus in Pengshui	Pengshui Miao Tujia Autonomous County Agricultural Development and Management Association	29	11 April 2013
Pengshui Camellia Oleifera	Pengshui Miao Tujia Autonomous County Camellia oleifera Management Association	31	11 April 2013
Pengshui Qiyue Mountain Honey	Agricultural Service Center of Taiyuan Township, Pengshui Miao and Tujia Autonomous County	30	4 January 2013
Pengshui Guichi Rice	Agricultural Service Center of Shuanglong Township, Pengshui Miao and Tujia Autonomous County	30	24 September 2012
Pengshui Black Goat	Agricultural Service Center, Lujiao Town, Pengshui Miao and Tujia Autonomous County	31	11 September 2012
Pengshui Mountain Cattle	Pengshui Miao Tujia Autonomous County Animal Husbandry Technology Promotion Station	31	11 September 2012
Pengshui Leigong Cabbage	Agricultural Service Center of Hanjia Street, Pengshui Miao and Tujia Autonomous County	31	11 September 2012
Pengshui Wubu Snake Wine	Agricultural Service Center, Lujiao Town, Pengshui Miao and Tujia Autonomous County	5	11 September 2012
Pengshui Miao Chicken	Pengshui Miao Tujia Autonomous County Animal Husbandry Technology Promotion Station	31	29 June 2011
Pengshui Konjac	Pengshui Miao Tujia Autonomous County Agricultural Technology Popularization Center	31	6 September 2010

Second, the distribution is wide and the categories are concentrated. As Pengshui is located at the intersection of the Wuling and Dalou mountains, the relative altitude difference reaches 1669.60 m, the Wujiang River runs through the entire area of 3903 square kilometers, and the climate varies significantly in three dimensions. The temperature, sunlight, and frost period are diversified. The mountain valley area accounts for 13.39%, the low mountain area for 52.88%, and the middle mountain area for 34.03%. The number of frost-free days per year varies from 312 days in the river valley to 235 days in the central mountain area. The annual sunshine hours in the low and middle mountain areas are about a quarter less than the low mountain areas, which is due to mountain tops and cloud cover. Due to three-dimensional climatic conditions, Pengshui is richer in agricultural products. The distribution of GI products is more stable and extensive. Several counties (roads), including Indushui Road, Taiyuan Township, Shuanglong Township, Lujiao Township, and

Hanjia Road, have independent GI products. Article 8 of the Rules for the Implementation of the Provisions on the Protection of GI Products stipulates that GI product categories generally include planting, breeding, pre-processed products, processed foods, wine, tea, Chinese herbal medicine, handicrafts, and traditional products. Pengshui GI products cover most of the categories in this classification. However, in general, GI products in Pengshui are mainly natural and primarily agricultural products.

Third, we will examine government leadership and multi-party participation. In terms of the subject of the application, the GI trademark in Pengshui shows a pattern of "government guidance and multi-party participation". It has gradually moved from administrative dominance to commodification. Ten of the twenty-five GI trademarks in Pengshui were applied for by government-led agricultural technology and service promotion departments. This represents 40%. It should be noted that the government's leadership role is in decline. Four government-led agricultural (livestock) technology promotion stations and six agricultural service centers applied in the early stage of the GI trademark application (before January 2013). Since then, the main applicants for the GI trademark have gradually become various planting and breeding associations. As of April 2013, thirteen of the fifteen GI trademarks were requested by various associations, representing 86.7%. Nonetheless, agricultural production organizations apply for GI trademarks mainly in cereal, vegetable, fruit, and other general plant industries. However, it is mainly in the fields of cereals, vegetables, fruits, and other general agricultural industries that GI trademarks are being sought by agricultural production organizations. Since the aquaculture industry (such as Pengshui honey) with high input costs and high technical requirements is involved, the government's Technology Promotion Department should still be responsible for the application.

3. Positive Effect of Geographical Indications on Rural Economic Development in Pengshui County

China has impressive experience protecting geographical indications and has achieved fruitful results. Many products have been certified with geographical indications, a valuable resource for China's economic development. The modernization of agriculture and the revitalization of the countryside can be promoted through geographical indications [8]. Rural revitalization is not simply about increasing the wealth and material income of residents, but also about improving the living environment and increasing recognition of the hometown. In this context, the legal regime of geographical indications offers legal protection for quality agricultural products in a given area, eliminating the possibility of confusion between the same product in different areas. Geographical indication trademarks and products carry the natural characteristics and historical memories of specific regions and are essential vehicles for consolidating local characteristics and carrying out external dissemination. In other words, geographical indications create wealth, protect ecology and remind us of nostalgia. Their economic, ecological, and cultural value has been amply demonstrated in the practice of Pengshui.

3.1. Optimize Agricultural Industrial Structure

Since GIs protect high-quality agricultural products, they will gain potential advantages in market competition. Under the market incentives, agricultural inputs will be transferred to the industrial sector, where superior agricultural products are located. Farmers will use more land to grow high-quality, differentiated agricultural products. Agricultural capital will gradually enter profitable industries, constantly improve agricultural production technology, increase labor productivity, absorb more labor from limited land, and produce more high-quality agricultural products. With the improvement of the Chinese people's income level in recent years, the population's demand for agricultural products has diversified from simple quantity to quality. In 2019, the proportion of grain consumption by Chinese residents was 35.1%, about six percentage points down from 41.1% in 2013 [14]. The prominent grain in residents' food consumption gradually declined, and the

demand for coarse grains, miscellaneous grains, vegetables, fruits, meat, eggs, and milk gradually increased. Especially with the improvement of the national logistics system, the agricultural consumption market has expanded dramatically, and high-quality agricultural products have conquered the domestic market.

Pengshui, located in the southwest and inland Wuling, is also benefiting from the changing structure of grain consumption by local residents and the increasingly complete logistics system. It produces agricultural products with better economic benefits under the guidance of the market. In the horizontal perspective, the proportion of fruits, vegetables, meat, eggs, and milk gradually increases; in the vertical perspective, primary agricultural products cannot fully meet market demand. It is imperative that primary agricultural products are finely and deeply processed. For example, among Pengshui GI products, sweet potato is representative and typical. In this regard, it has been reported that:

> *The county has an area of over 300,000 acres of sweet potato and 16 large-scale production bases, and more than 87,000 families are moved by radiation. It has developed 28 crystalline sweet potato flour production and processing entities, more than 200 production workshops, and 25,000 tons of potato flour are processed annually. The main products include starch, vermicelli, potato chips and instant vermicelli, with a production value of 560 million yuan, which has lifted more than 6000 poor families and more than 20,000 people out of poverty and into rich.* [15]

Pengshui has 1.62 million mu of arable land, with 300,000 mu of sweet potato area in the county, accounting for 18.52% of arable land and covering 39 counties. Sweet potatoes are often used as a supplementary food in addition to rice, wheat, and other staple grains. With the change in the consumption structure of agricultural products, sweet potatoes began to appear frequently on the table as a supplement to traditional staple foods. Due to their unique nutrient composition, sweet potatoes cannot fully replace staple foods. Pengshui has extensively developed deep processing and refining industries using sweet potatoes as a raw material to increase the value of sweet potatoes. For example, starch is extracted from sweet potatoes and used to make vermicelli, which can be listed as an end product and used as a raw material for convenient vermicelli. By improving sweet potato varieties and product quality, the foundations were laid for the production of high-quality sweet potato flour, forming a "two-layer geographical indication" based on the sweet potato industry. The first layer is the "Pengshui sweet potato" trademark, which directly uses sweet potatoes as the object, and the second layer is the "Crystal sweet potato flour" trademark, which uses processed sweet potato flour as the object.

3.2. Optimize Agricultural Production Mode

For a long time, due to the underdevelopment of the market economy, the form of agricultural production in China was mainly a small-scale, self-sufficient peasant economy. It needs more strength and a tradition of intensive production, and the details of agricultural marketing need to be reviewed. The material base for large-scale centralized management needs to be improved, especially in the mountainous areas of southwest China, where ravines are crossed and farmland is scattered mostly on slopes. With greater labor input and lower grain production, decentralized economic organizations of small-scale farmers need more financial and technical support to improve and renew agricultural land. The types of agricultural items produced by the peasants are relatively few, and their function is mainly as a "subsistence" ration, which is used to solve their problems of food and clothing. There is only a little food for large-scale market transactions. Chinese farmers have gained considerable agricultural experience through intensive cultivation due to the need to produce more agricultural products per unit area. The long agricultural tradition has produced many high-quality agricultural products, which differ from modern machine-based mass production. Traditional agriculture is involved in the modern market. They have to resist the market tides and promote the benefits of traditional farming.

With the establishment of the GI system, high-quality agricultural products obtained national GI trademarks through legal procedures. They have a certain competitiveness in

the market. A problem that needs to be solved for GI products is the necessity to improve market supply and avoid deterioration of product quality. The structure shapes content. There is no easy task to improve agricultural production and maintain the uniform quality of the products in the decentralized management mode of traditional small-scale farming. Even within the geographical area of origin, different operators can generate products of different quality. These products cannot meet the uniform technical standards for GI products. The modern rural family economy has changed the way of organizing production from the traditional rural family economy based on modern science and technology and socialized mass production. The degree of production specialization, service socialization, and commercialization of rural economy products has been continuously improved through the establishment of the "farmer + enterprise", "farmer + cooperative", and "farmer + base" production and operation modes [16]. Through unified seeds, training, processes, and technology, agricultural capital will enter the home country to make good use of GI trademarks, produce competitive agricultural items, and gain better advantages in market competition. The standardized production of GI products should be improved through unified procurement, processing, and sales.

Perilla hemp (Perilla frutescens), for example, is widely distributed in East, South, and Southeast Asia, is highly adaptable, and requires little soil to grow. Farmers plant suma relatively sporadically and loosely, mainly as a spice, as it is not a real food crop. Pengshui Suma received the National Geographical Indication Certification for Agricultural Products in 2013, and Pengshui Peril-la oil, extracted from Pengshui Suma seeds, received the National Geographical Indication Trademark in 2014. Pengshui Suma was included in the 2017 National Catalogue of Famous, Special, and New Agricultural Products. These "marks" allow Pengshui Suma to obtain "tokens" different from other suma. This greatly increases its competitiveness in the market. Social capital and agricultural resources were closely linked from the beginning. The intensification of hemp production in Jiangsu has greatly improved, and the expansion of the planting area has been promoted through the "farmer+cooperative" production organization model. In 2018, the production value of suma in Pengshui accounted for 2.7% of the country's total agricultural production value, and the industry involved 35 towns, roads, and 150 administrative villages in the county [17]. Cooperatives provide farmers with seeds, technology, biofertilizer, UAV protection, and other means to produce. Farmers can earn over CNY 3000 per mu from land and labor alone. The local agricultural management pattern has fundamentally changed and shows a promising trend toward intensive management under the guidance of the GI.

3.3. Optimize Rural Natural Environment

Natural environmental factors are closely linked to agricultural production. These are: land, water, and climate, and biological and mineral resources. These are also the natural resources that control the development of agriculture. As high-quality agricultural products, GI products need unique agricultural and natural resources to support them. For example, soil suitable for crop growth and clean, plentiful irrigation water ensure high-quality sun, temperature, humidity, and heat resources and promote healthy crop growth in the ecosystem. Since the corresponding natural factors change, the quality of geographical indication products will inevitably change. In this sense, maintaining an excellent natural environment and ecosystem of GI products is essential to promote the sustainable development of geographical indication products. While environmental sustainability is not the primary objective of GI development, GI products are locally sourced, including natural resources, and have a broader connection to the local environment, which means that environmental benefits are increasingly seen as a potential externality of the GIs [5]. Previous studies noted that Pengshui is ideal for high-quality agricultural crops and products because of its massive mountains and rivers, warm climate, and excellent air quality. Geographical indication products are the concentration and embodiment of ecological agriculture. Protecting an excellent ecological environment is necessary to maintain the competitive market advantage of GI products.

> *By promoting the construction of ecological agriculture, we will strengthen the management of livestock and poultry, breeding, highlight large-scale and resource-based utilization, and promote the healthy development of livestock and poultry breeding. We will promote the development of circular agriculture, promote the return of straw to farmland, energy and feed utilization, base material and fertilizer utilization, actively promote and popularize comprehensive utilization technologies, and effectively improve the level of comprehensive utilization of straw. It should improve the construction of brand quality, comprehensively promote the production of green and high-quality agricultural products, promote the protection and certification of green food, organic food and agricultural geographical indications, and further enhance the brand's popularity and influence of agricultural products in our municipality*. [18]

Pengshui County has a large number of geographical indication products. The planting and production of sweet potatoes, Chinese bees, mineral water, and other products reflect the pursuit of modern mountain-featured high-efficiency agriculture for ecology [19].

It should be noted that the production of GI products and the protection of the ecological environment complement each other. On the one hand, an excellent ecological environment must support GI products. The ecology of Pengshui is relatively fragile and the phenomenon of rocky desertification is more pronounced. Rocky desertification is also an old enemy of agricultural production, which is enhanced, and rural lands are activated through the use of agroforestry systems as part of the process of controlling rocky desertification. On the other hand, GI products in the production process are an essential means of conserving and improving the ecological environment. For example, GI products can be produced and, at the same time, provide ecological products by planting Camellia oleifera, tea, plums, and kiwifruit. Products with GIs are conducive to the certification of organic labels, which favors the improvement of the quality and reputation of products with GIs [20]. The environment in which products with a GI are produced is fixed and changes. A comprehensive set of protective measures should be taken from the inside out and from the point of the natural environment. First, coordination and industrial production should be in harmony. The development of industries and modern lifestyles have created serious challenges for agricultural production in terms of wastewater, gases, and waste. Industrial waste pollutes soil and water sources. It changes agricultural climatic resources and affects the production of agricultural items. Therefore, the production of GI products is not only linked to the traditional natural environment; it also requires coordination with industrial production. This requires joint prevention and control of air pollution in urban agglomerations. It also requires a comprehensive approach to industry, agriculture, and lifestyle. The second is the need to coordinate environmental protection with neighboring areas. Due to the flow of wastewater and erratic emissions, the origin of products with a GI may not produce the "three industrial wastes." However, it will still be affected by neighboring areas. Therefore, environmental management is a systematic project that requires managing the local ecological environment and linking environmental management with neighboring districts and counties, promoting the exchange of environmental information and joint environmental monitoring to build an excellent ecological environment.

The positive effect of GIs on the development of the rural economy of Pengshui County is an essential mechanism to promote local farmers' income. The optimization of the agricultural industry structure and the realization of the link between agricultural and industrial production lead to an increase in the added value of agricultural products. Optimizing the agricultural production mode has changed the traditional smallholder business model in the Pengshui area, attracting social capital to the countryside of Pengshui and improving the efficiency of agricultural production. The optimization of the natural environment of the countryside creates better natural conditions for agricultural production, which favors the improvement of the quality of agricultural products, public recognition and, subsequently, increased competitiveness in the market.

4. Perspective on the Practice of Geographical Indications in Pengshui County

GI products represent the transition from traditional to modern agriculture. Although Pengshui has many GIs, in general, they are weak, small, and dispersed. On the other hand, the protection of GI trademarks is weak, the scale of the business is small, and the level of specialization is not high. The phenomenon of emphasizing the declaration over the operation is more pronounced.

4.1. Weak Sense of Geographical Indication Brand

Compared to other exclusive trademark rights, ownership of GIs is separated from the right to use, which is a collective property right. Due to the separation of ownership and right of use, some operators do not understand the value of GI trademarks. While recognizing the value of GI trademarks, they lack long-term planning for geographical indications based on the speculative idea of "free riding". The "tragedy of commons" often occurs when using GI trademarks. Operators often abuse the GIs of agricultural products in the market. It may be a common problem that developing countries face when developing GIs. The EU has a long tradition of GIs and has effectively promoted the healthy development of GIs through the establishment of GIs organizations initiated by the industry associations where the products are located. However, producers in developing countries lack the motivation to act collectively. Developing countries face significant challenges in advancing the cause of historyless GI [5]. For example, most producer associations in Indonesia do not consider the importance of trademarks or other intellectual property rights. They are more concerned with surviving through production and sales. They are also unaware of the role of intellectual property rights [21].

First, the GI brand lacks systematic planning. Generally, local governments pay more attention to the application of geographical indication trademarks and give certain rewards to units and individuals who successfully apply for GI trademarks. This has greatly stimulated the enthusiasm for the application of GI trademarks, which has made great progress. As an important part of intellectual property rights, it should be noted that GI trademarks need to realize their economic value throughout the entire chain of creation, application, protection, management, and service. As far as the present is concerned, GI trademarks are still in the creation (declaration) stage, and their application, protection, management, service, and other links are relatively scarce. Most of China's agriculture is in the traditional agriculture stage and is not sensitive to the agricultural market. Most agricultural practitioners are not aware of the market value of GI trademarks and corresponding products. They lack the corresponding enthusiasm and knowledge reserved for the cultivation of GI trademarks.

Second, there is a "tragedy of the commons" for GIs, which are not individual rights but collective rights, so they require cooperation among members [3]. However, in practice, the cooperative operation of GIs in Pengshui County needs to be more satisfactory. Due to the lack of protection and management of GI trademarks, the phenomenon of damaging the reputation or abusing GI trademarks in production and operation occasionally occurs. Some producers and operators need to meet standard requirements to save production costs of GI products, resulting in excess pesticide residues and quality degradation. Natural conditions and limited production restrict agricultural production. Some producers and operators use similar foreign agricultural products labeled as GI products to improve market supply. For example, the "Pengshui Millet Peanut" is closely related to the local Pengshui hot climate, with moderate rainfall and a natural environment of sandy soil, peanut end products with small grains, colourful and fragrant fruit and crispy flesh characteristics. However, it is difficult for ordinary people to distinguish the subtle differences between peanuts. Taking advantage of this information, some operators adulterated other peanuts in the sale of "Pengshui millet peanuts", seeking undue benefits, which not only harmed the legitimate rights and interests of consumers but also harmed the market reputation of the GI product brand, resulting in the phenomenon of "bad money driving out good money".

Third, in the process of using GIs, everyone acts independently. GI agricultural products are characterized by a high degree of homogeneity in specific areas, relatively concentrated production, decentralized decision-making by producers, and free choice of production methods. There will be contradictions between individual rational behavior and collective rational goals in the production areas. Due to a lack of management services, some farmers refuse to adopt uniform packaging for GI that were products planted and produced sporadically to reduce operating costs. Considering the cost of carton packs, some farmers have not yet requested special packs from the association but have found a private company to print them. One farmer said that "The price of the boxes used by the association is more than double that of the privately printed boxes." Like some cooperatives that have e-commerce channels, the cost of selling more than 1500 items a day varies greatly.

4.2. Low Intensive Production

Unlike Europe, where GIs have a long history, GIs in China were developed later. Based on the experience of foreign GI protection, the "Regulations on the Protection of Products of Origin", enacted on 17 August 1999, established the protection system for products of origin, and the "Regulations on the Protection of Products of Geographical Indication", enacted on 15 July 2005, established the legal status of "geographical indication" in the form of a normative document for the first time. Suppose the protection of GIs in Europe is to maintain a long historical tradition and ensure the competitive advantage of products in the market. In this case, the protection of geographical indications in China maintains this tradition and hopes to establish a modern agricultural system in the market through the financial resources brought by GIs. One of the main characteristics of modern agriculture is that the socialization, specialization, and commercialization of agricultural production are greatly intensified, forming socialized agriculture [16]. GIs can facilitate the formation of value chains in rural communities, increase the scale of economic production, and expand the scope of production. This collective effort and eventual organization will result in producers achieving economies of scale and benefiting from side effects [4]. Currently, most GI trademarks are solicited and licensed under policy incentives rather than based on actual market demand; therefore, they are not market-responsive and the production organization model is not market-oriented.

From a vertical perspective, agriculture is developing into pre-production, production, and post-production sectors, eventually forming a complete chain of agricultural product processing companies. Pengshui County has received 25 GI certification marks in over a decade, but there are only a handful of influential GI products in the country and in Chongqing. In 2012, Pengshui Water Resources Agricultural Development Co., Ltd. was established to produce another GI product, Pengshui Crystal Shredded Potato Vermicelli, through the deep processing of sweet potatoes in the "company + farmers + base" mode—Peng Crystal Silk Camas Noodles [22]. Most GI products are still produced in the era of traditional agricultural production, without upstream and downstream industrial chains and with a low degree of commercialization. Some scholars observed that because Chongqing's geography is dominated by hilly and mountainous terrain, the degree of industrialization of agriculture as a whole is low [23]. This situation is familiar for less developed regions such as Padang, Bangka Belitung, Mataram, Central Java, East Java, and Yogyakarta in Indonesia. Most producers of GI products in Yogyakarta are small- and medium-sized companies that are still run by traditional family management and produced manually using simple equipment [21].

When selecting demonstration companies and the top 100 demonstration families in the Chongqing agricultural product processing industry, there were few selected enterprises in Pengshui. Even those selected had little relevance to the production of GI products. Five districts and counties southeast of Chongqing were selected, including three in Shizhu County, two in Youyang County, and one in Qianjiang District. The third list of Chongqing's Top 100 Agricultural Products Processing Industry Demonstrators (2021) includes five companies in Pengshui County, but only one agricultural company related

to GIs (Chongqing Qianzhongdao Perilla Planting Professional Cooperative, Chongqing, China). According to the Chongqing Municipal Agriculture and Rural Committee website, a total of four companies in Pengshui County have been selected as "Chongqing Agricultural Products Processing Industry Demonstration Enterprises" since 2019, including zero in 2019, three in 2020 (Chongqing Longshu Jingsi Camas Noodles Co., Ltd., Chongqing, China), and one in 2021 (Pengshui County Liyuan Agricultural Development Co., Ltd., Chongqing, China). Only two companies are directly involved in the production and processing of GI products, including Chongqing Longshu Crystal Silk Camas Noodles Co. In other words, in the agricultural processing industry "Double Hundred", only three units in Pengshui were selected, which were involved in the production and processing of perilla, sweet potato, and camas flour.

4.3. Weak Market Competitiveness of Similar Products

Although the number of GIs in Pengshui County ranks first in Chongqing, the brand value is generally low. Pengshui's GI products are low in several national and local assessments. Since 2017, the Ministry of Agriculture and Rural Affairs has successively released four batches of advantageous areas of agricultural products with Chinese characteristics, which have produced ten advantageous production areas in total. Shizhu, in the Wuling Mountain area, was selected twice based on Coptis Chinensis and water shields. Although Pengshui has many GIs, it still has no advantage in producing characteristic agricultural products. The large number and weak competitiveness of GIs form a strong contrast.

Pengshui's GI products also face homogeneity and weak competitiveness in Chongqing. For example, Wushan crisp plum, located in the Three Gorges reservoir area, is a "famous Chinese fruit" with a high market share and a relatively complete industrial chain. In addition to fresh fruit, it also extends the industrial chain by producing dried plums. In 2019, the Wushan Crispy Li Agricultural Product Advantage Zone with Chinese Characteristics in Wushan County, Chongqing, was identified as the agricultural product advantage zone with Chinese characteristics (the second batch). Since 2020, Sichuan and Chongqing have successively released two batches of the "List of Key IPR Protection". There are 30 in the first batch and 20 in the second batch. In Pengshui, there are three pieces of "Peng Crystal Sweet Potato Powder", "Pengshui Perilla Oil", and "Pengshui Millet Peanuts" selected from the "Sichuan Chongqing High-Quality Geographical Indications List", accounting for only 6%.

From a horizontal perspective, the recognition of Pengshui GI products is low. Chongqing has one district and five counties in the Wuling Mountain area and the Wujiang River valley. The climate, topography, hydrology, and other natural resources between the districts and counties are relatively close, and all are inhabited by the Miao, Tujia, and other ethnic minorities. Human resources are relatively similar. Therefore, unless the GI product production site has an extraordinary endowment of natural resources, it is difficult to break through the Wuling Mountain area and form a product with market competitiveness. For example, although Pengshui County also has the GI of "tea oil", it is not a leader in this field. In contrast, "Chongqing Amber Tea Oil Co., Ltd., Chongqing, China", near Youyang County, was selected as one of the top 100 demonstration enterprises of Chongqing's Agricultural Product Processing Industry (2021). The homogenization of geographical indication products has triggered vicious competition in neighboring regions, which is not conducive to the development of GI products and characteristic regional agriculture [24].

The number of GIs in Pengshui is generally high, but the brand equity is low and the market influence is negligible. Agricultural products such as fruits, livestock, and grain are similar to other districts and counties in Chongqing, lacking highlights and good market advantages. Like other regions in China, applicants in Pengshui cultivate and apply for GIs on the basis of seeking government incentives, rather than consolidating the advantages and characteristics of established products, gaining more competitive advantages in the market, and showing the region's cultural traditions. There are also irregularities in the use of GIs.

5. Improving the Operation of County GIs

GIs are not magic. In the long term, the success of GI products depends primarily on the ability of local producers or processors to maintain product quality, promote product strength, and increase consumer awareness [24]. By analyzing the current situation of GI development in Pengshui, we can, to some extent, peek into the tube, see the microscopic details, and discover the common problems in the creation, application, protection, management, and service of GIs in the county. The promotion of GIs for rural economic development has yet to be matched, and many are left idle. In recent years, China has made remarkable progress in declaring and authorizing GIs, and the growth rate and overall scale are among the largest in the world. However, high-value GI products must still be compatible with China's international status. By the end of the 13th Five-Year Plan, China had protected 2391 GIs products, 9479 market entities using GIs, and 6085 GIs registered as collective and certification trademarks. The annual direct production value of market entities using GIs has exceeded CNY 600 billion. However, GI value has not yet been fully revealed.

5.1. Focus on Transforming Declared Quantity to Improve Product Quality

Is it possible to change the development of GI trademarks, on the one hand, encourage regions with mature conditions to actively declare GI trademarks, on the other hand, and strengthen the entire management process of GI trademarks to give full play to the economic value of geographical indication?

First, improve the incentive mechanism for the construction of GIs. Currently, GI trademarks are incentivized through one-off funding, which results in many GIs focusing on deposit rather than usage, leading to a low rate of GIs usage and trading. Additionally, once the applicant has received funding, the GI trademark is filed. A hierarchical incentive mechanism can be established to promote the full use of GI trademarks. A certain number of subsidies will be verified for the applicant of the approved geographical indication trademark. As a practice, 50% of the subsidy is awarded on the date the GI trademark is approved. From December 31 of the year in which the GI trademark is approved until December 31 of the third year, the applicant must arrange for the operation and use of the trademark. The remainder of the subsidy amount will be allocated to those who meet the conditions. Funding will be suspended for those who do not meet the conditions. A grace period of two years may be granted, and the administrator or user of the GIs may continue to allocate the remaining amount of the subsidy if the rectification is completed and the conditions for the subsidy are met. The remaining subsidy amount will be canceled unless the conditions can be met for up to three years.

Second, establish the operational mechanism for geographical indication trademarks. Integrate the strength of the Market Supervision Bureau (Intellectual Property Office), the Agricultural and Rural Commission, and the Rural Revitalisation Bureau, strengthen the coordination of work related to geographical indications, and establish a coordination mechanism for the development of geographical indications. We can do a great job of promoting GI products, telling the natural, historical, and cultural stories of GI products, and increasing the brand value of GI trademarks and the influence of products. Strengthen the construction of infrastructure, establish an e-commerce platform, expand the market audience, and improve the circulation of GI products in the market. Change the promotion focus, strengthen support for promoting the brand image of GI trademarks, improve the quality standards of GI products, and create a good brand image. Under the guidance of the local government, improve the characteristic quality assurance system, improve the standard technical system, strengthen the inspection and detection system, and constantly improve the standardization of the use of GI trademarks. Focus on supporting more mature GI products with prominent regional characteristics and create a lot with leadership and exemplary roles.

Third, strengthen the management of GIs. Following a study of GIs in Indonesia, it was observed that government involvement should be progressive, and effective policies on

GIs should be formulated. In the management of GIs, it is necessary for local governments to play an active role and introduce more effective policies according to local conditions [6]. Effectively play the supervisory role of government departments, strengthen the guidance work on the use of GI trademarks, and eliminate its usage for low-quality and non-original products. In order to strengthen industry guidance, agricultural industry associations and service centers should strengthen the industry's self-discipline, improve self-management capacity and the self-blood function, and effectively assume the responsibility of the manager and promoter of the GI trademark. Develop a quality index system for GI products and continuously improve the brand value of GI products. Fully play the role of industry associations to realize the unified brand and quality, proper packaging, and unified advertising of GI products. Establish a traceability mechanism for the supply, production, transport, sale, and agency of GI products through big data, QR codes, and other means. A GI is a "badge of responsibility" and should not be used by producers who do not comply with GI rules. GI labels should be prohibited for producers who do not comply with GI rules [3].

5.2. Promote the Transformation of Traditional Agriculture to Modern Agriculture

GI products have moved beyond the traditional "subsistence" agricultural function, and market exchange has become the ultimate mission. From a logical point of view, a favorable natural environment, a long history, and high-quality products are the prerequisites for creating a GI. Suppose that traditional agriculture is based on human and animal strength and farming experience passed down from generation to generation. In this case, modern agriculture focuses on mechanization, refinement, intensive farming, and agricultural science and technology to support agricultural production. The sustainable development of GIs can only be achieved if tradition and modernity are synergistic [25].

First, strengthen the construction of agricultural infrastructure. According to the production demand for GI products, construction of high-standard farmland (fields) will be classified, and water supply projects and water conservancy facilities in arid areas will be strengthened to improve the drought and flood prevention capacity of agricultural land. Given the topography of the Wuling Mountains, carry out comprehensive farmland improvement, build and improve farmland roads, create conditions for mechanized agriculture, and improve the production efficiency of GI products. Local governments should strengthen the construction of information infrastructure, enhance data integration application capacity, provide timely information related to the production of GI products, effectively reduce the digital divide between urban and rural areas, build an intelligent application platform for the urban–rural integration big data, and then build an e-commerce system for GI products and promote online trading of GI products. Combined with the Five-Year Action Plan for the Improvement of the Rural Living Environment (2021–2025), promote the harmless treatment of sewage and rural household waste, recycle and carry out the linkage of agriculture and rural areas and the ecological integration of production and life, and provide an excellent ecological environment for the production of GI products. Hence, innovation is key to maintaining product quality [26].

Second, increase investment in research and development in agricultural science and technology. It has been argued that the involvement of product experts or visits to producers and production areas play a crucial role in establishing the link between products and GIs due to their technical content [24]. In this respect, GIs are closer to patents than trademarks. Therefore, to promote the development of GIs, it is necessary to demand the productivity of science and technology and continuously improve the strength of agricultural science and technology. There is a lack of investment in agricultural science and technology in China. The contribution rate of China's agricultural science and technology progress is currently 60%, lower than the national average science and technology progress contribution rate, and much lower than the level of more than 80% in developed countries such as the United States, Germany and The Netherlands [27]. Therefore, it is necessary to continuously increase investment in agricultural, scientific, and

technological innovation to promote the improvement of crop yield and quality. For the particular characteristics of GI products, we should shift from a single brand-based support incentive to exceptional support that considers the scientific and technological innovation of GI products. We focus on supporting scientific and technological investment in soil quality improvement, water-saving irrigation, and plant breeding in GI-producing areas. Actively tap into the enthusiasm of GI industry associations and operators, strengthen technical training, cultivate agricultural innovation themes in various ways, and promote the transfer and transformation of innovative results in agricultural science and technology.

Third, promote large-scale agricultural production. The function of GI products is not simply to provide basic foodstuffs and raw materials, but high-quality agricultural products for modern society. Traditional small-scale agriculture, with low yields and unstable quality, is no longer able to meet the needs of modern society. Currently, intensive and large-scale production of agricultural land has been affected to some extent by the low quality of rural practitioners, limited financing capacity, low level of technology application, and high rates of part-time employment. Pengshui County has a per capita arable land area of 2.36 mu, and the rural population is seriously aging, so it is urgent to release agricultural production capacity through agricultural modernization. According to the current situation of many rural workers with low cultural levels, knowledge, and skills, the "farmer+" approach is adopted to establish a diversified way of organizing agricultural industrialization. For example, the "farmer + company", "farmer + cooperative", and "farmer + professional association" models can simultaneously take into account the enthusiasm of farmers to produce and lead enterprises and cooperative economic organizations to promote the scale of agricultural production demonstration leadership roles. Actively promote the transfer of land in areas with few farmers, transform rural land resources into land capital, and fully play the role of market leadership.

5.3. Give Consideration to the Application of Geographical Indications at the County Level and Interregional Cooperation

Geographical regions associated with GIs often include administrative and natural regions. In China's political and economic life, the government at the county level is a relatively independent unit responsible for the economic development of the county. Therefore, the declaration of GIs is closely related to the county economy. Article 8 of the GI Product Protection Regulations (2005) states that the enforcement office for the protection of GI products shall apply for the protection of GI products from the local government at or above the county level or from recognized associations and companies. Article 9 stipulates that the county-level government will propose the geographical area of origin when the products requested for protection are within the county. When the products are outside the county, the popular government at the prefectureor municipality level will propose the geographical area of origin; when the products are outside the cities, the provincial people's government will propose the geographical area of origin. Due to the competitive relationship between district governments in GI trademark applications, district governments also subsidize GI trademark applications to varying degrees. Cross-country GI trademark applications require more coordination and are expensive.

The division of traditional administrative boundaries in China takes into account more political than economic factors, which leads to the division of regions with the same natural and human factors into different administrative regions, affecting the application of GIs. For example, Qianjiang Dikuniu (Xianshan Yuzhu, a kind of ground bull) is a GI product in Qianjiang District, Chongqing. Meiziya City, Pengshui County, is adjacent to Qianjiang District. The geographical phenology is the same and the quality of Dikuniu is similar. However, Dikunius from the Pengshui are excluded from the place of origin. The adjacent areas of Qianjiang and Pengshui have the same physical geography and historical culture. Their agricultural products have little difference, so there is no need to reapply for GI trademarks. From a broader perspective, it is a challenge to establish a cross-country production community for GI products in counties on the edge of provincial borders,

such as Wuling Mountain. "The development of China's commerce has never reached the level that can overcome the localization and narrow exclusiveness of the agricultural economy" [28]. Therefore, the GI system should be improved from a unified national market perspective.

First, establish a multi-level government cooperation mechanism based on the county level. The borders of administrative regions at all levels in China are often "convenient in mountains and rivers" and "intertwined". The same mountainous area or both banks of a river belong to different administrative regions. These different counties are very similar in terms of products. When localities belonging to different district administrations share the same characteristics, such as the same natural environment or similar history and culture, it is recommended that district administrations coordinate their GI applications. Within the same provincial administrative region, the provincial administrative department of intellectual property should take the lead to consult with county-level people's governments, establish a joint declaration mechanism for GI trademarks, and jointly provide intellectual property certification services, financial services of intellectual property, and other work. Explore the preparation of an interregional development plan, build a big data platform for the GI industry, and jointly build a demonstration park for GI products. The core, extension, and expansion areas for the production of GI products will be determined according to the classification of the natural geographic environment. Different GIs will be applied to traditionally sourced products and expanded production areas, and different policies will be adopted to guide the industry's development.

Second, establish interregional GI industry alliances based on GI products. This also encourages the development of the industrial sector beyond administrative borders, the expansion and strengthening of the agricultural sector, and the development of the region [29]. For example, Brazil has established Local Productive Agreements (LPAs) as one of the types of agreements for GI management through effective agreements to support the cooperation of economic, social, and political actors in a given economic project [6]. For the same GI covering several provinces, industrial organizations, companies, manufacturing bases, farmers, and so on, form an industrial alliance for the GI to jointly create, protect, apply, manage, and provide services for the GI. Jointly research agricultural science and technology to improve the quality of agricultural products. According to the characteristics of agricultural products and market demand, cooperate to extend the industrial chain, carry out deep processing and refining of agricultural products, improve the added value of products, and highlight the advantages of natural resources, local history, and culture. Establish a regional cooperation mechanism to protect GI trademarks, create a suitable environment for the production of GI products, and promote the high-quality development of the regional economy. Establish a GI interconnection mechanism with industry as a link to carry out platform building, resource sharing, information exchange, complementary advantages, and market building, and promote agricultural modernization. Through interregional intergovernmental collaboration and industrial alliance, build an interregional GI product production mechanism with government promotion, association participation, business leadership, standards unification, and product integration, and promote high-quality regional synergistic development.

6. Discussion

How GIs promote rural economic development is an important research topic. However, current research on GIs and rural development in China mainly focuses on the macro level, such as the positive impact of GIs on farmers' income and rural revitalization; it needs more attention on the operational practice of the GI system at the county level. Currently, the production of typical agricultural products comes mainly from the counties, and the application of GIs mainly comes from the relevant organizations and production units under the government. Therefore, in view of research objects at the county level, countermeasures and suggestions based on macroscopic research need to be more relevant and practical. For this reason, the innovation of this study is mainly reflected in two aspects.

First, we examine the use of GI trademarks at the county level through local media reports and find the positive effects of GI trademarks in promoting rural economic development at the micro level. This evidence suggests that GI leads to the optimization of the structure of agricultural industries, agricultural production patterns, and the natural environment in rural areas and is a powerful tool for promoting sustainable rural development.

Second, by interviewing some farmers and retrieving some indirect evidence, such as agricultural product evaluation, we found that using GI trademarks in Pengshui could be more efficient. At the very least, the overall quality of GIs in Pengshui differs from their number. That is, local media coverage amplifies the positive significance of GIs in promoting local economic development. This creates the illusion that more GIs are better for local economic development. Some indirect evidence makes us soberly see that in Pengshui County, only a minimal number of GIs play a positive role, while most other GIs are in an inactive state.

From this, we will have two insights. (i) It is not true that the more local government invests in and rewards GIs, the better the GI development. Some speculators take advantage of government incentives to apply for GIs and give some agricultural products without the characteristics and competitiveness a veneer of a GI, resulting in wasted resources. Based on this, the government should adjust the GI award policy to ensure that high-quality products that reflect local characteristics can obtain GI protection. (ii) Because administrative divisions and cultural regions in China have become intertwined, the declaration of GIs must break the traditional pattern of administrative divisions at the county level and ensure coverage of historical and cultural regions.

GIs are still new in China and there needs to be more research on GIs. However, our research also has some limitations. (1) This study mainly discusses the issue of GIs in promoting rural economic development. The Convention on the Protection and Promotion of the Diversity of Cultural Expressions, elaborated by the United Nations Educational, Scientific, and Cultural Organisation (UNESCO), recognizes the importance of intellectual property rights for economic and cultural purposes. As a significant intellectual property right, the significance of GIs also lies in achieving the revitalization and development of rural materials and achieving the vital mission of spreading spiritual culture to the world. This study needs to consider how GIs can effectively promote rural cultural heritage, By noting that rural revitalization is not only economic but also cultural revitalization. Therefore, in future research, the functions and roles of GIs in transmitting the culture of China's vast hinterland need to be further studied. (2) This study initially deals with the relationship between administrative divisions, cultural regions, and GIs. There is an inherently complex historical tradition across administrative divisions and cultural regions in China, and how to observe GIs in the wilds of history and culture is a subject for future research. (3) The development of GIs in China is administratively driven, and how to balance the relationship between management and the market in the process of GI development is also an issue that urgently needs to be studied.

GIs have a long history and tradition in Europe, but China only formally established a legal system for GIs in the early 21st century, and its knowledge, understanding, and practice of GIs is somewhat different from developed countries. For a huge developing country with a territory of 9.6 million square kilometers, a population of 1.4 billion, an agricultural tradition of more than 2000 years, and a diverse culture in the region, how to dispel public misconceptions about GIs, improve the production environment for GI products and strengthening the role of GIs in transmitting culture is an urgent issue that needs to be addressed as soon as possible. In the long term, China also needs to learn from the advanced experience of GI management in developed countries, actively participate in global GI management, and promote the circulation and exchange of GI products around the world.

7. Conclusions

This paper counts the number of GIs and analyzes the development characteristics of GIs in Pengshui County. We retrieved and analyzed the examples of GIs in our study area. As per our findings, GIs can promote the development of the rural economy in Pengshui.

However, interviews with some practitioners also revealed that although the number of GIs in Pengshui is the highest in Chongqing, GIs could be more efficient. Overall, the brand awareness of GI practitioners in Pengshui is not strong, the production intensification of GI products is low, and the competitiveness of similar products in the market is weak compared to other regions.

In this analysis, we present three points for reference by policymaking departments and producers. (1) Change the GI claim logic from focusing on the number of GI claims to improving the effectiveness of using GI products. (2) Promote the transformation of traditional agriculture into modern agriculture, improve production efficiency and quality of GI products, and promote the sustainable development of rural GI production. (3) Based on the intersection phenomenon of administrative and cultural regions in China, a specific tradition or culture usually spans several administrative regions. This single act of declaring a GI by administrative regions at the county level makes it difficult to inherit the entire culture image through a GI. It is necessary to promote cooperation between cultural regions.

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