

Research on AI-Enabled Financial Service Models for Boosting Rural Industrial Revitalization in Poverty-Alleviated Areas—A Case Study of Meitan County, Zunyi, Guizhou Province

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Abstract: Against the backdrop of comprehensively advancing rural revitalization, rural industries in poverty-alleviated areas are undergoing a critical transformation from external assistance to endogenous growth. However, the traditional rural financial service system struggles to match the new demands of large-scale development and integrated revitalization of rural industries, and the structural mismatch between financial supply and industrial upgrading has become a major constraint. To address this issue, this paper selects Meitan County, Zunyi, Guizhou Province as a typical case, systematically analyzes its trajectory of rural industrial revitalization and the operational logic of supporting financial service models from 2020 to 2024, and focuses on examining the enabling role of artificial intelligence in financial service links such as credit evaluation, risk control, and credit system construction, exploring how AI improves the accuracy and coverage of financial services. This study aims to enrich micro-case research on financial service models empowering rural industrial revitalization, and provide practical references and decision-making basis for similar poverty-alleviated areas to break financial constraints and explore intelligent financial development paths.

Keywords: financial service model; artificial intelligence; poverty-alleviated areas; rural industrial revitalization

1. Introduction

Since the 19th National Congress of the Communist Party of China, the rural revitalization strategy has become a fundamental guideline for China's agriculture, rural areas, and farmers. After winning the battle against poverty in late 2020, the focus of rural work has shifted historically. Promoting rural revitalization has become essential to consolidating poverty alleviation achievements and advancing agricultural and rural modernization. The Overall Rural Revitalization Plan (2024–2027) sets clear goals for 2027 and 2035.

Against this background, industrial revitalization is critical to rural revitalization. For poverty-alleviated areas, developing local characteristic industries helps prevent poverty return, increase income, and advance urban-rural integration. However, rural industrial development faces severe constraints such as insufficient capital and financial services. The traditional rural financial system cannot adapt to the large-scale and integrated development trend of rural industries.

Meanwhile, the wide application of artificial intelligence in finance provides new solutions to insufficient rural financial supply and information asymmetry. Therefore, building an AI-enabled intelligent financial service model for rural industrial revitalization in poverty-alleviated areas is of great theoretical and practical significance.

2. Literature Review

Comprehensively advancing rural revitalization and effectively linking the consolidation of poverty alleviation outcomes with rural revitalization have become core tasks. In this context, academia has carried out in-depth research on long-term mechanisms to prevent poverty relapse.

Scholars generally acknowledge the inherent logical connection between poverty alleviation and rural revitalization. Bai Xuejun (2022) pointed out that the two strategies are consistent in concept, system and participants, yet still face practical dilemmas including goal alignment, mechanism integration and subject expansion. Zhang Cong and Long Hualou (2025) proposed that effective connection should focus on five key areas: activating land resources, strengthening education, improving infrastructure, supporting industries and increasing financial input.

Finance has been widely viewed as critical in the transition process. Zhou Mengliang and Wu Peng (2023) emphasized that policy finance provides fundamental support through infrastructure and industrial loans. Wen Tao and He Qian (2023) systematically elaborated the logical transformations that rural finance needs to accomplish under the new stage of rural development.

Regarding financial service models, Li Changbi (2023) suggested that rural financial innovation should rely on digital technologies to design targeted products. Chen Jiaojiao (2023) argued that financial models must be upgraded to match diversified agricultural and household demands. Liu Fengqin and Su Bin (2024) proposed differentiated financial tools to improve the precision of financial support.

Overall, existing studies confirm the importance of financial support but remain concentrated on macro policy analysis and general model discussions, with few micro-level investigations based on real practices in poverty-alleviated regions. Although AI applications in credit risk control and credit scoring have grown rapidly, studies on AI-enabled financial models tailored for rural industries in formerly poor areas are still limited.

To address this gap, this paper selects Meitan County, Zunyi as a case. Since poverty alleviation, Meitan has promoted tea-centered industrial revitalization and carried out meaningful innovations in digital and AI-driven financial services. This study investigates its industrial development and financial service practices, summarizes its operational logic, and extracts replicable paths for building financial service models to support rural industrial revitalization, so as to provide a practical reference for similar regions to overcome financial constraints.

3. Analysis of Rural Industrial Revitalization in Meitan County, Zunyi, Guizhou Province

Against the backdrop of comprehensively advancing rural revitalization, vast poverty-alleviated areas are at a critical stage of transformation from eliminating absolute poverty to achieving sustainable development. This study selects Meitan County, Guizhou Province as a typical case. Located in remote mountainous areas in southwest China, the county's economic development trajectory from 2020 to 2024 clearly reflects the exploration path of poverty-alleviated areas in the initial stage of industrial revitalization, thus providing a representative observation sample for understanding the industrial transformation and development of similar regions.

According to the unified accounting data of regional gross domestic product (GDP), the economy of Meitan County has generally maintained a trend of steady recovery and continuous structural optimization during this period. In 2020, the county's GDP reached 11.807 billion yuan, a year-on-year increase of 4.7%, with the three-industry structure standing at 30.0:22.2:47.8. Notably, the proportion of the tertiary industry exceeded that of the primary and secondary industries, indicating the initial establishment of the service industry's leading position in the county's economy. Specifically, the added value of the primary industry grew by 6.4%, with agriculture, forestry, animal husbandry, and fishery all recording positive growth; the added value of the secondary industry increased by 4.6%, reflecting the recovery of industry and construction; the tertiary industry expanded by 3.6%, with sub-sectors such as transportation, wholesale, and retail achieving varying degrees of growth.

In 2021, the economic growth rate of Meitan County rebounded to 9.4%, with GDP reaching 13.104 billion yuan. The industrial structure was further adjusted, and the proportion of the three industries evolved to 29.1:23.8:47.1. Although the proportion of the tertiary industry slightly

declined, its scale advantage remained obvious; the proportion of the secondary industry slightly rose, with growth momentum strengthened. Industrial development that year focused on quality improvement: the agricultural sector enhanced comprehensive benefits through technological promotion, structural optimization, and quality and safety management; industry shifted toward intelligence and greening, with progress in cultivating emerging industries; the service industry expanded development space through regional coordination and opening-up cooperation.

In 2022, the total output value of agriculture, forestry, animal husbandry, and fishery in Meitan County increased by 4.3% year-on-year, among which planting grew by 9.1% as the main driving force, while grain output decreased by 4.4% year-on-year. The industrial sector grew by 2.4% overall, with the added value of manufacturing increasing by 4.5%, including a 4% growth in wine, beverage, and refined tea manufacturing, and a significant 14% growth in characteristic food processing, which became an important support for industrial growth. The service industry recovered steadily as a whole, with industries such as wholesale, retail, and transportation maintaining growth. Notably, market vitality continued to be released, with the total number of market entities increasing by 14.6% year-on-year by the end of the year, reflecting the recovery of the private economy and small and micro enterprises.

In 2023, GDP reached 14.023 billion yuan, a year-on-year increase of 5.5%. The industrial structure continued to optimize, with the three-industry proportion adjusted to 28.2:22.6:49.2, and the proportion of the tertiary industry increasing by 1.9 percentage points compared with the previous year, further consolidating its leading position. From the perspective of internal industrial structure, the total output value of the primary industry grew by 3.9%, with planting maintaining a leading position and forestry growing prominently by 12.4%. The added value of the secondary industry only increased by 0.3%, with manufacturing under overall pressure, yet industries such as wine, beverage, tea, and agricultural and sideline food processing maintained growth. The tertiary industry became the main engine of economic growth, with its added value rising by 9.2%, among which modern service industries such as finance, leasing, and business services all grew by more than 10%.

By 2024, GDP reached 15.570 billion yuan, a year-on-year increase of 4.4%. The industrial structure further evolved to 26.3:21.5:52.2, with the proportion of the tertiary industry exceeding 50% for the first time, making the service-dominated economic structure more prominent. The primary industry maintained steady growth, with a total output value of 11.201 billion yuan, an increase of 4.1%, and tea output rose to 58,400 tonnes, becoming a characteristic pillar industry; the growth rate of the secondary industry rebounded, with industrial added value increasing by 6.8%; the tertiary industry grew by 2.6%, and total retail sales of consumer goods increased by 5.3%. The total number of market entities reached 33,000, including a 4.5% increase in the number of enterprises, with continuous optimization of market vitality and structure.

Looking at the economic development trajectory from 2020 to 2024, Meitan County's economic aggregate continued to grow, rising from 11.807 billion yuan to 15.570 billion yuan; the industrial structure was continuously optimized, with the proportion of the tertiary industry steadily increasing from 47.8% to 52.2%, forming a service-dominated economic pattern; the agricultural foundation remained solid, with the output of characteristic agricultural products, especially tea, growing continuously; the industrial structure was constantly adjusted, with characteristic industries represented by wine and tea manufacturing playing an obvious supporting role. Overall, Meitan County has achieved remarkable results in industrial revitalization.

4. A Practical Investigation of Financial Service Models for Rural Industrial Revitalization in Meitan County, Zunyi, Guizhou Province

Since 2020, under the background of rural industrial revitalization, Meitan County has explored and formed a local financial service model. Supported by policy guidance, industrial demand,

technological empowerment, and risk control, the model has effectively upgraded rural industries in the county.

The financial service model of Meitan County is supported by a sound policy system. The local government has issued supporting policies to form a “fiscal guidance, financial follow-up, industrial benefit” mechanism. The county government reduces risks and costs for financial institutions through fiscal interest discounts and guarantee enhancement. For the leading tea industry, the fiscal department cooperates with financial institutions to offer preferential loans for qualified tea businesses, with the government subsidizing part of the interest. This policy attracts more financial resources to rural areas and ensures the precision of capital investment.

Based on policy support, the financial model closely focuses on local characteristic industries and deeply integrates financial supply with industrial revitalization. As the origin of Meitan Cuiya, Meitan takes the tea industry as the pillar of rural revitalization. Financial services cover the whole tea industry chain. Loan products including “Xingnong Loan“, “Huicha Loan“, “Tea Chain Loan“, “Tea Green Loan“, and export-specialized loans cover planting, processing, sales, and tea-tourism integration. This industry-focused model channels financial resources to key links and enhances industrial resilience.

On the basis of digital transformation, Meitan has applied artificial intelligence to improve the intelligence of financial services. Relying on the intelligent risk control platform of Guizhou Provincial Association of Rural Credit Unions, Meitan Rural Commercial Bank uses machine learning to model farmers’ credit data and realize automatic credit approval. The platform integrates basic information, operation data, and credit records to build a credit scoring system for dynamic evaluation of repayment capacity and risk. This technology shortens the approval cycle, cuts manual costs, and improves the accuracy of risk identification.

Effective risk prevention and control ensures the sustainable development of financial services. Meitan has promoted policy-based agricultural insurance and created innovative products such as meteorological index insurance for tea. Insurance offers timely compensation for natural disasters, stabilizes farmers’ income, and protects credit funds. In 2017, China Pacific Property Insurance launched tea low-temperature meteorological index insurance in Meitan, making up for the shortage of traditional tea insurance.

In summary, Meitan’s financial service model for rural industrial revitalization is a systematic framework. With policy coordination, characteristic industry orientation, intelligent technology empowerment, and risk control as its core, it forms an interconnected and dynamically developing system that strongly supports industrial upgrading.

5. Construction Path of Financial Service Models for Boosting Rural Industrial Revitalization in Poverty-Alleviated Areas

Rural industrial revitalization is an important task in the implementation of the rural revitalization strategy, and financial services, as a key factor supporting the development of rural industries, play an important role in promoting the transformation, upgrading, and sustainable development of rural industries. The practice of Meitan County provides a typical empirical sample for exploring how financial service models can effectively empower rural industrial revitalization in poverty-alleviated areas. Based on the theoretical extraction of its operational logic, this study holds that “policy guidance and coordination”, “precise industrial embedding”, “in-depth AI empowerment”, “co-governance of multiple subjects”, and “effective risk mitigation” are the key construction paths of financial service models for boosting rural industrial revitalization in poverty-alleviated areas, as shown in Figure 1.

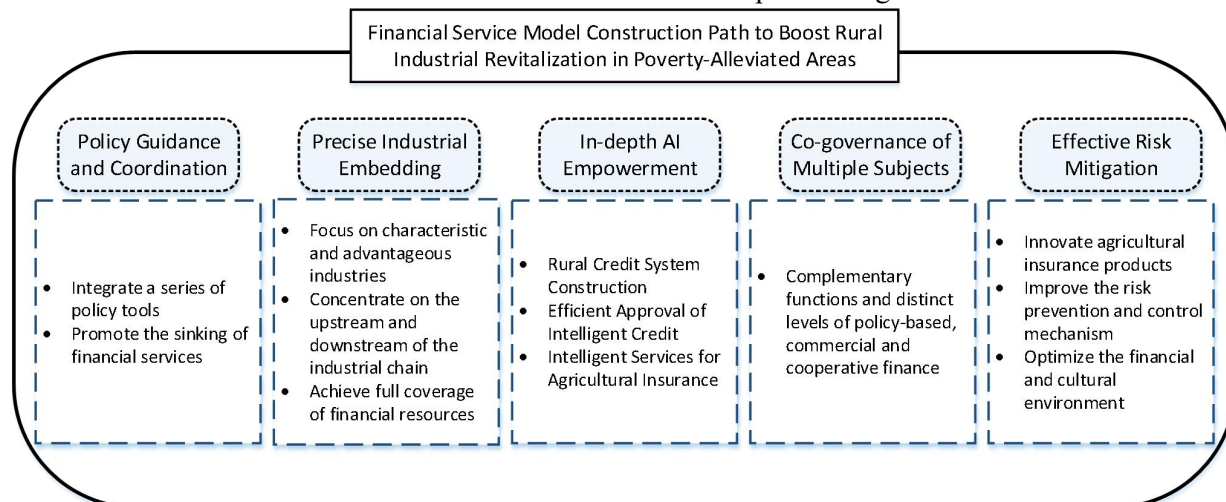


Figure 1. Construction Path of Financial Service Models for Boosting Rural Industrial Revitalization in Poverty-Alleviated Areas

Xingnong LoanThe construction path of this model should be based on policy guidance and institutional guarantee. Local governments need to play a leading role and form institutional synergy to promote the expansion of financial services by integrating fiscal and financial policy tools. This includes setting up special rural revitalization funds to provide targeted interest discounts and risk compensation for key industries and weak links; deepening rural property rights reform, promoting the registration and confirmation of rural land management rights and agricultural facility ownership, and establishing standardized circulation platforms to remove obstacles for mortgage financing.

On a sound policy basis, the financial service model should focus on local characteristic and advantageous industries to achieve deep integration of financial resources and industrial chains. Poverty-alleviated areas need to analyze their resource endowments and select competitive leading industries such as characteristic planting, ecological breeding, and rural tourism. Financial institutions should build an “industrial financial map” covering breeding, production, processing, warehousing, and logistics. For instance, “Huinong Loan” can be provided for production, while “Equipment Purchase Loan” and “Warehouse Receipt Pledge Loan” can be offered for processing.

Artificial intelligence is reshaping the logic of rural financial services. In credit system construction, machine learning can model multi-dimensional data to realize dynamic credit scoring and risk early warning; in credit approval, AI supports automatic review and intelligent anti-fraud; in agricultural insurance, AI combined with remote sensing and meteorological data enables precise underwriting and quick claims settlement. In the future, deeper integration of AI and rural finance should be promoted to build a new “intelligent finance + industrial revitalization” model.

The coordination of diversified financial suppliers is the foundation for meeting diversified rural industrial demands. A sound rural financial ecosystem includes policy finance, commercial finance, cooperative finance, and new financial formats with complementary functions. Policy banks should focus on infrastructure projects; large commercial banks can serve county leading enterprises; rural commercial banks and village banks should be the major force serving small entities and farmers.

Stable financial operation relies on an effective risk dispersion and prevention mechanism. For rural industries, a multi-level risk mitigation system is essential. It is necessary to expand innovative agricultural insurance such as meteorological index insurance and price index insurance, and explore the “insurance + futures” model to mitigate natural and market risks. In addition, a risk monitoring, early warning and joint disposal mechanism should be established. Local governments should build an industrial risk information platform for early warning and coordinated intervention.

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References

- [1] Bai X J. Research on the Effective Connection between Consolidating and Expanding Poverty Alleviation Achievements and Rural Revitalization in Ethnic Areas: From the Perspective of Constructing a New Endogenous Driving Force Mechanism[J]. *Guizhou Ethnic Studies*, 2022, 43(6): 62-68.
- [2] Chen J J. Farmers' Demand for Financial Services and the Innovation of Banks' Service Modes for Agriculture, Rural Areas and Farmers[J]. *Investment and Cooperation*, 2023(3): 4-6.
- [3] Li C B. Research on the Innovation of Rural Financial Service Modes and Rural Revitalization Development: A Case Study of Fujian Province[J]. *Investment and Cooperation*, 2023(1): 1-3.
- [4] Liu F Q, Su B. Differentiated Financial Service Modes for Rural Revitalization: A Study on the Preventive Governance of Rural Households' Return to Poverty[J]. *Journal of Guizhou University of Finance and Economics*, 2024(6): 28-37.
- [5] Wen T, He Q. Comprehensively Promoting Rural Revitalization and Deepening the Reform and Innovation of Rural Finance: Logical Transformation, Difficulty Breakthrough and Path Selection[J]. *Chinese Rural Economy*, 2023(1): 93-114.
- [6] Zhang C, Long H L. Measurement and Influence Mechanism of the Effective Connection between Poverty Alleviation and Rural Revitalization: Evidence from Micro Surveys in Guangxi[J]. *Areal Research and Development*, 2025, 47(5): 118-137.
- [7] Zhou M L, Wu P. Research on Policy-Based Financial Support for the Comprehensive Rural Revitalization in Poverty-Alleviated Areas: From the Perspective of Consolidating and Expanding Poverty Alleviation Achievements[J]. *Theoretical Exploration*, 2023(3): 106-114.
- [8] Zhou M L. Poverty Alleviation, Rural Revitalization and Supply-Side Reform of Financial Poverty Alleviation[J]. *Journal of Southwest Minzu University (Humanities and Social Sciences Edition)*, 2020(1): 115-123.
- [9] Xie W H. Construction of Digital-Intelligent Rural Financial Service System[J]. *China Finance*, 2022(S1): 18-20.
- [10] Feng Z W, Yi Y J, Bi Z B. Research on Empowering Rural Economic Development with "Rural Finance + AI"[J]. *Contemporary Rural Finance and Economics*, 2022(09): 58-62.