The multi-faceted impacts of industrial policy and economic transformation on rural revitalization: the perspective of economic and environmental aspects

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Abstract. Rural revitalization addresses economic disparities and global challenges, aiming for sustainable development and improved rural life. The paper aims to provide insights into the impacts of industrial policy and economic transformation on rural revitalization from economic and environmental perspectives. It incorporates case studies from diverse villages along the Yangtze River in China to analyze the effects of industrial policy on rural communities. This paper contributes to the existing literature by providing insights from economic and environmental perspectives and presenting case studies from diverse villages along the Yangtze River. The findings emphasize the importance of balanced policies that foster rural revitalization while ensuring sustainable development and environmental protection.

Keywords: industrial policy; economic transformation; rural revitalization: economic and environmental.

1. Introduction

China has become a global leader in e-commerce, with companies like Alibaba and JD.com leading the way (Yen, & Wong, 2019). E-commerce has enabled rural entrepreneurs to reach a wider market, and has created new job opportunities in rural areas (Wei, Ling, & Zhang, 2021). This transformation in industries is just one example of rural revitalization happened in China. The industrial transformation and rural revitalization have brought new opportunities and challenges to rural communities, and will continue to shape the country's economic and social development in the coming years.

How will industrial policy affect industrial transformation on rural revitalization? This article will analyze the effects of industrial policies on rural revitalization from the perspectives of economic transformation. When industrial policies are supported, the industry in remote areas can be developed, leading to local economic growth. This can enhance the economic strength of the area and improve the living standards of local residents. Furthermore, industrial policies can support the economic development of remote areas, improve living standards, and reduce poverty and unemployment, thus promoting social stability (Aiginger, Karl, & Dani, 2020). However, industrial policies may also have a negative impact on the environment (Naudé, 2010), as some industries may pollute the environment and affect the local ecology and the health of residents. Therefore, the impact of industrial policies on rural communities is complex. Policymakers need to take into account various factors, including economic, social, and environmental factors, and create comprehensive and reasonable policies that can promote sustainable development and social progress in remote areas.

The implementation of industrial policy can play a crucial role in promoting industrial transformation in rural areas (Bianchi & Labory, 2019). The goal of industrial transformation is to shift from traditional and low-value industries to more modern and high-value industries (Capello & Cerisola, 2023), such as renewable energy, advanced manufacturing, and digital technologies. Industrial policy can provide support for rural areas to improve and develop their industries by offering tax incentives, investing in infrastructure, and providing funding for research and development. Economic transformation in rural areas can lead to numerous benefits, including higher wages, increased productivity, and a diversified economy. Nevertheless, economic transformation can also pose challenges, particularly in rural areas where infrastructure and skills may be limited.
Rural revitalization is a process aimed at promoting sustainable development and improving the quality of life in rural areas (Liu, Zang, & Yang, 2020). It involves a range of strategies and interventions, such as investing in infrastructure, promoting entrepreneurship, supporting rural industries, and improving access to education, healthcare, and other essential services. Rural revitalization is particularly important in developing countries, where rural areas often lag behind urban areas in terms of economic development and social progress. By revitalizing rural areas, governments can create new economic opportunities, reduce poverty, and promote inclusive growth (Yin, Chen, & Li, 2022). However, rural revitalization must be designed and implemented in a way that is sustainable, equitable, and participatory, taking into account the needs and aspirations of rural communities.

In October 2022, General Secretary Xi Jinping emphasized in the report of the 20th National Congress of the Communist Party of China (Gallelli, 2022), "We must adhere to the theme of promoting high-quality development, organically combine the implementation of the strategy to expand domestic demand with deepening supply-side structural reform, enhance the endogenous power and reliability of the domestic circulation, improve the quality and level of international circulation, and accelerate the construction of a modern economic system.” The policy is known as supply-side structural reform. This policy starts with improving the quality of supply and promotes structural adjustments through reform measures. It aims to correct distortions in factor allocation, enhance the level of supply, improve the adaptability and flexibility of the supply structure to changes in demand, increase total factor productivity, better meet the needs of the people, and promote sustained and healthy economic and social development (Naughton, 2016).

2. Literature Review

The role of public policies in promoting rural revitalization has been widely studied in the literature. Zhang, Li, and He (2020) provide an overview of international practices and emphasize the importance of targeted and integrated policies for rural development. Wang and Fan (2019) explore the relationship between public policy, rural-urban transformation, and sustainable rural development in China, highlighting the need for policy interventions that address rural-urban interactions. Li and Li (2020) analyze the impacts of China's rural land transfer policy on agricultural productivity, rural income, and overall development in selected regions. Li, Zhang, and He (2021) investigate the effects of public policies on rural-urban migration and rural revitalization in China, focusing on the implications of migration-related policies on rural labor, land use, and socioeconomic development.

Additionally, Xu and Ye (2018) conduct a case study on the impact of government policies on rural revitalization in Taohuayuan Village, examining policies related to infrastructure development, cultural tourism, and poverty alleviation. These studies collectively highlight the significance of public policies and economic transformation in driving rural revitalization efforts, providing valuable insights for policymakers and researchers in fostering sustainable and inclusive rural development.

The literature about the economic transformation and rural revitalization could be separated into three parts: the first is economic perspective; the second is tourism’s perspective; the third is technological and ecological perspective.

First, the economic perspective of the literature aim to assess the level of sustainable livelihood security of China’s provincial farmers and its three components of ecological security, economic efficiency and social equity (Hu, Zhang, Jiao, Duan, Dewancker, & Gao, 2022).

Second, the tourism’s perspective of the literature use multi-source data, such as remote sensing images, building data, official websites and field survey, to investigate the morphological and social
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evolution of rural communities from the perspective of touristification and to analyze their drivers (Yang, Yang, Chen, Su, Zhi, & Xi, 2021). They may not be applicable to the evolution of all rural communities, as complex human settlements determine the evolutionary path and the results of different types of rural communities.

Third, the technological and ecological perspective of the literature analyze the current situation of digital village construction and the relationship between financial development and technological innovation.

The limitation of the literature is that some of them have limited case study, so the result can not be representative to all regions in China. And others only estimate the case study from some target regions in target countries, so the sample is not representative because it should cover more areas.

This study presents different perspectives from economic transformation and rural revitalization: from economical development and environmental perspectives. Additionally, this paper will cover more case studies by providing evidence from multiple diversified villages along the Yangtze River in China. In general, we will cover more areas to study the effect of industrial policy on rural revitalization.

3. Methodology

3.1 Literature Review Method

Literature review, also known as literature survey, literature analysis, is an academic method that collects a large amount of relevant materials on a topic, issue, or research subject in a particular field, profession, or aspect (Kitchenham et al., 2010). It involves reading, analyzing, summarizing, and organizing the latest developments, academic insights, or recommendations related to the topic, issue, or research subject, and presenting a comprehensive overview and explanation. The literature review is written after determining the topic, and conducting extensive reading and understanding of the literature related to the research field. It involves analyzing, summarizing, and commenting on the current research status of the research field, including the main academic viewpoints, previous research achievements and research levels, points of controversy, existing problems, and possible causes, as well as new levels, new trends, new technologies and new discoveries, and development prospects. The literature review requires the author to not only integrate and present the main viewpoints of the consulted materials, but also to conduct specialized, comprehensive, in-depth, and systematic discussions and corresponding evaluations based on their understanding and recognition, rather than simply compiling the academic research in the relevant field (Baumeister & Leary, 1997).

3.2 Case Study

The present research used secondary data from Institute for Yangtze River Delta and Yangtze River Economic Belt Development and SUFE (Shanghai University of Finance and Economics). This paper examined above resources because they provide detailed statistics and case study about rural revitalization around Yangtze River Delta. Our collected sample is at the village level, which includes 24 distinct villages along the path of Yangtze River.

4. Case Study: 7 Counties in Yangzi River Delta In China

This paper takes Liyao Village, Xinnan Village, Huangqiao Village, Fengle Village, Haishen Village, Xiangyang Village and Wufang Village in Yangzi River Delta of China as the case study to analyze the the multi-faceted impacts of industrial policy and economic transformation on rural revitalization from the perspective of economic and environmental aspects.

4.1 Liyao Village: kiln culture industry + supply-side structural reform

Liyao Village's industrial positioning is mainly related to the kiln culture industry chain (Kiln Art Museum, Qingxi Academy), which excavates, inherits, and develops traditional culture in Qingcun,
and nourishes the Liyao local culture with folk arts such as Qingcun paper cutting, Dalianxiang production, and Du gua powder making, as well as intangible cultural heritage. Taking the construction of the "Qingcun Water Rhyme Area" in the Lingang New Area as an opportunity, with water as the medium and characteristic, Liyao Village will construct cultural markets such as original village homestays, parent-child parks, and rural markets, and build a "farmhouse + education + catering + accommodation - modern romantic rural life sentiment".

Liyao Village's construction of rural revitalization takes "beauty in ecology, wealth in industry, roots in culture, and source in talent" as the development concept, which combines the characteristics of the integration of agricultural primary, secondary, and tertiary industries and the integrated development of urban, rural, and agricultural areas. It aims to create a demonstration area for the integration of the three industries and a high-quality suburban rural vacation destination with cultural tourism and leisure elements.

Firstly, it relies on the promotion of the integrated development of urban, rural, and agricultural areas based on "ecology + culture + industry". Secondly, it relies on rural revitalization to boost the development of the "kiln" industry. Based on rural revitalization construction, the main goal is to transform idle houses owned by villagers, conduct façade renovations, introduce other industrial projects to increase the income of local people. The countryside can develop in a non-overlapping way with agriculture, relying on natural resource endowments. Liyao Village's agricultural features include over 1000 mu of rice fields, a hundred-acre chrysanthemum garden, and the only Lycoris planting base in the city. It forms the development from the integration of the primary, secondary, and tertiary industries to the integration of urban, rural, and agricultural areas. The goal is to create a model village of rural revitalization that integrates functionality, regionalism, and culture, based on the "three parks and one headquarters."

The successful application of the supply-side structural reform strategy can be attributed to its comprehensive and integrated approach. The village focuses on industrial upgrading, integrating different sectors, revitalizing the rural areas, and promoting cultural preservation. By leveraging the kiln culture industry chain and tapping into its cultural heritage, Liyao Village upgrades its industries and aligns with the reform strategy's emphasis on optimizing the industrial structure. The village's integrated development approach combines agricultural primary, secondary, and tertiary industries with urban, rural, and agricultural areas, creating a more efficient and diverse economic ecosystem in line with the reform's goal of coordinated development. By revitalizing the rural areas and introducing other industrial projects, Liyao Village increases local income and enhances productivity, contributing to the overall supply capacity improvement targeted by the reform strategy. Additionally, the village's emphasis on cultural preservation and tourism development, such as showcasing local arts and intangible cultural heritage, attracts tourists and stimulates cultural tourism, aligning with the reform's objective of promoting cultural industries. Through these initiatives, Liyao Village creates a favorable environment for economic growth, innovation, and sustainable development, while aligning with the broader national strategy of supply-side structural reform, which aims to improve the quality, efficiency, and adaptability of the supply side to support long-term economic development.

4.2 Xinnan Village: Cultural creativity+intangible cultural heritage

In the process of building a beautiful home and promoting the transformation of new rural villages, the Xinnan Village Committee has determined the number of non-agricultural populations according to relevant policies and regulations of the Communist Party of China and the government, including the proportion of land used. Non-agricultural population over 60 years old for males and 55 years old for females can enjoy urban pension benefits. In order to improve the housing conditions of villagers, the New Nan Village Committee obtained approval from relevant departments in Xinchang Town and Pudong New Area after submitting a report, and built a new farmer village in 2013 at the location of the 23rd village group. The new farmer village is designed reasonably, with wide and flat roads, and a beautiful environment with scattered flowers and trees. Supporting facilities such as cultural
rooms, libraries, table tennis rooms, and rehearsal rooms for cultural and entertainment activities are fully equipped.

To become a model village for rural revitalization in Shanghai, New Nan Village, a village with a picturesque landscape of a peach blossom source water town, is taking the path of rural creativity. The village has established the first rural maker center in Shanghai, which attracts more and more young people to return to their hometowns for entrepreneurship and employment. With policy research, talent cultivation, and skills training as the core, the village combines the import of rural creative resources, maker landing services, and brand incubation to serve rural revitalization.

In April 2020, New Nan Village was included in the third batch of model villages for rural revitalization in Shanghai. According to the planning requirements of the central rural revitalization model belt in Pudong New Area, New Nan Village takes the path of rural creativity, with the main lines of rural, creative, cultural, and tourism industries, and develops new industrial forms and models to promote the coordinated development of ancient towns and villages. It has managed to build a model village for rural revitalization with both the characteristics of the Jiangnan water town and ancient town culture and tourism.

4.3 Huangqiao Village: The Village of Couplet

Yanglians are a form of couplet and a treasure of traditional Chinese culture. Huangqiao Village is known as the "first village of Yanglians in Shanghai," where every household pastes Yanglians. Villagers enjoy writing and appreciating Yanglians during their leisure time, and Yanglians have become a unique cultural brand of Huangqiao Village. The village adheres to the working philosophy of "enriching Yanglians, serving rural areas, and building a strong cultural village," which has continuously stimulated new vitality in rural culture and strived to create a "poetic dwelling in the Jiangnan countryside." In recent years, Huangqiao Village has won honors such as National Characteristic Village, National Eco-Cultural Village, and Advanced Grassroots Party Organization in Shanghai.

Huangqiao Village focuses on Couplet Culture to promote new vitality in rural revitalization. The village uses the rule of law culture as a link to vigorously promote the main theme and positive social energy. The village has actively participated in the legislative research meeting on the "Shanghai Promotion of Family Farms Development Regulations (draft)" to continuously cultivate a rural rule of law environment that emphasizes "conducting affairs according to law, seeking law when encountering problems, solving problems with law, and resolving conflicts with law."

Using media as a carrier, Huangqiao Village widely disseminates its rural culture. The village has opened the WeChat public account of "Huangqiao New Wind" as a marketing platform, and has independently edited the village-level newspaper "Huangqiao New Wind" (published every two months), publishing more than 70 issues and over 200 Yanglian works. Meanwhile, the village has increased the frequency of advertisement on electronic screens, publicity columns, banners, and other channels to continuously promote the culture of Yanglians among the people.

4.4 Fengle Village: Agriculture+Tourism

Fengle Village aims to achieve tourism-driven development, educational and cultural revitalization, and creative industry-based prosperity through the combination of agriculture, culture and tourism. In terms of promoting agriculture and tourism, Fengle Village has successfully established the Yongfeng Ecological 3A Scenic Spot, led by the Island Artistic Rural Scenic Area, which is expected to attract more than 200000 tourists in the future.

The rural education tourism project is a cooperation with the Tourism Development Center of Huazhong Normal University. It officially opened for classes in April 2021 and received nearly a thousand students for summer camp this year, generating a social benefit of nearly 2 million yuan. With the project's progress, it is expected to receive more than 20000 students per year in the future and create an international forum for rural education tourism and the Yangtze River Forum.
The construction of the Fengle Wanju Industrial Park follows the philosophy of "developing characteristic industries and creating benchmark". Combining the advantages of the Hengsha citrus industry, the park introduces multiple varieties of citrus to create a space for leisure and education for tourists and families, builds a display space for agricultural products, and forms a demonstration base for the promotion of Fengle's "agriculture, science, and research" industries.

4.5 Haishen Village: Transformation to Sports and Nutrition Food Industry

In the early days, the economy of Haishen Village was mainly composed of three components: village-run enterprises, agricultural production, and sideline production. Later, due to the high consumption, high pollution, and low efficiency of some of the village-run enterprises and other enterprises, the implementation of reduction measures in the development phase led to the basic closure of industrial enterprises in the village. In 2016 and 2019, reduction measures were implemented on the old factory buildings of the village-run enterprises, and the factory buildings were demolished.

Haishen Village's own daughter, Zhong Tianshi, teamed up with her teammate Gong Jinjie to dominate the Rio Olympics track cycling women's team sprint race with excellent results, achieving a "zero breakthrough" in Olympic gold medals for the Chinese cycling team, and breaking the world record in the semifinals. Taking this as an opportunity, the "Industrial Development Plan for Huinan Town's Rural Revitalization Demonstration Zone" takes Haishen Village as its core and uses the cycling route as a link to systematically plan the industrial development of the rural revitalization model zone in Haishen. It aims to create a cultural route: "Riding Trails in the Countryside·Free and Easy Huinan" cycling cultural route, and guide two industrial directions: bicycle sports industry + sports nutrition food industry.

4.6 Xiangyang Village: From agricultural industry to experience economy and agricultural product sales

After the founding of People's Republic of China, Xiangyang Village bid farewell to the single-crop cultivation model of rice and cotton and began to comprehensively develop agriculture, forestry, animal husbandry, and fisheries. Especially after the reform and opening-up policy (refers to the economic and social reforms initiated in China in 1978, aimed at modernizing and liberalizing the economy, promoting international trade and investment, and improving living standards for Chinese people), the village successively established ostrich farms, white nut groves, livestock farms, fish farms, grape and kiwi orchards, and pearl breeding farms. Among them, the ostrich farm was the only large-scale breeding base in the Shanghai area at that time; the kiwi fruit produced in the kiwi orchard won the national gold award for its large size, good appearance, and sweetness; every household in the village raised long-haired rabbits, and the quantity and output were at the forefront of all villages in Anting Town. The village-level economy developed rapidly, and personal income increased significantly.

Xiangyang Village has repositioned its industries to focus on developing urban agriculture for primary industry, gradually reducing secondary industry, and expanding leisure and rural tourism for tertiary industry. The village has a more than 300-year-old ginkgo tree, which has become the theme of promoting a healthy and long life in the village. By exploring the "ginkgo culture" and "health culture", the village is protecting and passing down intangible cultural heritage such as the Anting medicinal patchwork technique. In the future, the village will focus on experiential economy and sales of ready-to-eat agricultural products, providing a real-life scenario from the field to the table. Visitors can observe the planting, growth, and harvest of crops, as well as the food processing, to showcase the unique features of the food. This immersive experience will stimulate their desire to purchase local products.
4.7 Wufang Village: Internet Celebrity Village of Design

Wufang Village is committed to promoting the deep integration of the primary, secondary, and tertiary industries. The deep integration of the primary, secondary, and tertiary industries refers to the comprehensive and mutually beneficial integration of agricultural production, processing, and sales and service industries to create a synergistic effect and promote sustainable development. In cooperation with Shanghai Academy of Agricultural Sciences, it has established a national-level modern agricultural peach industry park, and jointly built an oriental peach blossom land. Market entities such as Israel's Asonov, Honghui Fruits and Vegetables have been introduced to cultivate a group of technology-based agricultural practitioners, and to create a full industry chain from the fields to the table. Commercial platforms such as Hema Fresh and Youzan have been introduced to jointly create the "Peach You Like" self-operated e-commerce trading platform. A "Ten Miles Peach Blossom" tourism leisure sightseeing road has been created, and boutique homestays from Suzhou's Banshan Art have been introduced to attract tourists and to form a new model of deep integration of agriculture, commerce, culture and tourism.

In the future, Wufang Village will promote sustainable income growth for its villagers through a combination of "rental income from houses + collective economic shares + industrial employment income". It aims to create a beautiful environment, harmony, beauty of industry, culture, life, and vitality, and to achieve a higher level of rural revitalization under the background of Shanghai's international metropolis.

Based on the seven case studies presented in this paper, it is evident that China's rural revitalization strategies have facilitated the transformation of traditional industries and the development of new industries in different regions. The case studies demonstrate the diversity and effectiveness of approaches taken in rural revitalization, encompassing cultural and historical heritage, agricultural and rural tourism, and creative industries, among others.

Specifically, the kiln culture industry chain in Liyao Village, the cultural creativity + intangible cultural heritage in Xinnan Village, and the focus on couplet culture in Huangqiao Village have all provided unique cultural experiences for visitors and locals alike. On the other hand, Fengle Village's emphasis on agriculture and tourism, Haishen Village's focus on sports and nutrition food industry, Xiangyang Village's agricultural product sales and experiential economy, and Wufang Village's deep integration of agricultural production, processing, and sales since the introduction of technology and commercial platforms have shown the potential of new industries in rural revitalization.

5. Conclusion and Discussion

In conclusion, rural revitalization strategy and economic transformation have brought significant changes to the country's economy, society, and environment. Through innovative policies and coordinated efforts at all levels of government, it has been able to successfully promote rural development and modernize its agricultural sector.

Several successful examples as mentioned in the case study have demonstrated the effectiveness of rural revitalization strategy. Additionally, the economic transformation from traditional agriculture to a more diversified economic structure, including e-commerce, tourism, and cultural industries, has added new growth points to the rural economy.

Based on the case study, the seven selected villages along the Yangtze river in China illustrate the diverse and innovative ways in which rural revitalization can be accomplished. By utilizing rural assets and resources such as traditional culture, natural endowments, and human capital, different countries and regions can cultivate dynamic and diverse rural economies driven by emerging industries such as e-commerce, tourism, and modern agriculture. The construction of rural revitalization in Liyao Village, Xinnan Village, Huangqiao Village, Fengle Village, Haishen Village, Xiangyang Village, and Wufang Village demonstrate the significance of combining different industries and innovative solutions, which has resulted in improved living standards and cultural
development. These successful cases indicate that rural revitalization strategy can provide much-needed guidance for other countries facing similar challenges.

Moreover, government has shown its determination to implement the rural revitalization strategy by increasing investment and providing various forms of support (Fan, Zhang, & Zhang, 2002). This has contributed to the continuous improvement of rural living standards and the accumulation of wealth, helping to close wealth gaps between urban and rural areas.

In summary, rural revitalization strategy and economic transformation have achieved remarkable results in transforming the country's rural areas. Its success demonstrates the importance of innovative policies, investment in infrastructure, and a coordinated approach in promoting regional development.

In the future, to encourage and promote rural revitalization, several relevant suggestions can be offered to policymakers within a broader context. These suggestions aim to address the key challenges identified and leverage the opportunities identified in the research. (1) Enhance education quality: policymakers should prioritize the development of comprehensive educational programs that integrate emerging technologies, critical thinking, and problem-solving skills. (2) Invest in research and development: policymakers need to allocate sufficient resources and funding to support research and development in emerging technologies. (3) Encourage entrepreneurship and innovation: policymakers should create an enabling environment that supports entrepreneurship and innovation. This includes offering incentives such as tax breaks, grants, and access to funding for startups and small businesses working in emerging technology sectors. (4) Bridge the digital divide: Policymakers need to address the digital divide by ensuring universal access to affordable and reliable internet connectivity. This includes investing in infrastructure development, particularly in underserved areas, and providing digital literacy programs to empower individuals with the necessary skills to participate in the digital economy.

The limitation of this paper is that the real world may not work as the seven case studies described because cultures, geographic conditions, and regional policies; however, this paper reports on exploratory research that gives rise to further in-depth studies. First, seven specific case studies along the Yangtze river may be useful for big data empirical studies, and better understanding about the future economic development in Yangtze river delta. Second, the transformation in economics could also be highlighted in future research. Third, the seven case studies are example of successful economic transformation which can be used in future research. Finally, this study could be a starting point for exploring the link between economic transformation and rural revitalization. In the future, this paper serves the foundation for me to study income disparity and public policies.

References


