

Article

Enhancing Urban–Rural Integration in China: A Comparative Case Study of Introducing Small Rural Industries in Huangyan-Taizhou

Huang Huang ¹, Daijun Song ², Liyao Wang ¹, Guiqing Yang ^{1,*}, Yizheng Wang ², Liyuan Fei ³ and Ava Lynam ⁴

¹ Department of Urban Planning, Key Laboratory of Spatial Intelligent Planning Technology, Ministry of Natural Resources, Tongji University, Shanghai 200092, China; hhuang@tongji.edu.cn (H.H.); wangliyao@tongji.edu.cn (L.W.)

² Shanghai Tongji Urban Planning and Design Institute Co., Ltd., Shanghai 200092, China; songdaijun@tjupdi.com (D.S.); wangyizheng@tjupdi.com (Y.W.)

³ China Academy of Urban Planning and Design, Shanghai Branch, Shanghai 200092, China; feiliyuan@caupd.com

⁴ Center for Cultural Studies on Science and Technology in China (CCST), Technical University of Berlin, 10553 Berlin, Germany; a.lynam@tu-berlin.de

* Correspondence: yguiqing@tongji.edu.cn

Abstract: Strengthening urban–rural linkages (URLs) has been proposed by UN-Habitat within the framework of ‘Sustainable Development Goals (SDGs)’ to narrow down urban–rural differences via shaping new urban–rural relationships. Like URL, the aim of urban–rural integration (URI) has been promoted by the Chinese government since 2019 to address existing urban–rural divides. This concept underlines the ‘rural revitalisation’ strategy and emphasises a two-way flow of urban–rural development factors. Introducing and upgrading ‘appropriate’ rural industries is crucial to stimulate and facilitate the circulation of urban–rural development factors. This research studied three neighbouring villages, situated in urban–rural interface areas in Huangyan-Taizhou, China, each driven by different types of small industries supported by URI. It analyses the impact of small rural industries on the flow of development factors between urban and rural areas. The results showed that small-scale rural industries have been enhanced URL by decreasing urban–rural differences by creating new job opportunities to attract an in-flow population, increasing investments, and upgrading public services and infrastructure. Indigenous industries demonstrated lower profitability but exhibited greater resilience compared to industries linked to global production chains and rural tourism. Thus, this study demonstrates the imperative to carefully consider the opportunities and potential risks associated with pursuing strategies of URI through rural industry development. By providing empirical insights from URI projects in China, this study contributes to theoretical and policy dialogues concerning the concepts of both URL and URI by exploring the localization of SDGs. Furthermore, it offers valuable practical knowledge and experience for other global regions confronting similar challenges to urban and rural development.

Keywords: urban–rural integration; urban–rural linkages; small rural industries; flow of development factors; urban–rural interface



Citation: Huang, H.; Song, D.; Wang, L.; Yang, G.; Wang, Y.; Fei, L.; Lynam, A. Enhancing Urban–Rural Integration in China: A Comparative Case Study of Introducing Small Rural Industries in Huangyan-Taizhou. *Land* **2024**, *13*, 946. <https://doi.org/10.3390/land13070946>

Academic Editors: Francesco Mantino, Jane Atterton and Enrique Nieto

Received: 26 March 2024

Revised: 20 June 2024

Accepted: 22 June 2024

Published: 28 June 2024



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Enhancing urban–rural linkage (URL) has been gradually recognised as an overarching strategy to guide spatial interventions towards more sustainable and inclusive development [1]. As early as 2012, the United Nations (UN) endeavoured to improve equality for urban and rural dwellers by improving access to basic services, such as housing and mobility. The ‘2030 Agenda for Sustainable Development’ proposed to “support positive economic, social and environmental links between urban, peri-urban and rural areas by

strengthening national and regional development planning” [2]. It also generalised 17 ‘Sustainable Development Goals (SDGs)’, and strengthening urban–rural linkage is believed to achieve SDGs by improving urban–rural synergies, including optimising the management of ecosystems and natural resources, conceiving and implementing long-term plans that promote inclusivity for local actors that aim to reduce social, economic and territorial gaps, and provide better accommodation for migrants at multiple scales [3].

Strengthening urban–rural linkages has been developed and evolved through discourse, actions, and practices in a broad range. Today, this strategy covers a wide variety of approaches, including facilitating tangible (e.g., investment, people, and products) and intangible (e.g., technics, information, and knowledge) resource flow, lessening environment pressure, optimising urban–rural governance, and enhancing networks to form better urban–rural and regional/global–local partnerships [4]. It also underlined that “integrated territorial development is crucial for transforming towards sustainable and resilient societies” (ibid).

In China, reshaping urban–rural relationships is also built into a national strategy working towards sustainable development. In many regions across the world, it is increasingly hard to identify clear demarcations between urban and rural areas through the built environment, demographics, and industries [5]. Whilst this is also true in China, differences between urban and rural areas remain considerably apparent due to key institutional settings which have set urban and rural regions apart for many years. These relate to differences in land ownership, land use regulations, and household registration (hukou system), which has tied people’s ‘urban’ or ‘rural’ status to their access to social services, housing, and other public amenities [6–10]. Although these institutional structures have experienced different types of reform over recent years, many urban–rural disparities remain, presenting social, economic, and environmental challenges. In 2019, a more substantial national strategy named urban–rural integration (URI) was introduced with the aim of guiding a more integrated approach to urban–rural development in China by encouraging an increased circulation of development factors between urban and rural areas, which is underpinned by rural revitalisation [11]. The URI further explained the aim of enhancing urban–rural linkage in the Chinese context. Rural revitalisation is clearly outlined as the revitalisation of industries, talent, culture, ecology, and governance, which supports the two-way flow of development factors such as investment, population, information, technology, etc. In the past decades, urbanisation in China followed a trajectory characterised by rapid changes in the rural-to-urban population and dual urban–rural policy. The latter encompassed land use policy, household registration (Hukou) policy, and the monetisation of housing distribution. This urbanisation pattern resulted in a widening difference between urban and rural spheres; rural areas suffered from population loss and an under-developed built environment, and ‘hollow villages’ suffered from a lack of investment, which also led to the gradual loss of socio-cultural identities of the local people residing there. Facing these challenges, URI was promoted and aimed to enhance urban–rural linkages. This is to be achieved by promoting a two-way flow of development factors that widely cover investment, labour, talent, knowledge, and policies among others.

This national strategy outlined a distinctive development approach, in comparison with previous rural development policies, recognising that the gap between urban and rural cannot be reduced or eliminated simply by improving the rural built environment, upgrading rural infrastructure, and delivering better public services. It suggested that introducing development dynamics to stimulate new initiatives in rural areas is necessary, and among all the potential approaches rural industry development is identified to be critical. Thus, practices to promote the development of suitable small businesses and forms of rural tourism have been widely explored under URI policies. Ultimately, rural revitalisation—as one of the key strategies within the framework of URI policies—supported the exploration of various means of shaping new urban–rural relationships. URI also echoes the URL promoted by the UN-Habitat to reach the SDGs. URI, therefore, can be taken as a localised strategy in China to achieve SDGs to a certain extent.

Whilst in the academic discourse, the reflection on new urban–rural relationships and the understanding of their interactions in a new stage of urbanisation started long before the global and national strategies. The definitions of ‘urban’ and ‘rural’ have been undergoing re-conceptualisation as they were previously derived from the early understanding of urbanisation processes which took ‘urban’ and ‘rural’ as separated territories, standing in opposition to one another [12–14]. Meanwhile, the development of technology and multi-dimensional local and global networks enable the spatial flows of developing factors and population mobilities in a much wider range and higher speed. This also led to the space experience constantly changing within a short time frame, which characterised the current time–space experience [15]. Thus, in current urbanisation processes, urban and non-urban areas have been observed to evolve concurrently, where non-urban areas (e.g., rural regions) actively support the development of urban regions [16]. ‘Urban’ and ‘rural’ are now increasingly perceived as interlinked systems in terms of spatial connections, everyday activities, and material flows [17].

Drawing on the new characteristics of urbanisation and the changing various supportive systems, this study intends to investigate URI and its effects in China. The key research questions are as follows: What types of industries are introduced to rural areas under URI? In what ways did the industries strengthen urban–rural linkage? Did the changes lead to or stimulate a more intense development dynamic for rural regions? Therefore, three neighbouring villages located at the urban–rural interface of Taizhou, Zhejiang province, were selected for a comparative case study after pilot investigations. Three aspects, including local economic shifts, urban–rural population mobility reflected by LBS data, and local resilience reflected by the job opportunities facing national and international economic events, are selected to capture the differences between the three cases.

2. Literature Review: Urban–Rural Linkage and Urban–Rural Integration

In the 21st century, uneven development between urban and rural has played a role in enhancing critical global issues, such as climate change, shortage of resources and land, food, water and energy security, and social and environmental damage [18–20]. This has been greatly emphasised by the United Nations. In response, strengthening linkages between urban and rural regions has been considered as a strategy to move towards more sustainable global development [21–23]. After the 2030 Agenda for Sustainable Development was released in 2015 [2] and the New Urban Agenda (NUA) was adopted in 2016 [24], research on the relationships between urban and rural areas has increased, particularly relating to rural development [20,25,26]. Among these research studies, rural industrialization has been identified as a strategy to support rural development [27–32]. Furthermore, since 2019, UN-Habitat has published official documents to summarise guiding principles, action framework, and best practice case studies with the guiding aim of strengthening urban–rural linkages [4,33–35]. These documents have emphasised the importance of localised SDGs and enhancing urban–rural linkages to support more sustainable socio-economic development in various regions worldwide.

In China, urban–rural relationships are currently undergoing a gradual transformation from separation and opposition towards more coordination and integration [36]. Research studies on this topic have indicated three patterns of urban–rural interaction: ‘high urban agglomeration’, where urban and rural areas are rapidly agglomerating; ‘small towns and medium urban centres’, which extend urban services to the villages whilst villages supply food and production materials to cities; and ‘rural peripheral areas’ that maintain slow socio-economic growth and suffer from resource outflows [37]. In more recent years, successive policies have been introduced with the aim of strengthening linkages between urban and rural areas, including coordinated urban–rural development in 2002, urban–rural unity in 2013, and URI in 2017. Among these policies, URI places a greater emphasis on sharing development opportunities and equal status between urban and rural areas, whilst also recognising the unique and endogenous value of rural areas by adopting a ‘rural revitalisation strategy’ as a coordinated policy [38].

The concept of URI has been examined from various specific perspectives, including the microcellular structural analysis of land elements in urban–rural mixed communities [39], empirical studies on new land use patterns and mechanisms [40,41], human settlements based on existing research [42], modelling analysis of upgraded public services distribution [43], agricultural transformation using actor–network analysis [44], and the level of digitalization utilising factor detection analysis [45]. The rural industry has consistently been a critical focus of studies and discussions on the topic of URI. In the study of URI level evaluated by an index, the advancement of new industries was identified as one of the five drivers of URI [38]. The integration of urban and rural industries has been recognised as one of five important features that have the potential to influence the development of URI, studied through quantitative modelling [46]. Empirical studies have also revealed that rural industries are characterised by diversity, and the development of rural industries needs to work closely with issues such as ecological upgrading and improvements in rural governance [47]. Moreover, technological advancements have significantly enhanced mobility between urban and rural areas through better connections to transportation and the internet [48], whilst e-commerce and rural tourism are emerging as new forms of rural industries that contribute to the enhancement of URI by allowing better exchanges (e.g., products, information, and investment) between urban and rural [9,49].

Both URI and URI, which aim to achieve more sustainable development by reshaping new urban–rural relationships, are currently under exploration by policymakers, scholars, people who practise with it, as well as other people who are willing to take initiative. In China, the development of rural industries is seen as a promising approach to encourage the flow of development factors such as information, technology, and investment between urban and rural areas. However, there is still a need to further investigate the implications of introducing different types of industries in rural areas and their roles in everyday life.

3. Methods and Case Selection

3.1. Mixed Method Research

This paper focused on URI which aims to promote the circulation of different development factors at differing scales and dimensions to achieve sustainable urban–rural development, among which industry revitalisation is recognised as the key approach by the national strategy of rural revitalisation. Therefore, changes in land, economic transformation (e.g., job opportunities and incomes), and population dynamics are identified as critical aspects of research [50,51].

In addition, people’s mobility pattern has been identified as one of the critical factors because it supports the understanding of the impacts of rural revitalisation by reflecting the influence of emerging industries upon everyday life, as well as resource linkages (in terms of investments, production, and labour) between rural and urban. People’s mobility can be captured by Location-Based Service (LBS) Data (which provides comparatively accurate travel tracks and real-time positions of people anonymously) [52,53]. Commuting travel patterns have been largely affected by local industry development in terms of job opportunities for locals and outsiders, as well as market linkages and material circulations [54]. It is widely employed in research supported by human behaviour patterns. Thus, LBS analysis is applied to reveal the urban–rural linkage reflected by people’s mobility patterns.

This research is also supported by archive study and in-depth field investigations, including participatory observation, semi-structured interviews, focus groups, and mapping. Field investigation is employed to verify findings from the LBS data analysis, to generate possible reasons behind the travel patterns reflected by LBS, and to assess the output value of rural land transformed and used for rural industries, as well as the jobless rate.

3.2. Urban–Rural Interface as the Focusing Region for URI

This paper selected the urban–rural interface as the focusing region for research as the urban–rural interface is where urban and rural features and dynamics are directly mixed and characterised by hybrid, multifunctionality, and rapid speed of transformations [17,55–57].

As the frontier of urban expansion, the urban–rural interface faces both urban and rural challenges including excess industrial areas, housing problems, and land use fragmentation [39]. Urban–rural interface, therefore, showed its distinctions in terms of spatial layouts, everyday practices, development dynamics, and flexibility [54]. In this study, the urban–rural interface is defined as areas of the urban or rural fringe where urban lands (i.e., state-owned land) and rural land (i.e., collective land) are spatially adjacent and mixed with one another. It is attractive to new or alternative initiatives for industries, transportation connections, and various public services. Therefore, these areas can provide more sample cases for a comparative study of different emerging rural industries. The urban–rural interface is also a space where urban and rural spatial fabrics are highly mixed and can provide comparatively numerous samples of LBS data for research. It is also significant that the research region was not chosen for its spatial connections of urban and rural factors, as URI aims towards factors overflow over spatial integration.

It is crucial to recognise that urban–rural linkages can be distinctively perceived in various contexts due to the differing concepts of urban and rural [5,54,58]. In China, urban–rural distinctions are primarily evident in spatial layouts (e.g., landscapes and land use), administrative policies, industry development policies, and land ownership, as well as population metrics like density and numbers. There is no universally agreed-upon definition of urban and rural [5,58].

For our study on URL and URI driven by small industries, we have chosen to define ‘urban’ and ‘rural’ based on official land ownership distinctions in the Chinese context. In this context, ‘rural’ refers to rural settlements on rural lands, whilst ‘urban’ refers to urban settlements on urban land as outlined in the “Land Administration Law of the People’s Republic of China.” According to this law, rural land is collectively owned, whereas urban land is state-owned [59]. This distinction leads to varying restrictions on industry development in rural China (refer to Section 4 for more details). This definition may not apply to other contexts and the urban–rural can be more complex, but it reflects one of the main differences between urban and rural in China that is closely related to the small industry development in rural.

3.3. Selected Case Region: Taizhou in the Yangtze River Delta

To respond to the research questions, we studied practices that are implicitly or explicitly promoted by URI at the urban–rural interface. After several rounds of field investigations of rural areas driven by URI, Huangyan-Taizhou was chosen for the following reasons.

Firstly, Huangyan-Taizhou stands out as a pioneering region in terms of the implementation of policies relating to URI and rural revitalisation [60]. Situated within Zhejiang Province—a province actively exploring methods and strategies for implementing URI policies [38,44,61–63]—Huangyan-Taizhou exemplifies the exploring practices of intense urban–rural interactions [64]. These practices are often regarded as a positive reference of strategies for rural revitalisation and URI in China [10], offering a diverse range of case studies.

Secondly, Huangyan-Taizhou is renowned for its vibrant private economy and industrial development [65]. The local industries, including plastic mould manufacturing and garment production, are intricately linked to global supply chains. Some local industries, such as food processing, are also closely related to local customs which play a role in supporting the everyday life of local communities. Ranging from large-scale industries to small workshops and household enterprises, these diverse industries play a significant role in driving local rural development, showcasing various models of rural revitalisation practices.

Thirdly, Taizhou represents an ‘ordinary’ municipality in the Yangtze River Delta (YRD). This means that its experiences of urban and rural development are relatively adaptable for other areas to draw insights from. Taizhou is a prefecture-level city with 2.5 million households and 6.6 million residents (as of the end of 2020, including the

floating population who lived in Taizhou for over 6 months in 2020), of which 61.98% live in urban areas [66]. Compared to other cities within the YRD, Taizhou has not witnessed the highest population flows. The influx mainly consisted of the floating population from under-developed regions like Sichuan (in western China) and Hunan (in central China) [67].

Therefore, the district of Huangyan in Taizhou municipality was selected as the focal point for this study. Moreover, three geographically contiguous villages situated at the urban–rural interface region of the district were chosen after pilot investigations: Xiapuzheng Village, Luoyu Village, and Waciyao Village (Figure 1). These villages have all undergone development projects supported by specialised national funds aimed at enhancing URI. Each village has followed a unique development trajectory, providing a diverse and valuable set of contexts for comparative analysis.

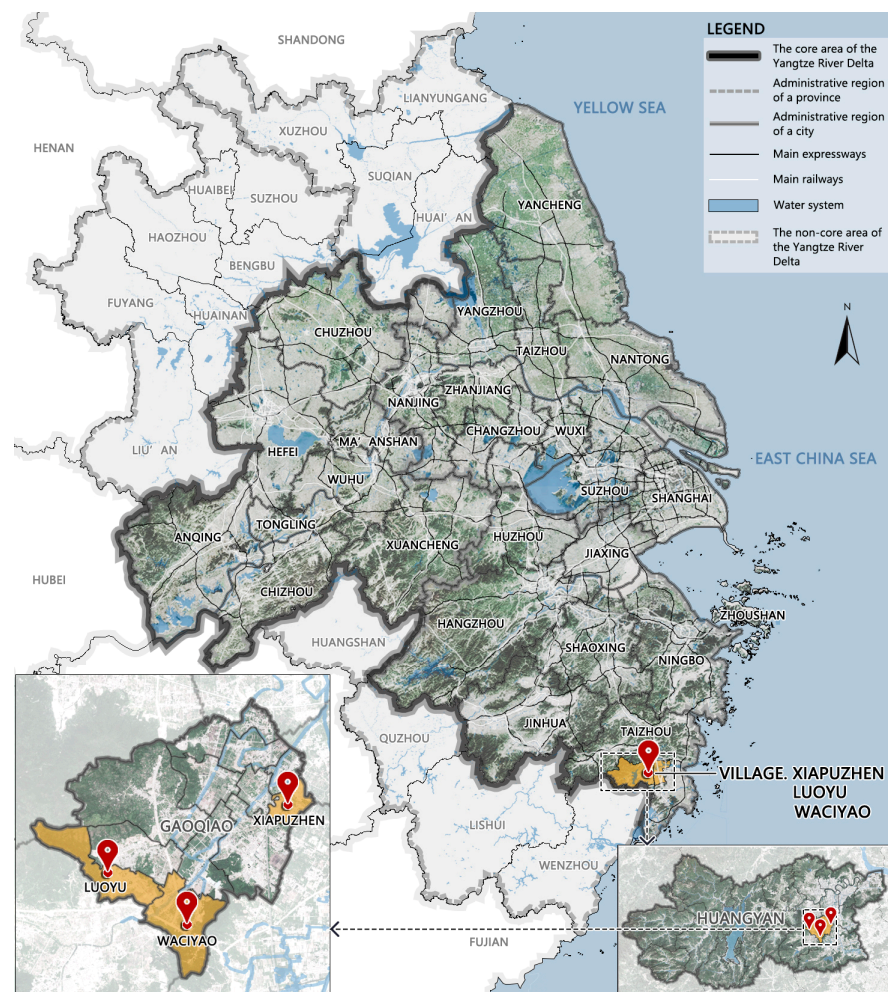


Figure 1. Location of and spatial relationship between the selected cases. Source: Developed by Xuebin XIN based on Baidu Map.

Xiapuzheng has developed small-scale local industries to rejuvenate development mainly related to supporting local life customs; Luoyu has mostly been driven by small-scale industries that are closely linked to the global production chains; Waciyao has solely introduced projects that relate to local built environment improvement and aimed to develop rural tourism. Thus, each village represents a typical rural revitalisation approach attempting to stimulate the development factor exchange between urban and rural, aiming towards URI. This study employed a mix of qualitative and quantitative methods to identify key factors characterising the varying urban–rural linkages and their effects within each village. These include archival research, interviews, participatory observations, and LBS

data analysis to understand local mobility patterns, the interrelationships between these patterns and local development strategies, and the reasons behind such trends.

3.4. Obtaining Qualitative and Quantitative Data

In line with the research methods, both qualitative and quantitative data were obtained. Qualitative data were obtained from semi-structured interviews with 36 villagers who lived and worked in the villages and were invited to participate, particularly those who were affected by urban–rural integration policies. In addition, three rounds of group discussions involved village representatives and local governors (i.e., district and town/township governors) who were promoting URI and rural revitalisation projects and engaged in practices. All together, 46 people joined the group discussions. Interviews with local people were orientated towards their attitudes towards rural land use, their knowledge of current rural transformation policies, and the major challenges they faced in relation to them. The interviews also included questions on local people’s expectations of the introduced industries, if they had been involved in village development, and what their ideal form of engagement with the process would be. Finally, interviews also enquired about local people’s level of satisfaction towards current URI projects and whether or not they feel such projects will have a positive effect in the long term.

Questions for local authorities were specifically focused on their understanding of URI, how they distributed specialised funding, their criteria for selecting industries to be introduced to the villages, and the role of villages in the integration development process. The interviews were also conducted with four planning professionals who had been embedded in local development for a long period, with each interview lasting over one hour. Questions principally focused on issues surrounding the changing objectives of urban–rural development, as well as governance logics towards rural development and URI, changing priorities within URI processes, planning intervention approaches, corresponding impacts on forming sustainable rural development dynamics, and the subsequent emergence of new urban–rural relationships.

The number of participants involved in semi-structured interviews and group discussions was deemed adequate based on two primary criteria. Initially, primary local administrative officers and authorities, ranging from district to village levels, who were directly involved in the URI were included. Additionally, professional teams with extensive experience who engaged in local rural revitalisation practices and planning for over 10 years were also interviewed. Furthermore, individuals from various sectors of local industries, comprising both less skilled and skilled workers, along with business owners, were actively engaged in the interview process. Subsequently, interviews were concluded when diminishing returns in terms of new information were observed with the increasing number of interviewees.

Individual interviews lasted between 30 and 60 min, and audio was recorded with the consent of respondents, which was then later transcribed into English. Additionally, archival studies (including relevant transformation plans from open resources) were also used, as well as participant observations of ongoing transformations in the selected villages between November 2019 and March 2022, to collect first-hand data for the research. These methods were used to attempt to gain a comprehensive understanding of the local development, the reasons behind these, and any direct or indirect consequences of this. Data obtained from the methods detailed above were then processed, triangulated, and analysed qualitatively using thematic analysis.

LBS data analysis was also employed as a significant approach to reflect urban–rural linkages in terms of travel patterns of people, as well as the potential resources attached to their travelling. The data collected from the physical commute of people living and travelling within the research region was obtained to analyse travel patterns, supporting the study of urban–rural connections in terms of daily commuting. The data were processed and visualised with SQL (PostgreSQL 16) and GIS (ArcGIS 2022) software. All the data

obtained were anonymous, avoiding the collection of any personal information. The study strictly abides by academic ethics.

In this paper, qualitative methods were used to identify and analyse spatial and social changes in the case study used, from local development strategies and their trajectories to spatial transformations and people’s everyday practices, stimulated by introduced rural revitalisation projects and emerging dynamics. LBS data strengthened the analysis of rural transformation and impacts from the perspective of the people’s travel patterns. The methods complemented and supported each other, focusing on the impact of rural revitalisation on URI.

4. The Changing Role of Rural Industries in the Trajectory of Urbanisation in China

4.1. An Overview of Relevant Policies Affecting Rural Industries

China’s historical urban–rural dual development policies had a crucial impact on rural industries, principally land use policies, industrial policies, and household registration policies (Hukou) (Figure 2). They provoked complex urban–rural issues which, as a result, rendered rural areas less unappealing to investment, suffered from the declining population (e.g., hollow villages), an under-developed built environment, and the gradual loss of culture and local identity. Thus, changes in rural land use policy began the process of change in urban–rural synergies. To support economic development in cities, land owned by rural collective communities was strictly controlled by the land market, preventing the development of rural industries, which led to inadequate jobs in those areas. Then, the gathered urban industries formed the scale effect, attracting farmers to flow to cities for higher salaries, although, in the early 1990s, they could not equally access services and the infrastructure as citizens. Around the year 2000, the Hukou system changed, allowing the rural population to flow to cities and leaving high proportions of the remaining elderly and children population behind, with related changes in social and familial structure as a major factor contributing to an overall decline in the rural population. These policies encouraged rapid urbanisation whilst also widening urban–rural distance and led to fewer opportunities for rural development.

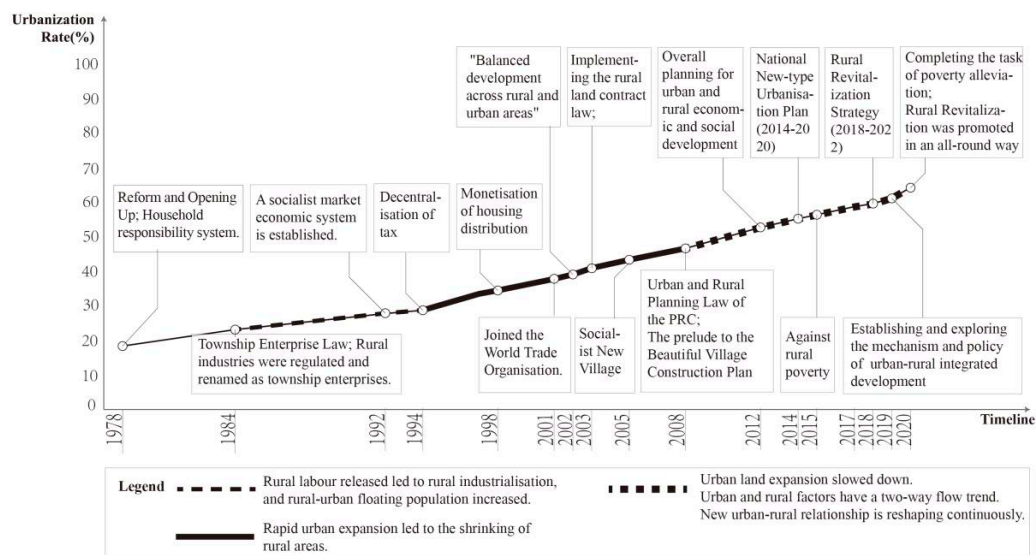


Figure 2. The trajectory of urbanisation in China and changing urban–rural relationships. Source: authors’ own diagram.

Due to rapid urbanisation from 1998 to 2018, China experienced an extreme ‘Time-Space Compression’ [68], leading to inevitable urban–rural socio-economic inequalities. This uneven urban–rural development resulted in an under-developed rural built environment, including hollowed-out villages due to declining rural population, and gradual

loss of culture and local identity. The dispersed floating population (i.e., migrant workers), accounting for one-third of the urban population [67], is evidence of the fragmented development of the urban–rural interface [69]. Aiming towards a more equitable and sustainable urban–rural development, the URI strategy was proposed as a priority by the CPC in 2018 [70] and resulted in subsequent wide research [71,72]. It has been taken as a guiding strategy that sets a fundamental tone for rural-related development policies and approaches to addressing the un-equivalent urban–rural dual development. Within the framework of URI, rural revitalisation through the development of rural industry has been taken as the key approach. Rural industry thus became widely discussed, mainly regarding the types of industries and rural land use transformation and policies.

4.2. Inadequate Rural Land Transfer Limited Rural Industries

In a Chinese context, the change in rural land transfer policies is a catalyst for the development of rural industries. The village collective-led rural land exchange process shows irregularities compared to that in urban areas, restricting rural land resources to potential investors. This resulted in the evolution of land use policies following the establishment of the ‘Household Rural Land Contract System’. Before the ‘Reform and Opening-up’ (RO) in China, the economic development of both urban and rural areas remained at a low level. To stimulate economic development, since 1978, China has encouraged the Socialist Market Economy, actively participating in globalisation processes [73], and explicitly and implicitly promoting urbanisation [68]. As an essential part of this significant reform, the ‘Household Rural Land Contract System’ has been established as an internal reform policy since 1982. It changed collective cultivation to the ‘more pay for more work’ pattern in the agricultural production process. This encouraged households to contract rural collective-owned land, take their own responsibility for crop increase agricultural production, and liberate labour forces [74]. Based on this fundamental reform, rural land transfer mechanisms completed gradually from 1982 to 2019 identified three rights of the rural land to the rural population: the proprietary right to village collectives, the contracting right, and the management right. Villagers have the right of contracting and limited right of management, but rural land cannot be directly sold to the free land market. Therefore, the approaches for rural land transformation are limited and constantly lead to mismatched profits, complicating relationships between relevant stakeholders and raising transaction costs for potential investors (e.g., local governments and private investors) in the transformation of rural land [75].

4.3. Rapid Urban Sprawl Further ‘Squeezed’ Rural Space for Development

The shift in land policy accelerated urbanisation through rural-to-urban land transformation. To further promote national economic development, the CPC established the ‘Tax Sharing System’ in 1994, leading to a new and significant tax revenue collection mode for local governments, through land leasing [76]. In coordination with tax reforms, namely the ‘Monetisation of Housing Distribution’ initiated in 1998, social investment was encouraged to purchase state-owned land for market-led real estate development [77]. To gain more land resources for urban construction, particularly real estate development, local governments levied collective-owned rural lands initially from the urban–rural interface, transforming them into state-owned land for lease. Thus, villages at the urban–rural interface with valuable and affordable collective land are prioritised to turn into a part of their adjacent urban areas [75]. This process accelerated rural-to-urban land transformation with a rapid rural-to-urban flow of capital and labour, leading to fragmented rural spatial typologies and overextended urban areas, accelerating uneven urban–rural development [78]. Out-migrated rural population and the shrinkage of rural areas are a typical feature of such development, often resulting in hollowed-out villages with dilapidated houses and rundown infrastructure, most noticeable in the late 1990s and early 2000s.

4.4. *Transitory Periods for Rural Industry Development between the 1980s and 1990s*

Rural industrialisation served as a transient process in Chinese urbanisation, initially promoting economic and social prosperity in rural areas and accelerating the urbanisation process. Although due to various reasons, such as the lack of scale effects and environmental unfriendly production [79], rural industries were declined and restricted in the late 1990s, they still promoted the rural-to-urban flow of related factors (e.g., capital, policy, and labour) in the long term. The ‘Household Rural Land Contract System’ reform left an unprecedented surplus rural labour force to the market by releasing households from the inefficiency of collective cultivation. To ensure social stability, the surplus labour employment issue must be tackled [76]. Historically, therefore, ‘self-initiated’ rural industrialization initially occurred in the early 1980s; initially, small-scale and low-end industries had gathered in rural areas of the Pearl River Delta, run by the rural community and partly led by local managers. The most noticeable change in these can be seen in rural spatial typologies built to meet the needs of rural industries that have subsequently emerged. In 1984, the ‘Law of Township Enterprise’ further established the leading position of the township administration in the rural industrialisation process, encouraging the standardisation of rural enterprises. However, due to a lack of capital technology and supporting policies, rural industries ceased operations or relocated to industrial parks in townships, towns, and cities for agglomeration development. Thus, with higher salaries and a better working environment, competitive industrial job opportunities attracted former peasants (now rural industrial workers) to the town and city centres. Additionally, to protect food security, since 2003, manufacturing industries related to agriculture development have been disallowed to occupy the rural collective construction land [80].

4.5. *Small Industries as the Main Approach of Rural Revitalisation Guided by URI*

To address the issue of lacking dynamics in terms of deficiency in investment, decreasing population, and diminishing local identity, and more importantly, to reshape urban–rural relationships to achieve sustainable development, revitalising rural areas guided by URI is proposed. To control negative urban externalities and support rural development, in 2004, the CPC released the ‘No.1 Central Document’, which focused on rural development in terms of agriculture, the countryside, and rural population in an 18-year plan (the State Council and CPC Central Committee, 2004–2021). Subsequently, a series of policies and strategies have been released following its conception. For example, the ‘Socialist New Countryside’ in 2005 proposed to promote agriculture production and improve amenities and public services [81]. However, in practice, many small-scale natural villages were demolished and merged into adjacent administrative villages or large-scale villages. This was executed for the convenience of management, leaving a decreasing annual rural construction land quota for urban construction [82]. Moreover, the ‘Arable Land Red Line’ was published in 2006 [6] to ensure national food security, which caused intensive urban construction in urban areas and urban–rural interfaces, leading to rural-to-urban spatial compression [7,8].

To confront any detrimental consequences of urbanisation, the “Urban–Rural Coordination” strategy was promoted by the central government in 2012 [83], followed by the ‘National New Urbanisation Plan’ (2014–2020). In 2018, the ‘rural revitalisation strategy’, followed by URI proposed to stimulate rural development, aiming to introduce appropriate rural industries to foster new development dynamics in struggling rural regions [11,84]. The importance of industry development in rural regions, which has been rigorously restricted before, is recognised as an inevitable approach to revitalise rural development and achieve a virtuous cycle of development factors between urban and rural for the first time. Thus, URI and rural revitalisation aim to encourage a bidirectional flow of factors, such as capital, labour, techniques, and information between urban and rural areas, intended to lead towards better sustainable development. In practice, in more developed regions such as Zhejiang Province, evidence of this bidirectional flow began to accumulate over time in urban–rural spatial nodes [85]. This contributed to the revitalisation of rural com-

munities [86], and a variety of rural spatial typologies. More explorations are needed to identify the differences between introduced industries and their distinct effects on URI so that urban and rural can evolve together more sustainably.

5. Case Study: Village Transformation under URI

Looking into specific practices encouraged by URI and rural revitalization, we chose the Huangyan-Taizhou region as our study area. Huangyan-Taizhou can be roughly divided into two parts (see Figure 1): the eastern side is bordered by the sea, with flat terrain, whilst the western side encompasses a large reservoir within a mountainous area. Urban–rural spatial distribution follows geographic differences, which the rural-to-urban divide also roughly follows from west to east. The selected villages in this study are also within the urban–rural interface, geographically central between Eastern and Western Taizhou. This region is developing under the singular policy of urban–rural integration; however, the development of each village is driven by differing forces.

5.1. Xiapuzheng Village: Driven by Plastic Manufacture and Endogenous Industry

(1) The development trajectory

Xiapuzheng Village occupies an area of around 0.7 square km, surrounded by extensive mountains. There was previously 33.3 hectares of farmland, which in the present day has decreased to 12 ha. There are currently only 8 hectares of fruit groves growing native oranges. Additionally, the lack of farmland has been challenging for the villages living in the mountainous areas (see Figure 3). By the end of 2021, 375 households were living in the village. Amongst them, 1266 were local villagers, with around 923 residents of these consisting of floating workers migrating from outside regions. Historical records show that Xiapuzheng is at least 1000 years old, dating back to 970 AD. In the past, people in Xiapuzheng subsisted on planted rice and barley, producing rice noodles as a vital traditional staple food. Together with neighbouring villages, rice noodles were made by family workshops.

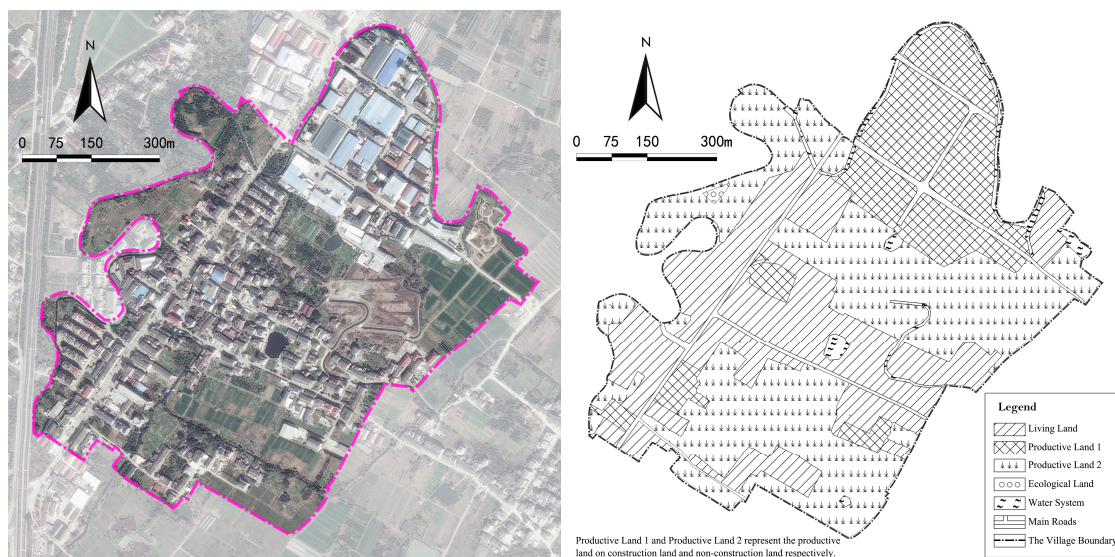


Figure 3. Spatial layout and land use in Xiapuzheng Village. Source: Developed by Huanglong LI based on Baidu Map.

The territories of Xiapuzheng changed little in the 1980s. In 1998, the northernmost part of Xiapuzheng was sold to the local government, and subsequently, the village was shaped in two distinct spatial parts. The northern section was transformed into state-owned land and developed into an ‘industrial park’ for plastic manufacturing, whilst the southern section remained unchanged (see Figure 3). The new northern industrial park

provided a lot of job opportunities for the locals and also attracted migrant workers from other regions. Contrastingly, the south largely consisted of rural houses and factories remaining from the rural industrialisation era. Around 50–60 households (housing around 200 people) continued to use their ground level as a family workshop, utilised for rice noodle production, dating back over 100 years.

“We produced around 4 million kilograms of rice-noodle last year together with a dozen households living in the neighbouring villages”, the village head introduced proudly. “Our rice noodles are very good in quality, and it is always short in supply, especially on rainy days. The rice noodles always sold out by early afternoon when it rains” (Mr M, in-depth interview, October 2021). According to the interview, the annual output value of rice noodles was around 50 million CNY. The production of rice noodles is also facing challenges: “There used to be about 500–600 villagers producing noodles in Xiapuzheng, but fewer people engage in the production. It is hard work, and the young population is afraid of heavy labour” (Villager M, in-depth interview, August 2021). Earlier 2021, 15 million CNY from URI funding was invested in the village for rural revitalisation, with the village head deciding to entirely invest this into the modern development of local rice noodle production, stating that if production can be mechanised, more villagers would be willing to work there. The overarching modernisation plan for this production was to keep the family workshops equipped with machines to mill flour from rice. In addition, the village collective aimed to establish a ‘quality control centre’ to improve the standard of rice noodle production, thus improving and promoting product development and research.

(2) The analysis results

The commuting patterns show that most village residents not only worked in Xiapuzheng but also spent leisure time in the village (including holidays) (see Figure 4). Gaoqiao Sub-district, located on the eastern side of the village, was the second destination for employment, with some village residents also travelling to Gaoqiao during their holidays. Many people who travelled through Xiapuzheng during working days were from neighbourhoods in Huangyan District. Some visitors travelled from Taizhou and other regions of China during work days, but far more travelled from Huangyan (see the first row of Figure 5). During holidays, the commute patterns showed similar situations (see the second row of Figure 5).

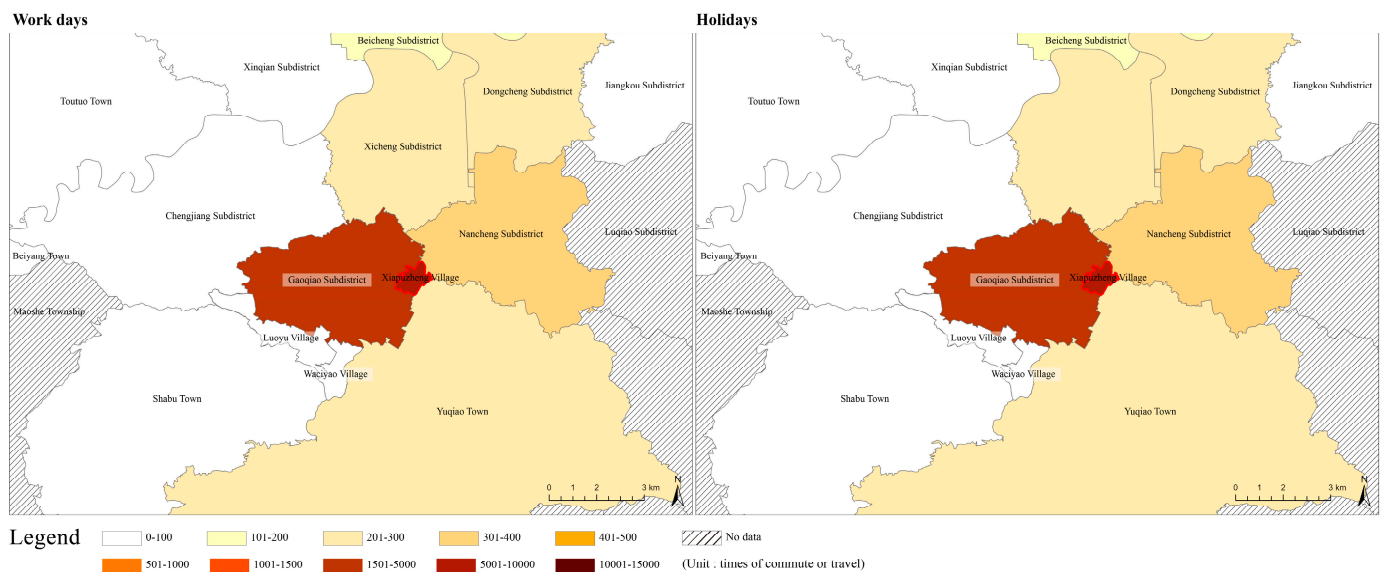


Figure 4. Commute patterns of residents from origin to destination (O-D) in Xiapuzheng (Left: during working days; Right: during holidays). Source: authors’ own diagrams.

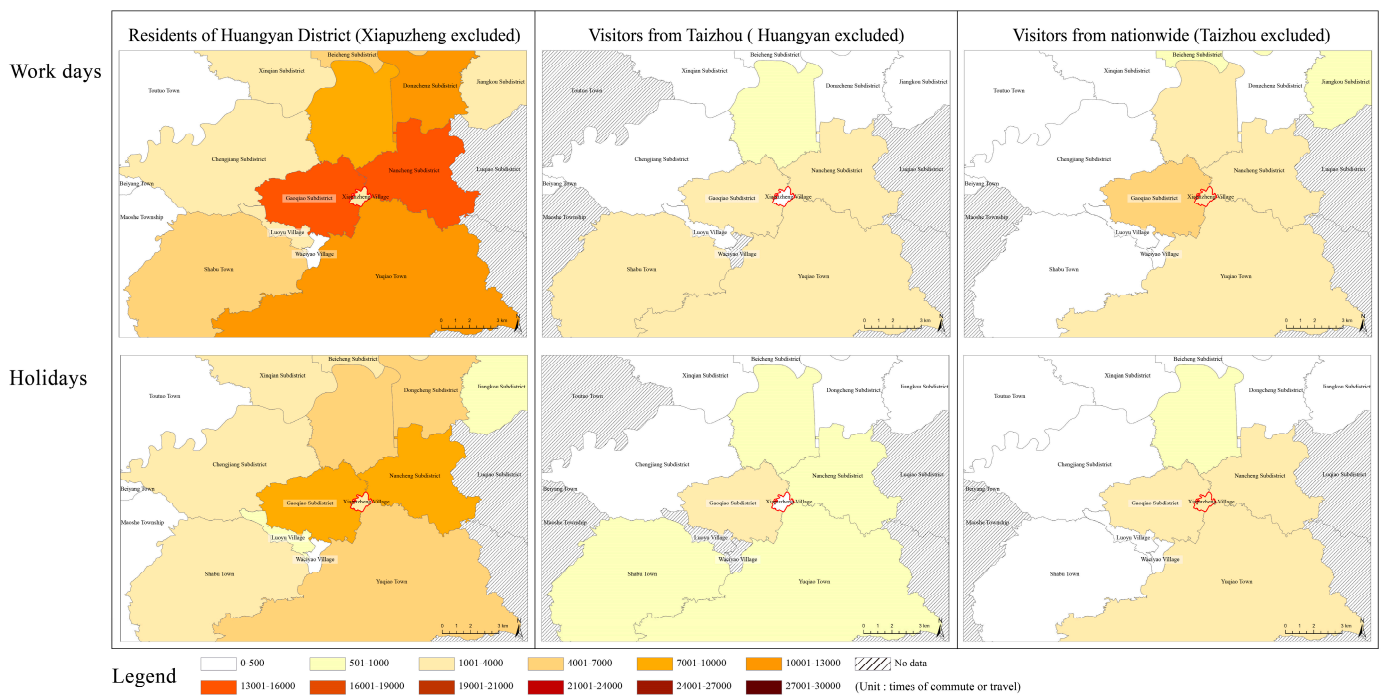


Figure 5. Commute patterns of visitors from Huangyan (Xiapuzheng excluded), Taizhou (Huangyan excluded), and the areas outside Taizhou who travelled through Xiapuzheng (**Above:** working days; **Below:** holidays). Source: authors’ own diagrams.

The commuting patterns indicate that in Xiapuzheng, there was a considerable number of job opportunities for village residents, reducing the need to travel far for everyday work. Local services also catered to basic needs, resulting in limited travel to other places, as well as during holidays (Figure 4). Additionally, Xiapuzheng did not attract many people from Taizhou and the surrounding regions; most visitors were from Huangyan District, likely drawn by the village’s industries. Furthermore, the limited number of visitors during holidays suggests that Xiapuzheng was not a significant attraction for rural tourism (Figure 5).

5.2. Luoyu Village: Driven by Industries Related to Global Production Chain

(1) The development trajectory

Similarly to Xiapuzheng, Luoyu village is surrounded by mountains and farmland. By the end of 2021, Luoyu’s village population consisted of around 1570 villagers and 300 floating workers (totalling around 446 households). The west Luoyu is bordered by mountains whilst the east area was taken by village houses and construction on farmland (Figure 6). Village houses in Luoyu were constructed around the 1990s, situated close to each other with several small areas of farmland separating them. A belt of factories mainly relating to the plastic and moulding industries is located at the foot of the mountain, between rural houses and the outer environment. This land previously belonged to Luoyu village but was eventually sold to the local government and passed into state ownership. In 2007, factories were built on the land, as well as an industrial park. By 2021, 19 private enterprises were operational in the industrial park, providing job opportunities for the floating population and investment development factors in and around Luoyu, with an annual output value of around 0.8 billion CNY. By 2021, due to the introduction of industry, the average disposable personal income of local residents was 50–60 thousand CNY. “Our villagers rarely go out for jobs, they worked in the factories and lived in their own houses”, the village head proudly claimed (Mr. C, in-depth interviews, July 2021). The village collective also benefited from the land lease, profiting up to nearly 1 million CNY. They

further benefited by renting out empty rooms in their homes to floating workers, with each room generating a rental income of around 300 CNY per month.

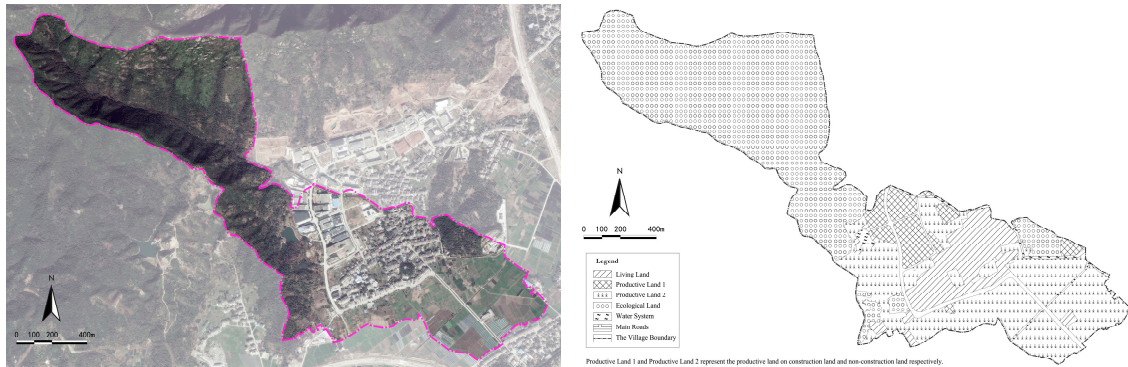


Figure 6. Spatial layout and land use in Village Luoyu. Source: Developed by Huanglong LI based on Baidu Map.

(2) The analysis results

The travel patterns of Luoyu show that most residents who lived in Luoyu also worked in the village and spent their holidays there, with some residents also travelling to the Gaoqiao Subdistrict for work and leisure (Figure 7). According to an origin-to-destination analysis of residents living in Luoyu, Gaoqiao was the second most popular destination for residents of Luoyu. Luoyu showed a certain level of attraction to people living outside the village; comparatively, there were some residents in Huangyan and Taizhou who visited Luoyu on work days, whilst more visitors from outside of Taizhou visited the village on work days (see first row of Figure 8). Patterns during holidays were similar (see second row of Figure 8): there were few residents in Luoyu from Huangyan, particularly Taizhou; however, people passed by or visited the village during holidays.

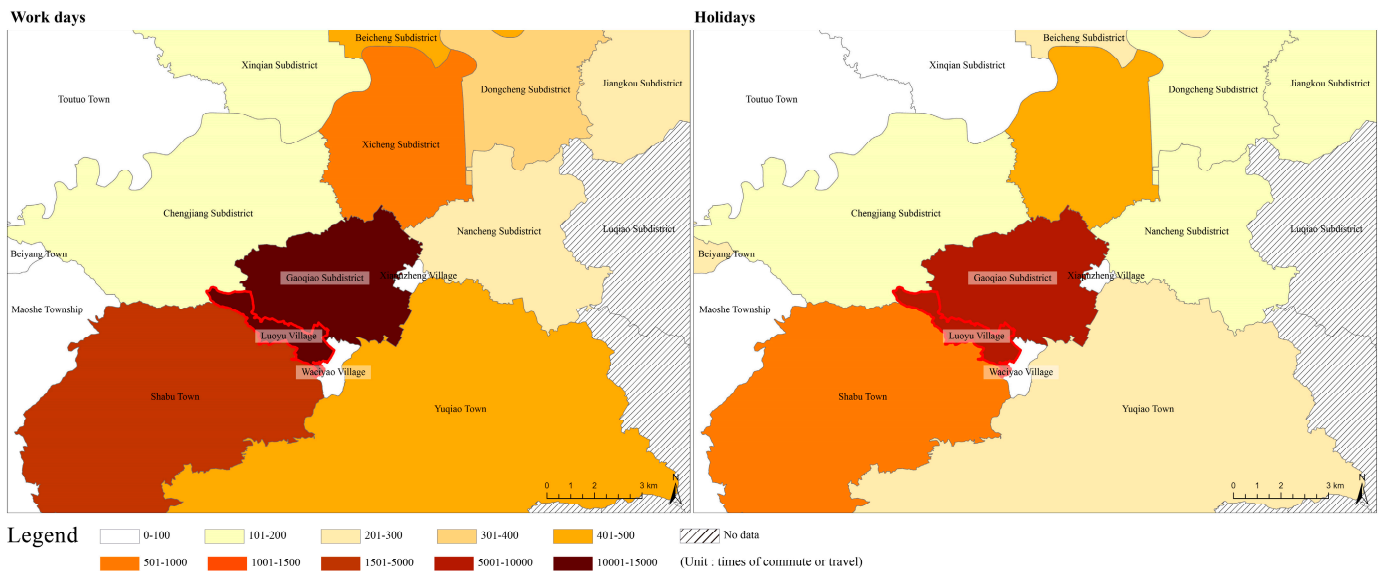


Figure 7. Commute patterns of residents from origin to destination in Luoyu (Left: during working days; Right: during holidays). Source: authors’ own diagrams.

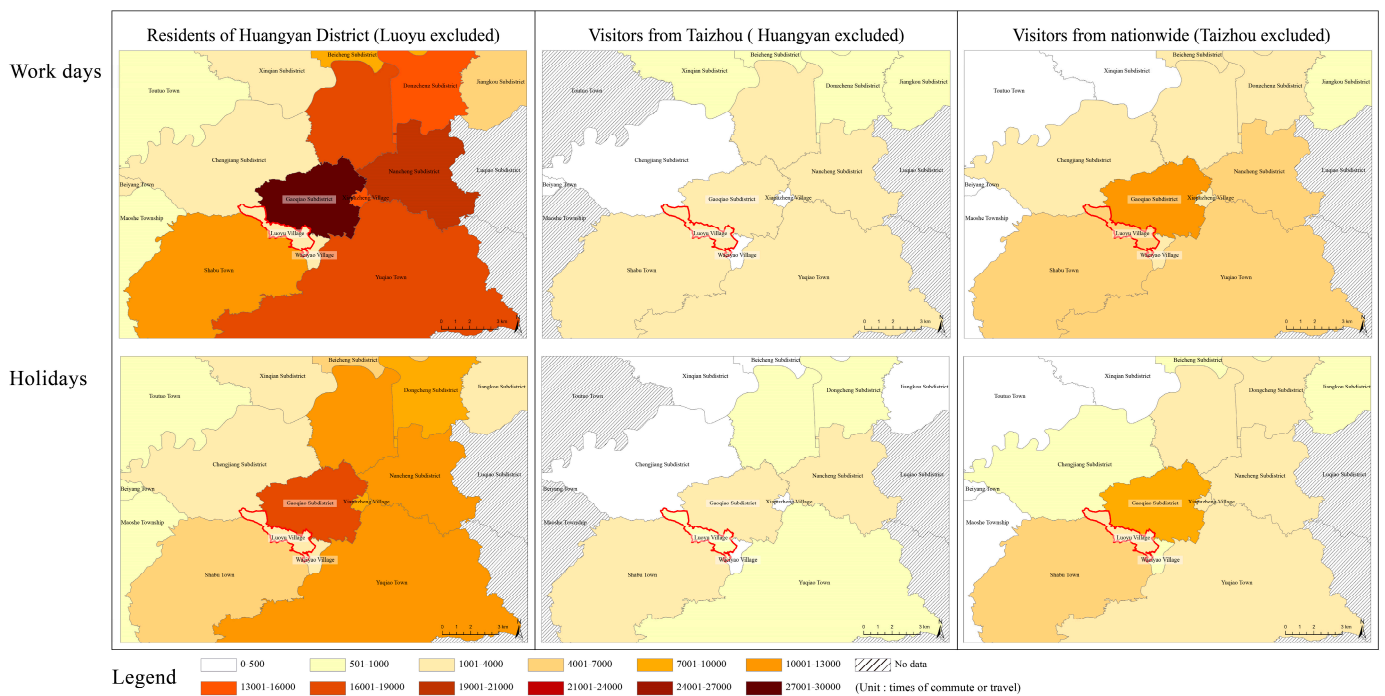


Figure 8. Commute patterns of visitors from Huangyan (excluding Luoyu), Taizhou (excluding Huangyan), and people in the areas outside Taizhou who travelled through Luoyu (**above**: during working days; **below**: during holidays). Source: authors' own diagrams.

The analysis also reveals that in Luoyu, residents' working and leisure spaces largely overlapped, indicating that the area provided sufficient jobs for local residents and essential services for their daily needs. Whilst it did not hold significant appeal for visitors from Taizhou, it is noteworthy to mention that, compared to Xiapuzheng, Luoyu showed greater attractiveness to people from outside Taizhou. This can be attributed to the local industry's close connection to the national and global production chain. With little rural tourism development in the village, visitors came to Luoyu during both workdays and holidays, primarily for business purposes.

5.3. Waci Yao Village: Driven by Improvement in the Physical Environment and Future Rural Tourism

(1) The development trajectory

Waci Yao Village is geographically located to the south of Luoyu Village, surrounded by mountains from the east and south sides. Village houses are mostly distributed towards the west end of the village, along the northern river bank of the Yongfeng River, with some distributed at the foot of the mountains (Figure 9). Integrated construction of rural settlements commenced in 1988 onwards, and despite little investment, the village remained mostly spatially unchanged from the original spatial layouts of 1995. The population numbers around 1467 residents, comprising around 667 households (by the end of 2022). Compared to Luoyu and Xiapuzheng, Waci Yao has not grown under the influence of in-migrated residents and local development. Villagers mainly participate in small retail businesses and planting cane shoots, with many owning businesses outside of the Huangyan-Taizhou region, with almost no local industries in the village. The village collective invested 100 thousand CNY in a project—an industrial park located in another village, generating profits of 150,000 CNY annually. This was largely invested in village infrastructure (e.g., street lamps, electricity fees, and environmental cleaning) and other village expenses. In addition, 17 million was invested in the village to improve its environment from the top down, mainly in 2021 and 2022. "We applied for a provincial program

of Beautiful Village Construction which was not approved” (Mr. Lu, in-depth interview, August, 2021).

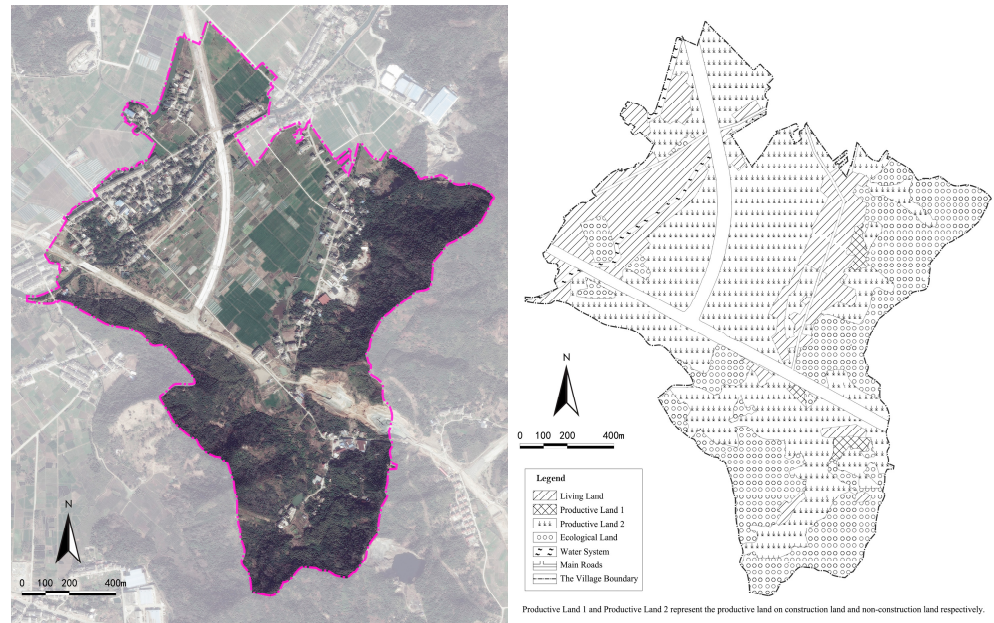


Figure 9. Spatial layout and land use in Waciyao Village. Source: Developed by Huanglong LI based on Baidu Map.

(2) The analysis results

The commute analysis shows that many residents living in Waciyao travelled to Luoyu for work, with some of them also travelling to Shabu Town and Gaoqiao Subdistrict (Figure 10). During holidays, villagers’ origin-to-destination activities show a similar pattern. Comparatively, few visitors from Huangyan passed by or visited the village on workdays and more people visited the village during holidays. Almost no visitors from Taizhou visited Waciyao, whilst a few visitors outside of Taizhou passed by or arrived at the village during workdays (see Figure 11).

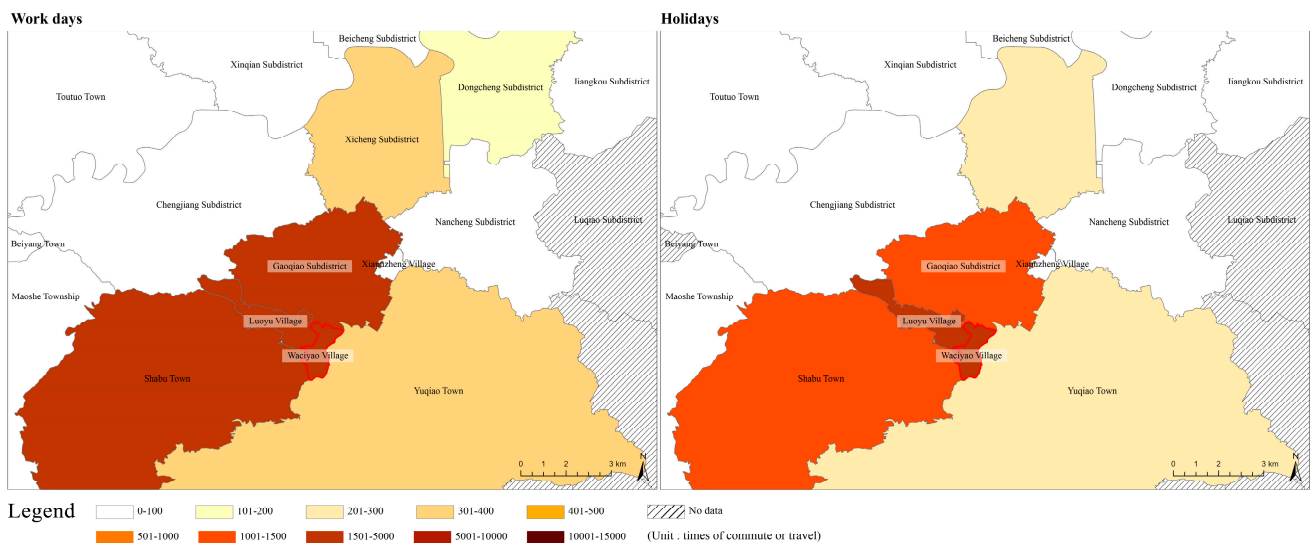


Figure 10. Commute patterns of residents from origin to destination in Waciyao (left: during working days; right: during holidays). Source: authors’ own diagrams.

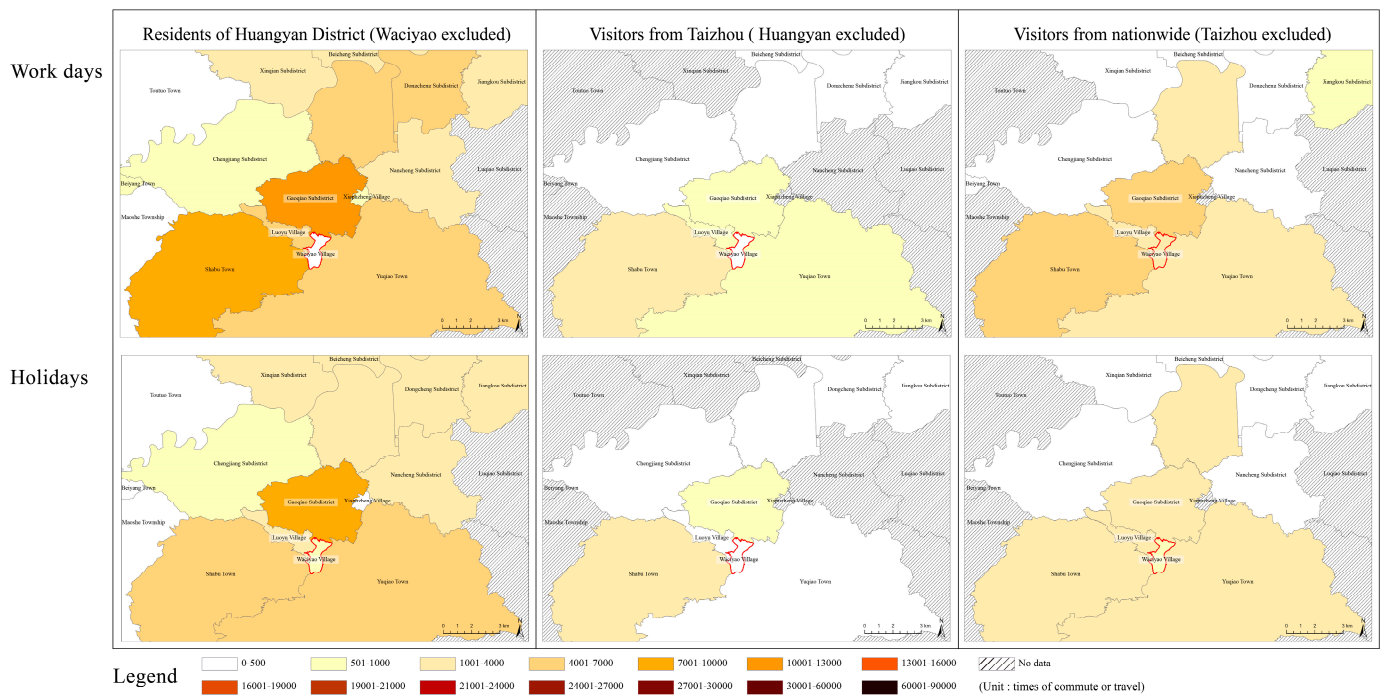


Figure 11. Commute patterns of visitors from Huangyan (excluding Waci Yao), Taizhou (excluding Huangyan), and areas outside Taizhou where people travelled through Luoyu (**above**: working days; **below**: holidays). Source: authors’ own diagrams.

The analysis indicates that Waci Yao offered limited job opportunities for its residents, leading many to seek work elsewhere, primarily in the nearby village, town, and sub-district. The residents also travelled to the neighbouring villages and urban areas during the holidays, indicating that public service may not be sufficient (Figure 10). It is verified in the field investigation that a few small businesses were available in the village. Though rural tourism is a development direction, the attraction was yet to form as only a few people visited the villages from Huangyan, Taizhou, and outside the city (see Figure 11).

5.4. Discussions

The three villages selected as case studies in this paper—Xiapuzheng, Luoyu, and Waci Yao—are situated in close proximity to each other at the urban–rural interface of Huangyan-Taizhou. The diversified developmental paths of these villages have been shaped by rural revitalization initiatives, each showing unique dynamics of urban–rural interaction (URI). Through empirical evidence and analysis of commute patterns and travel activities, Xiapuzheng and Luoyu showed better performance of URI by enhancing services (such as job opportunities and daily necessities) and fostering the flow of urban–rural factors.

- (1) The exploration and support of small-scale rural industries brought local development opportunities. Xiapuzheng and Luoyu grew noticeably in terms of number of population, job opportunities, and an increase in local GDP and residents’ income mainly because of the introduction and development of local industries. Comparatively, in Waci Yao, which was not suffering obvious population loss in terms of the registered population, the residents’ lives were strongly dependent on neighbouring areas in terms of jobs and some services, and this led to less promising development dynamics.
- (2) Small-scale rural industries provided a considerable number of job opportunities and narrowed down urban–rural development in terms of residents’ incomes. In Xiapuzheng, Luoyu, the integration of industries provided sufficient job opportunities for residents. The industries established in Xiapuzheng and Luoyu were inclusive of local people and provided many job opportunities for low-skilled workers, as

well as opportunities for training, starting from apprentices: “My husband’s salary increased this year because he is not an apprentice anymore. He became a skilled worker!” This was said by one woman from Western China said proudly (Miss W, In-depth interview, August 2021). Therefore, villagers could live in their own houses in their village and work close to home, tending to remain in their village instead of commuting to other regions as part of a floating population or supporting their families as part-time farmers: “The pay is close to what I made outside, but it is much better to live in my own house and stay with my family” (Miss W, In-depth interview, August 2021). The industries established in Xiapuzheng and Luoyu also attracted labourers from outside, indirectly increasing villagers’ income through rental opportunities presented by unused rooms in their homes.

- (3) Small-scale rural industries attracted different types of development factor flow. The villages Xiapuzheng and Luoyu introduced new industries that attracted continuous national investment from specific funding for rural development, whilst there has also been a noticeable increase in private investments. Networks in Xiapuzheng and Luoyu are growing alongside a two-way flow of urban–rural development factors, which can partially be reflected by the LBS analysis. The villages are expecting more integrated development in terms of social structures (e.g., keeping demographic structures and increasingly diverse social groups, development initiatives, investments, and growing local identities), which was learned during field investigations.
- (4) Without attractiveness for people to stay, a favourable traffic connection to the region, upgraded infrastructures and environments did not necessarily promote URI. In Waciyao, where neither industry linked to broader trans-local networks nor indigenous industries support local needs for jobs, residents needed to work elsewhere. Ultimately, a lack of jobs for local residents remained the major challenge for the village, which also resulted in less competitiveness in attracting investments and other development resources. Therefore, narrowing down urban–rural differences is not sufficient for rural revitalisation.
- (5) Small-scale industries are not limited to new industries outside but also indigenous industries. Xiapuzheng also made efforts to develop the indigenous industry of rice noodle production in the form of family workshops: “Although fewer people participated in rice noodle production compared to the 1980s when almost every family engaged in it, the products are greatly desired by the market. We are capable of leading the production of rice noodles up to relevant standards. With the mechanisation of the production, I believe more people will come back and become part of it” (Mr Z, In-depth interview, August 2021).
- (6) Different types of rural industries showed different levels of resilience when facing critical events (e.g., economic crisis). The empirical evidence shows that the industrial parks accommodated small-scaled manufacturing industries (e.g., plastics) that connected Xiapuzheng and Luoyu to national and even international production chains. This stimulated a two-way flow of development factors, including investment, information, technology, and labour between urban and rural at national and regional scales. Different types of industries were found to bring noticeable differences in daily commuting and travel patterns in the region. The Indigenous small-scale family workshops that closely related to everyday life encouraged the interlinkage of these urban–rural development factors at a more local scale. Although local and Indigenous industries were less profitable compared to industries connected to national and international production chains, they proved more resilient for rural development, as trans-local and urban–rural relationships encounter unexpected shifts on larger scales: “The national and global commercial conditions were not so good for plastic manufacturing in 2019, and many industries in the parks were affected to different degrees, whilst our rice-noodle production was not affected at all” (Mr W, In-depth interview, July 2021).

- (7) The introduction of rural industries might cause changes in land use and land ownership. Both Xiapuzheng and Luoyu sold part of their lands to the local government, in accordance with the overall governmental development plan to establish small-scale industry parks in those locations. It is worth noting that the introduction of new industries often requires a transfer from land that is collective-owned to state-owned, resulting in the change in participative roles of villagers in the decision-making process for future development. For the collective-owned land, the villagers and village collectives obtained a decisive vote for the land use.

To sum up, it is crucial to acknowledge the challenges and risks inherent in the development observed in Waciyao, Luoyu, and Xiapuzheng. Whilst national funding significantly improved the physical environment and public services in these villages, leading to evident enhancements in housing, public services, and open spaces, this physical transformation formed the foundation for attracting industries and offering increased job opportunities for villagers. Despite this, it is important to note that the physical improvements in rural areas did not directly translate into economic benefits or effectively enhance urban–rural linkages. Whilst villagers displayed positive attitudes towards these changes and the improvements in living conditions contributed to a narrowing of the urban–rural disparity in terms of the physical environment, it was insufficient to fully promote urban–rural interaction (URI). Job opportunities emerged as the fundamental factor in driving promising and sustained rural revitalisation.

6. Conclusions

The rural industry in China has undergone a brief boom [76] before transitioning towards stringent regulation [79] and is currently undergoing new initiatives. It has demonstrated its crucial role in the rural economy and the developmental dynamics within urbanisation processes. However, it has also raised critical issues related to land transformation, food safety, and environmental protection in previous experiences. Under the URI, the rural industry is recognised as a practical approach to enhancing the flow of factors in urban–rural development, but the development of rural industry needs to avoid previous environmental issues [38,46]. This study focuses on the impact of small-scale rural industry on URI and emphasises its strengths and potential risks within URI and rural revitalization by studying three neighbouring villages with different types of industries.

The empirical evidence indicates that small-scale, locally inclusive industries situated in or near villages can enhance factor flows by promoting daily interactions between urban and rural areas. Industrial development emerges as a pivotal factor in stimulating the local economy across various scales, including international, national, and regional. It encourages the two-way flow of development factors between urban and rural areas through land use, resource utilisation, social interactions, and economic opportunities, strengthening urban–rural linkages in rural areas.

Locally inclusive industries demonstrate significant potential in creating better employment prospects, leading to an improved quality of life for residents by reinforcing and bolstering local family structures and social networks. Villages near new industries have experienced a substantial increase in population, challenging the notion that villages are inevitably declining during the urbanisation process. Job opportunities emerge as a decisive factor in this trend. These industries enable rural residents to work near their homes, avoiding long-term separation from their families—a critical shortcoming urban–rural divide [87]. The proximity of living and working communities has enhanced the social connections within rural families.

It is also worth noticing the differences in the rural resilience resulting from the types of industries. Small-scale and locally inclusive industrial development can be promoted by Indigenous industries and industries linked to global production chains. Both types of industrial development enhanced urban–rural linkages and promoted integrated development by facilitating population in-flow, investments, and potential opportunities for alternative development. The former showed more sustainability in encouraging lo-

cal urban–rural interactions when facing economic challenges due to its less reliance on global networks, which is reflected by job loss status. Indigenous enterprises may not be as profitable; however, they are closely connected to local residents' everyday lives, and living habits and promote socio-economic resilience in the event of national or global economic events.

One risk of these incoming industries was a shift of decision-making resulting from the transference of land ownership. This is one risk commonly existing in the urbanisation process in China [32], which led to the change in participant roles of villagers in the decision-making of future development within their village. Thus, it is critical to assess the social and land use impacts of such industries, take local initiatives into account, and develop co-production relationships to support locally inclusive development for a sustainable future. Identifying and enhancing Indigenous industries and valuing their role in URI, therefore, is argued to be a critical intervention approach that promotes urban–rural integration towards a more sustainable development dynamic.

From the global perspective, this empirical evidence also contributes to the SDGs that propose to enhance urban and rural linkages to achieve the goals of sustainable development. The discourse surrounding the best approach to promote urban–rural linkages noticeably increased globally in academic debates and policy-making in recent years, whilst concurrently, China's rural revitalisation strategy received prominent focus. The flow of urban–rural factors can not only be influenced by improvement in public services and infrastructure constructions but can also be promoted and integrated into rural areas by appropriately enhancing rural industries, traditional cultures, and unique natural resources [51,88–90]. This also echoes the constantly evolving theory of planetary urbanisation, which argues the importance of ongoing analysis and discussion of both urban and rural in ever-changing contexts, avoiding dichotomic poles of simply 'urban' and 'rural' [14,16,91]. Together, these global and national developments call into question what interventions led by rural revitalisation efforts enhance URI, and to what extent they are sustainable, remaining a critical topic worthy of continued investigation.

To sum up, this paper demonstrated the influential role of locally inclusive small-scale industries in enhancing URI. Different small-scale industries were promoted by URI at various scales (e.g., local, national, and international), of which the outcomes achieved different levels of sustainability in terms of socio-economic resilience in the face of potential national and global economic events and decision-making processes. The shift in local people's roles in decision-making for local future development was also witnessed in the project introduced in rural areas, which requires further research to explore solutions for more inclusivity. Therefore, it is hoped that this study has shed light on these issues and can be used as a case study for regions and nations facing similar challenges in the future. It also underpinned the SDG's proposal detailing methods (e.g., the collection of empirical evidence observing positive and negative outcomes) through which the enhancement of urban–rural linkages can lead to more sustainable development.

The study acknowledges its limitations. Our current research focuses on a limited number of sample villages in a relatively typical urban pioneer area of URI, which we have taken as representative cases. Whilst the insights gained are valuable as reference points, future empirical studies should include a broader range of village types and regions. Additionally, the real-time data from Location-Based Services (LBS) captures the commuting patterns and travel activities of smartphone users. Although these data, combined with participatory observation, semi-structured interviews, focus groups, and mapping, offer valuable insights, they may not be suitable for regions with lower smartphone usage.

Author Contributions: Conceptualization, H.H., L.W. and G.Y.; Data curation, Y.W. and L.F.; Formal analysis, H.H., D.S., L.W. and A.L.; Funding acquisition, H.H., D.S. and G.Y.; Investigation, H.H., D.S., G.Y. and Y.W.; Methodology, H.H. and L.W.; Project administration, G.Y.; Supervision, G.Y.; Visualisation, L.F.; Writing—original draft, H.H. and L.W. All authors have read and agreed to the published version of the manuscript.

Funding: The work was produced in association with the ‘Research on the Spatial Differentiation Mechanism and Planning Regulation of Rural Settlements: A Case Study of Zhejiang’ (No. 52378067), ‘Research on the spatial organisation characteristics and mechanism of rural settlements at urban–rural interface based on multi-dimension networks: A case of the ‘urban–rural integration’ pilot area in Jiangsu–Zhejiang–Shanghai Region’ (No. 52208075), and ‘Guiding Mechanism of Rural Employment Post Distribution and Its Spatial Impact: A Case Study of Zhejiang and Shandong Areas’ (No. 51978476), funded by the National Natural Science Foundation of China (NSFC). The research was also supported by the Fundamental Research Funds for the Central Universities and Shanghai Pujiang Program 21PJC113.

Data Availability Statement: Data are contained within the article.

Acknowledgments: The authors gratefully acknowledge the graduate student researchers of Tongji University, Xuanru Wang, who assisted with the interviews, and Huanglong Li, Xuebin Xin, and Jiaxin Qi, who assisted with drawing location and land use maps, as well as collecting satellite images. Any remaining errors are our own.

Conflicts of Interest: Authors Daijun Song and Yizheng Wang were employed by the company Shanghai Tongji Urban Planning and Design Institute Co., Ltd. The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethics Statement: The interviewees’ information is secured. Empirical evidence obtained from multiple field visits between 2019 and 2022 is stored securely and limited in use in this research only. Confidentiality and privacy were ensured by anonymously using the data in the research. Political and cultural sensitivities (as well as data bias) were taken into serious account. The authors are highly aware of the privacy protection and unwarranted surveillance when applying LBS data in the research. The highest level of sensitivity to using LBS data has been maintained. The data are obtained from the credible data firm Aurora in an already fully anonymised form. No detailed information can track individuals to specific persons and locations.

References

1. Remy, S.; Kago, J.; Zhang, X.Q.; Augustinus, C.; Tuts, R. Role of Urban–Rural Linkages in Promoting Sustainable Urbanization. *Environ. Urban. ASIA* **2014**, *5*, 219–234. [CrossRef]
2. United Nations. *Transforming Our World: The 2030 Agenda for Sustainable Development*; United Nations: New York, NY, USA, 2015.
3. UN Habitat. *Implementing the New Urban Agenda by Strengthening Urban–Rural Linkages—Leave no One and no Space Behind*; UN Habitat: Nairobi, Kenya, 2017.
4. UN Habitat. *Urban–Rural Linkages: Guiding Principles Framework for Action to Advance Integrated Territorial Development*; UN Habitat: Nairobi, Kenya, 2019; Available online: <https://www.unccd.int/resources/manuals-and-guides/urban-rural-linkages-guiding-principles> (accessed on 25 March 2024).
5. Brenner, N. Introduction: Urban theory without an outside. In *Implosions/Explosions: Towards a Study of Planetary Urbanization*; Academia: Prague, Czechoslovakia, 2014; Volume 17.
6. The State Council of the PRC. *The National Land Use Planning Framework*; Xinhua News Agency: Beijing, China, 2008.
7. Liu, Y. Scientifically promoting the strategy of reclamation and readjustment of rural land in China. *China Land Sci.* **2011**, *25*, 3–8.
8. Liu, Y.; Fang, F.; Li, Y. Key issues of land use in China and implications for policy making. *Land Use Policy* **2014**, *40*, 6–12. [CrossRef]
9. Huang, H.; Yang, G.Q.; Misselwitz, P.; Langguth, H. Post-rural urbanisation and rural revitalisation: Can China learn from new planning approaches in contemporary Germany. *City Plan. Rev.* **2017**, *41*, 111–119. (In Chinese)
10. Huang, H. Learning from exploratory rural practices of the Yangtze River Delta in China: New initiatives, networks and empowerment shifts, and sustainability. *J. Rural. Stud.* **2020**, *77*, 63–74. [CrossRef]
11. CPC Central Committee and The State Council of the PRC. *Opinions on Establishing and Improving the System, Mechanism and Policy System of Urban–Rural Integrated Development*; Xinhua News Agency: Beijing, China, 2019. (In Chinese)
12. Lefebvre, H. *The Urban Revolution*; University of Minnesota Press: Minneapolis, MN, USA, 2003.
13. Brenner, N.; Madden, D.J.; Wachsmuth, D. Assemblage urbanism and the challenges of critical urban theory. *City* **2011**, *15*, 225–240. [CrossRef]
14. Angelo, H. From the City Lens toward Urbanisation as a Way of Seeing: Country/City Binaries on an Urbanising Planet. *Urban Stud.* **2017**, *54*, 158–178. [CrossRef]
15. Heley, J.; Jones, L. Relational rurals: Some thoughts on relating things and theory in rural studies. *J. Rural. Stud.* **2012**, *28*, 208–217. [CrossRef]
16. Brenner, N.; Katsikis, N. Operational Landscapes: Hinterlands of the Capitalocene. *Archit. Des.* **2020**, *90*, 22–31. [CrossRef]

17. López-Goyburu, P.; García-Montero, L.G. The Urban-Rural Interface as an Area with Characteristics of Its Own in Urban Planning: A Review. *Sustain. Cities Soc.* **2018**, *43*, 157–165. [CrossRef]
18. de Bruin, S.; Dengerink, J.; van Vliet, J. Urbanisation as driver of food system transformation and opportunities for rural livelihoods. *Food Sec.* **2021**, *13*, 781–798. [CrossRef] [PubMed]
19. Eakin, H.; DeFries, R.; Kerr, S.; Lambin, E.F.; Liu, J.; Marcotullio, P.J.; Messerli, P.; Reenberg, A.; Rueda, X.; Swaffield, S.R.; et al. Significance of telecoupling for exploration of land-use change. In *Rethinking Global Land Use in an Urban Era*; Seto, K.C., Reenberg, A., Eds.; MIT Press: Cambridge, MA, USA, 2014; pp. 141–161.
20. Gutu Sakketa, T. Urbanisation and rural development in sub-Saharan Africa: A review of pathways and impacts. *Res. Glob.* **2023**, *6*, 100133. [CrossRef]
21. OECD (Organisation for Economic Co-operation and Development) & European Commission. *Cities in the World: A New Perspective on Urbanization*; OECD: Paris, France, 2020. [CrossRef]
22. Muffp—Milan Urban Food Policy Pact. Milan Urban Food Policy Pact and Framework for Action[EB/OL]. 2015. Available online: <https://www.foodpolicymilano.org/en/the-text-of-the-milan-urban-food-policy-pact/> (accessed on 25 March 2024).
23. Wolff, F.; Mederake, L.; Bleher, D.; Sosath, O.; Westphal, I. Rahmenbedingungen und Instrumente für Die Gestaltung Nachhaltiger Stadt-Land-Verknüpfungen[M/OL]. Im Auftrag des Umweltbundesamtes. 2019. Available online: https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2019-08-15_texte_86-2019_run-bericht_ap3-1_3-2.pdf (accessed on 25 March 2024).
24. United Nations. *New Urban Agenda*; Habitat III Secretariat: Quito, Ecuador, 2017; ISBN 978-92-1-132731-1.
25. Potts, D. Conflict and collisions in Sub-Saharan African urban definitions: Interpreting recent urbanization data from Kenya. *World Dev.* **2017**, *97*, 67–78. [CrossRef]
26. Wineman, A.; Alia, D.Y.; Anderson, C.L. Definitions of “rural” and “urban” and understandings of economic transformation: Evidence from Tanzania. *J. Rural. Stud.* **2020**, *79*, 254–268. [CrossRef] [PubMed]
27. Azmi, H.N.H.; Wijaya, B.; Wijaya, M.I.H.; Novandaya, Z.; Kurniawati, H. Mapping urban-rural linkage in promoting sustainable regional development to support rural creative economy entrepreneurs. *IOP Conf. Ser. Earth Environ. Sci.* **2021**, *887*, 012023. [CrossRef]
28. Chen, C.; Yang, G.; Xu, H.; Wang, Y. Understanding Rural Development Driven by Small Local Industries and Its Planning Strategies: The Case of Zhejiang Province. *Planners* **2021**, *37*, 21–27.
29. Yang, G. Rural Evolution: Reviewing the Rebirth of Traditional Rural Settlements from the Perspective of “Productivity-Spatial Form” Theory. *J. Tongji Univ. (Soc. Sci. Ed.)* **2022**, *33*, 66–73.
30. Castillo, C.P.; van Heerden, S.; Barranco, R.; Jacobs-Crisioni, C.; Kompil, M.; Kučas, A.; Aurambout, J.P.; Silva, F.B.E.; Lavalle, C. Urban–rural continuum: An overview of their interactions and territorial disparities. *Reg. Sci. Policy Pract.* **2023**, *15*, 729–768. [CrossRef]
31. Wang, M. Spatial Characteristics and Planning Strategies of Rural Industries Guided by Industrial Revitalization: A Case Study of the Urban Pastoral Complex in the Dongxihu District of Wuhan. *City Plan. Rev.* **2023**, *47*, 105–114.
32. Wang, L.; Yang, G. The Mechanism of Socio-Spatial Evolution in Rural Areas Driven by the Development of the Planting Industry—A Case Study of Yuezhuang Village in Shandong Province, China. *Land* **2024**, *13*, 768. [CrossRef]
33. UN-Habitat. Compendium of case studies. In *For the Implementation of the “Urban-Rural Linkages”: Guiding Principles (URL-GP) and Framework for Action*, 1st ed.; UN-Habitat: Nairobi, Kenya, 2020.
34. UN-Habitat. *Compendium of Inspiring Practices on Urban-Rural Linkages: Implementation of Guiding Principles and Framework for Action to Advance Integrated Territorial Development*, 2nd ed.; (UN-Habitat: Nairobi, Kenya, 2021.
35. UN-Habitat. *Compendium of Inspiring Practices on Urban-Rural Linkages: Implementation of Guiding Principles and Framework for Action to Advance Integrated Territorial Development*, 3rd ed.; UN-Habitat: Nairobi, Kenya, 2023.
36. Liu, Y.; Zang, Y.; Yang, Y. China’s rural revitalization and development: Theory, technology and management. *J. Geogr. Sci.* **2020**, *30*, 1923–1942. [CrossRef]
37. Li, Y. Urban–rural interaction patterns and dynamic land use: Implications for urban–rural integration in China. *Reg. Environ. Change* **2012**, *12*, 803–812. [CrossRef]
38. Yang, Y.; Bao, W.; Wang, Y.; Liu, Y. Measurement of urban-rural integration level and its spatial differentiation in China in the new century. *Habitat Int.* **2021**, *117*, 102420. [CrossRef]
39. Yan, J.; Chen, H.; Xia, F. Toward improved land elements for urban–rural integration: A cell concept of an urban–rural mixed community. *Habitat Int.* **2018**, *77*, 110–120. [CrossRef]
40. Gong, H.; Tong, D.; Zhang, C.; Pan, X. Optimization of Comprehensive Land Consolidation Model under the Context of Urban-Rural Integration. *Planners* **2023**, *39*, 44–52.
41. Luo, X.; Jin, X.; Liu, X.; Zhang, S.; Ying, S.; Zhou, Y. Mechanism and model of comprehensive land consolidation promoting urban-rural integration in peri-urban from the perspective of symbiosis theory. *J. Nat. Resour.* **2024**, *39*, 1053–1067. [CrossRef]
42. Guo, M.; Lu, X.; Ma, Q.; Qiu, L. Review and Prospect of Settlement System in County Territory Under the Background of Urban Rural Integration. *Dev. Small Cities Towns* **2023**, *41*, 5–11.
43. Wang, J.; Sun, S.; Xu, M.; Li, S.; Wu, X. Analysis on Refined Construction of Public Facilities in Agglomeration and Upgrading Villages Based on Resident Demand: A Case Study of Dongying District, Dongying City. *Urban Dev. Stud.* **2022**, *29*, 112–118.

44. Wang, L.; Huang, H.; Yang, G. Research on Rural Revitalization Driven by Agricultural Headquarters from a Network Perspective: A Case Study in Huangyan District, Zhejiang Province. *Dev. Small Cities Towns* **2024**, *42*, 55–61.
45. He, X.; Yan, Y. Differentiation Characteristics, Influencing Factors and Zoning Optimization of County Digital Village. *Geogr. Geo-Inf. Sci.* **2024**, *40*, 88–95.
46. Li, X.; Ma, X.D.; Khuong, M.H.; Zhu, J.Y. Dynamic mechanism of rural development oriented urban-rural integration. *J. Nat. Resour.* **2020**, *35*, 1926–1939.
47. Zhao, Y.; Zhang, F.; Li, Q. The path of rural revitalisation in rapidly urbanising area: The case of Southern Jiangsu Province. *Urban Forum* **2018**, *2*, 98–105. [[CrossRef](#)]
48. Luo, Z. E-garden city: Reconstruction of urbanization theory in the mobile internet era. *City Plan. Rev.* **2020**, *44*, 9–16.
49. Wu, Z. Research on the Realistic Path of How to Promote the coordinated Development of Rural Revitalization Strategy and New Urbanization in Typical Resource-based Cities. *Mod. Agric. Res.* **2024**, *30*, 41–43.
50. Shortall, S.; Brown, D.L. Guest editorial for special issue on rural inequalities: Thinking about rural inequalities as a cross-national research project. *J. Rural. Stud.* **2019**, *68*, 213–218. [[CrossRef](#)]
51. Phillipson, J.; Tiwasing, P.; Gorton, M.; Maioli, S.; Newbery, R.; Turner, R. Shining a spotlight on small rural businesses: How does their performance compare with urban? *J. Rural. Stud.* **2019**, *68*, 230–239. [[CrossRef](#)]
52. Spinney, J.E. Mobile positioning and LBS applications. *Geography* **2003**, *88*, 256–265.
53. Sadoun, B.; Al-Bayari, O. LBS and GIS technology combination and applications. In Proceedings of the 2007 IEEE/ACS International Conference on Computer Systems and Applications, Amman, Jordan, 13–16 May 2007; pp. 578–583.
54. Lynam, A.; Li, F.; Xiao, G.; Fei, L.; Huang, H.; Utzig, L. Capturing socio-spatial inequality in planetary urbanisation: A multi-dimensional methodological framework. *Cities* **2023**, *132*, 104076. [[CrossRef](#)]
55. Ros-Tonen, M.; Pouw, N.; Bavinck, M. Governing beyond cities: The urban-rural interface. In *Geographies of Urban Governance: Advanced Theories, Methods and Practices*; Springer International Publishers: New York, NY, USA, 2015; pp. 85–105.
56. Hiner, C.C. Beyond the edge and in between:(Re) conceptualizing the rural–urban interface as meaning–model–metaphor. *Prof. Geogr.* **2016**, *68*, 520–532. [[CrossRef](#)]
57. Ortiz-Báez, P.; Cabrera-Barona, P.; Bogaert, J. Characterizing landscape patterns in urban-rural interfaces. *J. Urban Manag.* **2021**, *10*, 46–56. [[CrossRef](#)]
58. Wu, Z.; Li, D. *Principles of Urban and Rural Planning*; China Architecture Publishing & Media Co., Ltd.: Beijing, China, 2010.
59. The Standing Committee of National People’s Congress. Land Administration Law of the People’s Republic of China. 2019. Available online: http://www.npc.gov.cn/npc/c2/c30834/201909/t20190905_300663.html (accessed on 25 March 2024).
60. Zhejiang Provincial Development and Reform Commission. The 14th Five-Year Plan for the Development of New Urbanization in Zhejiang Province. 2021. Available online: https://www.zj.gov.cn/art/2021/5/31/art_1229505857_2302659.html (accessed on 30 May 2024).
61. National Development and Reform Commission (NDRC). *Notice on Carrying Out the Work of the National Pilot Zone for Integrated Urban and Rural Development*; NDRC: Beijing, China, 2019. (In Chinese)
62. Han, J. Prioritizing Agricultural, Rural Development and Implementing the Rural Revitalization Strategy. *China Agric. Econ. Rev.* **2020**, *12*, 14–19. [[CrossRef](#)]
63. Ke, M.; Huang, Y.; Pan, Y.; Luo, C. Research on Building Urban-rural Integration Node in the Merged Township Government Resident Market Town Under the Background of Common Prosperity: A Case of Zhejiang Province. *Dev. Small Cities Towns* **2024**, *42*, 83–91.
64. Wang, Y.; Zhu, Y.; Yu, M. Evaluation and Determinants of Satisfaction with Rural Livability in China’s Less-Developed Eastern Areas: A Case Study of Xianju County in Zhejiang Province. *Ecol. Indic.* **2019**, *104*, 711–722. [[CrossRef](#)]
65. Taizhou Survey Team of the National Bureau of Statistics. A Study on the High-Quality Development of Private Economy in Taizhou: Based on a Comparative Analysis of Taizhou, Jiaxing and Jinhua. Available online: https://www.zjtz.gov.cn/art/2022/11/29/art_1229207956_3835358.html (accessed on 30 May 2024).
66. National Bureau of Statistics. *China Statistical Yearbook*; China Statistic Press: Beijing, China, 2021.
67. Office of the Leading Group of the State Council for the Seventh National Population Census. *Major Figures on 2020 Population Census of China*; China Statistics Press: Beijing, China, 2021. (In Chinese)
68. Harvey, D. *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change*; Wiley-Blackwell: Oxford, UK; Cambridge, MA, USA, 1991.
69. Zhang, W.; Chong, Z.; Li, X.; Nie, G. Spatial Patterns and Determinant Factors of Population Flow Networks in China: Analysis on Tencent Location Big Data. *Cities* **2020**, *99*, 102640. [[CrossRef](#)]
70. Luo, J.; Zhang, X.; Wu, Y.; Shen, J.; Shen, L.; Xing, X. Urban Land Expansion and the Floating Population in China: For Production or for Living? *Cities* **2018**, *74*, 219–228. [[CrossRef](#)]
71. Zhang, Z.; Lu, Y. China’s Urban-Rural Relationship: Evolution and Prospects. *China Agric. Econ. Rev.* **2018**, *10*, 260–276. [[CrossRef](#)]
72. Zhu, C.; Zhang, X.; Wang, K.; Yuan, S.; Yang, L.; Skitmore, M. Urban–Rural Construction Land Transition and Its Coupling Relationship with Population Flow in China’s Urban Agglomeration Region. *Cities* **2020**, *101*, 102701. [[CrossRef](#)]
73. Li, Y. Urban-Rural Interaction in China: Historic Scenario and Assessment. *China Agric. Econ. Rev.* **2011**, *3*, 335–349. [[CrossRef](#)]
74. Liu, S. The reform of rural land system: From the household contract responsibility system to the separation of three rights. *Econ. Res. J.* **2022**, *57*, 18–26.

75. Zhang, Y.-Q. Dilemma of China's Urbanization and Land Expropriation—Based on the Farmland Property Rights of Thinking. *J. Northwest AF Univ. (Soc. Sci. Ed.)* **2014**, *14*, 16–31. (In Chinese) [[CrossRef](#)]
76. Xing, Z.; Chen, Y.; Deng, C. The Evolution and Enlightenment of Urban-Rural Relations of the PRC from 1949 to 2019. *Reform* **2019**, *6*, 20–31.
77. The State Council of the PRC. *Notice on Further Deepening the Reform of Urban Housing System and Accelerating Housing Construction*; People's Daily: Beijing, China, 1998. (In Chinese)
78. Fei, X. Urban-Rural Development in China-My Lifetime Research Project. *Chin. J. Sociol.* **1993**, *01*, 3–13.
79. Xu, S. A review of the impact of urban-rural relations on rural areas and farmers. *Rural. Econ. Sci.-Technol.* **2014**, *25*, 122–125.
80. General Office of the State Council of the People's Republic of China. Notice on Cleaning Up and Rectifying Various Development Zones and Strengthening the Management of Construction Land. 2003. Available online: http://www.gov.cn/zwgc/2005-08/14/content_22445.htm (accessed on 25 March 2024). (In Chinese)
81. CPC Central Committee. *Suggestions for the 11th Five-Year Plan*; CPC Central Committee: Beijing, China, 2005. (In Chinese)
82. Yang, R.; Yang, Q. Restructuring the State: Policy Transition of Construction Land Supply in Urban and Rural China. *Land* **2021**, *10*, 1–17. [[CrossRef](#)]
83. Hu, J. Report to the Eighteenth National Congress of the Communist Party of China: Family March on the Path of Socialism with Chinese Characteristics and Strive to Complete the Building of a Moderately Prosperous Society in All Respects. 2012. Available online: https://www.gov.cn/ldhd/2012-11/17/content_2268826.htm (accessed on 25 March 2024). (In Chinese)
84. CPC Central Committee and The State Council of the PRC. *Strategy for Rural Revitalization (2018–2022)*; Xinhua News Agency: Beijing, China, 2018. (In Chinese)
85. Cheng, H.; Yang, Z.; Liu, S.J. Rural Stay: A New Type of Rural Tourism in China. *J. Travel Tour. Mark.* **2020**, *37*, 711–726. [[CrossRef](#)]
86. Lin, J.; Li, H.; Lin, M.; Li, C. Rural e-commerce in China: Spatial dynamics of Taobao Villages development in Zhejiang Province. *Growth Change Grow* **2021**, *53*, 12560. [[CrossRef](#)]
87. Crang, M.; Zhang, J. Transient Dwelling: Trains as Places of Identification for the Floating Population of China. *Soc. Cult. Geogr.* **2012**, *13*, 895–914. [[CrossRef](#)]
88. Liu, Y. Research on the urban-rural integration and rural revitalization in the new era in China. *Acta Geogr. Sin.* **2018**, *73*, 637–650.
89. Yang, G. Multiple Approaches of Rural Revitalization from the Viewpoint of Urban-rural Co-construction. *Planners* **2019**, *35*, 5–10.
90. Fang, C. Theoretical analysis on the mechanism and evolution law of urban-rural integration development. *Acta Geogr. Sin.* **2022**, *77*, 759–776.
91. Mubangizi, B. What is 'Rural' in South Africa, and Why Does it Matter? *Afr. J. Gov. Dev.* **2023**, *12*, 1–6. [[CrossRef](#)]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.