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Beyond Resource Transfer: The Action Logic and Innovative Patterns of Counterpart Assistance for Rural Revitalization in Western China

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Abstract

Regional inequality remains a persistent challenge for development governance. When external support is disconnected from local conditions or excessively displaces local actors, resource inputs may fail to generate sustainable development and even weaken local agency. To examine how external support can be transformed into sustainable local capacity, this study integrates neo-endogenous development theory with synergetics to develop an "exogenous–endogenous synergy" framework. Drawing on multiple rounds of fieldwork and interviews, the study finds that Guangdong–Guangxi collaboration has shifted from compensatory resource transfer towards capacity building and institutional embedding. This transformation operates through three interrelated mechanisms: coordinated guidance, multidimensional incentives, and digital empowerment. Variations in local resource endowments and ideational capacity give rise to three context-contingent pathways: integrated advancement, ideational activation, and resource mobilization, each representing a pathway towards an ideal-type model. The findings suggest that cross-regional collaboration may reduce regional inequality when transferred resources are converted into sustainable local capacity, thereby strengthening rather than substituting for local agency.

Keywords: counterpart assistance; regional inequality; rural revitalization; exogenous–endogenous synergy; collaborative governance; endogenous capacity

1. Introduction

In recent years, capital, technology, and skilled labor has become increasingly concentrated in already advantaged regions, further widening regional inequality in resource endowments, market opportunities, and development capacity. This raised a key question: how can exogenous interventions mitigate territorial inequality while strengthening endogenous capacity in disadvantaged regions? Given the persistent and cumulative nature of regional inequality [1], existing research has developed several related approaches, including place-based development [2], regional capacity building [3], and neo-endogenous development [4]. Although these approaches differ in emphasis, they share one premise: resource transfers alone may not reduce regional inequality. External support must also be tailored to the specific constraints, resources, and development capacity of particular places [5,6].

Yet external support does not automatically generate sustainable development outcomes. Its effectiveness depends on whether external resources can be aligned with local

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knowledge, institutions, social relations, and development needs [7]. Existing research has examined the institutional foundations of poverty reduction and regional cooperation [8,9], including the allocation of responsibilities across levels of government and mechanisms for cross-jurisdictional coordination [10,11]. Other studies have examined both policy implementation [12,13] and the fiscal and participatory constraints associated with assistance programs [14,15]. In practice, the United States [16], the European Union [17], Australia [18], and other countries and supranational organizations have promoted regional development through regional alliances, inter-organizational partnerships, and joint planning across multiple levels of government. These studies and practices underscore the importance of institutional arrangements, but they offer limited insight into how external support becomes embedded in local development through cross-regional collaboration and, more specifically, how transferred resources are converted into endogenous development capacity.

This article therefore asks how counterpart assistance converts exogenous inputs into endogenous development capacity and why this process follows different pathways across localities. To address this question, the article integrates neo-endogenous development theory with synergetics to develop the concept of "exogenous–endogenous synergy." Empirically, it focuses on the Guangdong–Guangxi collaboration, one of China's longest-running and most extensive east–west collaborative development initiatives. The analysis identifies three interrelated mechanisms through which external support becomes embedded in local development via cross-regional collaboration. The analysis further examines how these mechanisms operate under different local conditions, revealing distinct pathways through which externally transferred resources are transformed into locally embedded development capacity.

2. Theorizing Exogenous–Endogenous Synergy in Counterpart Assistance

2.1. Reframing the Meaning and Objectives of Counterpart Assistance

Rural areas in western China are largely concentrated in border and ethnic minority regions, where they commonly face weak infrastructure, undiversified industrial structures, labor out-migration, and limited market connectivity. Against this background, a key task in achieving sustained development is to transform dispersed local resource endowments into an industrial base capable of generating lasting value, employment, and income, while external actors and market networks are leveraged to facilitate the flow of factors and integrate local resources into broader production and market systems [19–21]. Reducing regional inequality therefore requires not only greater investment in public services and productive infrastructure [22], but also strategies tailored to place-specific conditions and designed to create alternatives to established development paths [23].

Meanwhile, as national policies have evolved and county-level governments have taken on more responsibility for implementation [24], the organizational arrangements and objectives of counterpart assistance have also shifted. Institutionally, counterpart assistance has developed into a multilevel intergovernmental arrangement that combines central coordination, provincial responsibility, and implementation by cities and counties. Cross-regional pairing also involves firms, social organizations, research institutions, and grassroots communities, creating a governance arrangement that combines target-based responsibility, administrative pressure, mobilization, and routine bureaucratic coordination [9]. Substantively, counterpart assistance has shifted from one-way transfer to sustained interaction and institutional embedding. Its central task is increasingly to link external capital, personnel, technology, and managerial knowledge with local knowledge, social relations, and resource endowments so that support reinforces rather than replaces endogenous capacity [25].

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This study defines counterpart assistance as an institutionalized process of cross-regional collaborative governance through which exogenous resources are aligned with endogenous development needs. Rather than relying on one-way transfer, this process builds mutually reinforcing relationships between external support and local action through sustained multi-actor collaboration. In less-developed regions, this process involves three interrelated tasks. First, resource provision channels external funding, personnel, and technology to address gaps in infrastructure, public services, and industrial support. Second, capacity building brings in knowledge, skills, and governance practices that strengthen local actors' market awareness, resource-mobilization capacity, and ability to pursue locally grounded development. Third, collaborative development creates longer-term relationships through which participating regions combine complementary strengths, coordinate interests, and share benefits, thereby improving the effectiveness and durability of cross-regional collaboration [26].

2.2. Theoretical Foundations of Exogenous–Endogenous Synergy

2.2.1. Neo-Endogenous Development Theory

Neo-endogenous development theory emerged as a critique of the binary opposition between exogenous and endogenous development. Rather than treating localities as either externally dependent or internally self-sufficient, it emphasizes relations between local action and external power, knowledge, and resources across multiple scales [27]. Sustainable regional development, from this perspective, must be grounded in local knowledge, resources, and participation while remaining connected to external influences that can enhance local potential [28]. When this perspective is applied to counterpart assistance, intervention is not a one-way transfer or the transplantation of a ready-made model, but an ongoing interaction between external support and endogenous capacity formation [29].

2.2.2. Synergetics and Complexity-Informed Collaboration

Although neo-endogenous development theory helps explain the functional relationship between exogenous inputs and endogenous capacity, it offers limited guidance on how the two are coordinated in practice. Synergetics, developed by the German physicist Hermann Haken, offers a perspective on how complex systems evolve. It posits that, as an open system continuously interacts with its environment, nonlinear interactions among its subsystems can drive a shift from disorder to macroscopic order and produce synergistic outcomes in which the whole exceeds the sum of its parts [30–32]. Three ideas are central to this perspective. First, synergistic effects arise from coordination and cooperation among components of a system [30]. Second, the order-parameter principle holds that a few key variables emerge as a system evolves and come to shape its overall trajectory and order [31]. Third, self-organization refers to a system's capacity to form new and stable structures under changing external conditions [30,32].

In China's counterpart assistance system, joint action by diverse actors around shared goals is initially organized through central administrative coordination rather than emerging spontaneously. To improve conditions in recipient regions, the central government designates assisting-recipient pairings by administrative directive and makes counterpart assistance a political mandate, thereby sustaining the flow of external resources to these regions [33]. To facilitate implementation, assisting regions then disaggregate responsibilities and delegate tasks to lower administrative levels, bringing firms and social organizations into a common collaborative framework [11]. Governments, firms, and social organizations in both assisting and recipient regions thus operate as interdependent subsystems. As resources and knowledge continue to flow in, recipient regions absorb these inputs and build capabilities, gradually generating endogenous development momentum. The collaboration

thereby shifts from external-resources-driven to local-capacity-driven [34]. As counterpart assistance deepens, mutual benefits can sustain a more stable and self-organizing collaborative system between assisting and recipient regions [35].

2.3. An Analytical Framework of Exogenous–Endogenous Synergy

Building on these arguments, the article develops an exogenous–endogenous synergy framework for China's institutional context. The framework proposes that counterpart assistance reduces regional inequality only when a multi-actor network, an adaptive collaborative process, and supporting mechanisms convert exogenous inputs into sustainable endogenous development capacity (Figure 1).

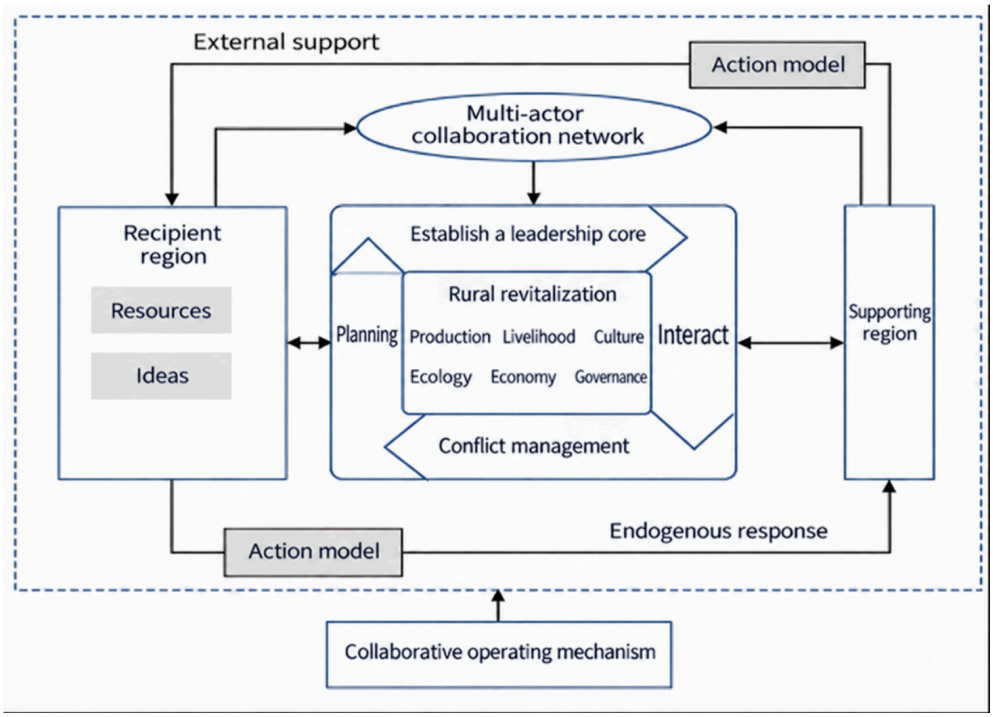


Figure 1. Analytical framework of exogenous–endogenous synergy in counterpart assistance.

First, a multi-actor network provides the organizational basis for directing resources and activating local agency. Counterpart assistance relies on a multilevel and heterogeneous configuration of actors [36]. Provincial and municipal governments in assisting and recipient regions serve as key coordinators, while firms, social organizations, research institutions, and grassroots communities contribute cross-sectoral resources and expertise [37,38]. Through formal pairing arrangements and informal interaction, these actors form relationships of collaboration and trust [39], that organize joint action across production, everyday life, culture, the economy, ecology, and public affairs.

Second, collaboration unfolds through four interrelated activities. The first is the formation of a leading core: actors with political authority and resource mobilization capacity set strategic direction, convene participants, and sustain dialogue [40]. The second is interactive communication: information-sharing platforms and regular dialogue connect governments, firms, and social organizations [41]. The third is conflict management: differences in priorities, benefit distribution, and implementation paths require deliberative forums and arrangements that reconcile interests while managing the tension between unity and diversity [42]. The fourth is joint planning: plans are formulated and revised in light of local needs and resource endowments, serving as guides for implementation, benchmarks for evaluation, and inputs for feedback and adjustment.

Third, supporting mechanisms sustain collaboration and help convert external support into endogenous capacity. They perform three main functions. Coordination aligns objectives, responsibilities, and actions through joint decision-making, information sharing, and a division of labor. Incentives support continued participation by combining institutional requirements, shared benefits, and collective identity. Capacity development enables local actors to absorb and adapt external resources and convert them into local capacity through personnel exchange, skills training, organizational learning, and knowledge-sharing platforms. Together, these mechanisms stabilize multi-actor collaboration and support a gradual shift from externally driven assistance toward locally sustained development.

3. Research Design and Case Context: The Evolution of Guangdong–Guangxi Collaboration

3.1. Case-Study Strategy

The article adopts a single-case study design to examine how exogenous inputs and endogenous development are coordinated in efforts to reduce regional inequality. The intensity of intergovernmental interaction, diversity of policy instruments, and the scope for local experimentation make Guangdong–Guangxi collaboration an illustrative case of exogenous–endogenous synergy.

The case was selected for three reasons. First, it reflects constraints common to many less-developed regions. Guangxi includes former revolutionary base areas, ethnic minority communities, border counties, and mountainous localities, and thus exhibits several structural constraints commonly associated with regional inequality. Guangdong–Guangxi collaboration is also an important component of China's regional coordination strategy, providing a useful setting in which to trace how external support interacts with local development. Second, the case is illustrative. The collaboration has a long history, involves heterogeneous actors and policy instruments, and has generated practices, including the "one county, one enterprise" arrangement, with potential relevance beyond this setting. Third, the case provides exceptional access to evidence. The research team is based in Guangxi and has maintained working relationships with organizations involved in the collaboration, which has facilitated repeated fieldwork, interviews, and access to documentary materials.

3.2. Data Sources and Analysis

The empirical material draws on interviews, participant observation, policy documents, meeting records, policy advisory reports, and news reports. Between March 2024 and October 2025, the research team conducted fieldwork in seven counties across Guangxi, including Longsheng, Fuchuan, and Daxin. Field visits covered county- and township-level Guangdong–Guangxi collaboration offices, rural revitalization departments, and 12 Guangdong–Guangxi collaborative industrial parks. Data were collected primarily through individual and group interviews with government officials, village cadres, and local residents. Table 1 summarizes the interviewees at selected field sites. To develop a fuller understanding of the Guangdong–Guangxi collaboration process, we adopted different recruitment and interview strategies according to participants' organizational affiliations, responsibilities, and relationships to the collaboration projects. The specific selection criteria are reported in Appendix Figures A1–A3. Government participants primarily included directors of local Guangdong–Guangxi collaboration offices who were responsible for decision-making and coordination, along with department heads involved in rural revitalization policy. Village cadres were primarily leaders of village-level organizations directly involved in project implementation. We included both current and former village cadres to capture the difficulties encountered during implementation and the changes that the projects brought to their villages. Government officials and village

cadres were interviewed individually. A common interview guide provided the basic structure, while follow-up questions were tailored to each participant's responsibilities. This enabled us to trace how collaboration projects moved from policy deployment and interdepartmental coordination to implementation at the grassroots level. Each interview lasted two hours on average.

Table 1. Profile of interview participants in L County.

Participant	Position or Functional Role	Affiliation	Organization Type	Sessions
Interviewee 1	Village resident and household representative	MH Village, LS County	Local community	2
Interviewee 2	Project supervisor responsible for local program implementation	Youcheng Rural Development Foundation	Nonprofit organization	2
Interviewee 3	Return migrant employed locally	MH Village, LS County	Local community and returning workforce	2
Interviewee 4	Secretary of the CPC MH Village Branch responsible for village governance and project coordination	MH Village, LS County	Village-level organization	2
Interviewee 5	Office Director responsible for coordinating collaboration programs	Collaboration Office of LS County	Government collaboration office	2
Interviewee 6	Grassroots official responsible for local project implementation and community coordination	LS County Government	Local government	2
Interviewee 7	Village resident and participant in local rural revitalization projects	MH Village, LS County	Local community	2
Interviewee 8	Staff member responsible for project liaison and administrative support	Collaboration Office of LS County	Government collaboration office	1
Interviewee 9	Deputy Director responsible for rural revitalization policy and project coordination	LS County Rural Revitalization Bureau	County government department	1
Interviewee 10	Office Director responsible for coordinating collaboration programs	Collaboration Office of LS County	Government collaboration office	1
Interviewee 11	Section Chief responsible for rural revitalization project implementation	LS County Rural Revitalization Bureau	County government department	1
Interviewee 12	Office Director responsible for coordinating collaboration programs	Collaboration Office of LS County	Government collaboration office	1
Interviewee 13	Office Director responsible for coordinating collaboration programs	Collaboration Office of LS County	Government collaboration office	1
Interviewee 14	Section Chief responsible for rural revitalization project administration and monitoring	LS County Rural Revitalization Bureau	County government department	1

Note. All place names are anonymized using initial-letter codes derived. The study involved 14 participants and 21 interview sessions.

To examine the practical effects of the collaboration projects, we also recruited residents during fieldwork in jointly developed industrial parks and recipient villages. Participants

included both long-term local residents and those who had returned to their villages for employment or entrepreneurship as local development conditions improved. Residents were interviewed in small groups of two to three, with each interview lasting approximately three to four hours. We then used snowball sampling to identify additional participants with direct knowledge of the projects, based on referrals from residents interviewed in the preceding round. This enabled us to incorporate a wider range of experiences and perspectives on the collaboration process.

The interview guide was tailored to different participant groups. Interviews with officials from Guangdong–Guangxi collaboration offices and rural revitalization departments focused on the policy context, interdepartmental division of responsibilities, and the policy implementation process. We further asked where coordination problems emerged, what institutional and practical factors gave rise to them, and how the relevant departments responded. Interviews with residents instead focused on how collaboration projects were implemented locally and how they affected employment, production, business activities, and everyday life. In total, we conducted 72 interviews with 48 unique participants, including 21 government officials, 13 village cadres, and 14 residents. Twenty-four participants also took part in follow-up interviews, which were included in the total interview count. The audio recordings were transcribed, yielding approximately 340,000 Chinese characters of interview data.

Government officials and village cadres constituted a substantial proportion of the sample (34 of 48 participants). Because many of them were directly involved in implementing the collaboration, their accounts may reflect the perspectives of implementers, which may differ from those of residents and other beneficiaries. We mitigated this potential bias by triangulating interview data with field observations and documentary materials, but the findings should still be interpreted with this limitation in mind. Comparing accounts across these groups enabled us to examine the Guangdong–Guangxi collaboration process at multiple interconnected levels, from policy deployment and organizational implementation to collaboration outcomes.

For data analysis, we drew on the Gioia methodology [43], using first-order and second-order analysis to build a systematic path from raw empirical material to aggregate constructs. This procedure made it possible to retain a visible connection between empirical evidence and the theoretical concepts derived from it; the resulting data structures and representative evidence are presented in Tables 2–4.

Several procedures were used to strengthen the credibility and analytical validity of the study. During data collection, key factual information was repeatedly checked with interviewees. Interview and participant-observation materials were then triangulated against policy documents, meeting records, policy advisory reports, and news reports, with selected secondary materials reported in Table 5. During coding, team members cross-checked coding decisions and resolved disagreements through collective discussion until a common interpretation was reached. The analysis was also iterative rather than linear. We moved repeatedly between the raw material, relevant literature, and theoretical memos, revising relationships among emerging concepts as the analysis developed. This process continued until the mechanisms and development pathways formed a stable and internally coherent explanatory structure.

Table 2. Illustrative evidence for the Coordinated guidance mechanism.

Aggregate Construct	Second-Order Theme	First-Order Concept	Illustrative Evidence
Coordinated guidance mechanism	Goal-setting and planning guidance	Framework agreement defines the direction of collaboration	'We will follow the spirit of the Framework Agreement on Guangdong–Guangxi Collaboration during the Fourteenth Five-Year Plan, taking account of what Guangxi needs and what Guangdong can provide . . .'
		Top-level plans are linked to annual tasks	'The Guangdong–Guangxi framework agreement sets the broad direction. Each year, we then refine it in light of annual tasks and local conditions. At the project level, we break down the agreement's requirements into responsibilities for departments and individual projects, according to that year's priorities.'
	Organizational coordination	Standing committee members jointly lead the work, with county leaders responsible for assigned projects	'Standing committee members from Guangdong and Guangxi are jointly responsible for Guangdong–Guangxi collaboration. During project implementation, county-level leaders take direct responsibility for their assigned projects.'
	Routine communication and scheduling	Monthly meetings track progress and resolve implementation problems	'We also hold monthly work meetings. Project implementation units and the relevant townships report their progress in turn, and we coordinate solutions to problems arising during construction to keep the projects on track.'

Table 3. Illustrative evidence for the multidimensional incentive mechanism.

Aggregate Construct	Second-Order Theme	First-Order Concept	Illustrative Evidence
Multidimensional incentive mechanism	Formal institutional incentives	Standardized fund disbursement and project review	'Second, we tightened process controls. We allocate funds in accordance with the rules, standardize disbursement, specify the procedures and time limits, standardize project review, and expand monitoring methods.'
		Dual-signature requirements constrain the use of funds	'We also apply a dual-signature rule to payments. Collaboration funds cannot be disbursed without the signature of a seconded Guangdong cadre, and they cannot be diverted to other uses.'

Table 3. *Cont.*

Aggregate Construct	Second-Order Theme	First-Order Concept	Illustrative Evidence
Multidimensional incentive mechanism	Material reciprocity	Brand certification expands access to product markets	'As soon as buyers heard that the products came from Guilin and were ecological products certified under Shenzhen Quality, they rushed to place orders.'
		Improved product quality increases bargaining power	'This year we can hold our heads high. The quality of our mangoes is widely recognized. If buyers push the price down, I will not sell to them.'
		Professional assistance sustains a sense of personal value	'As a volunteer in the Silver-Age Action, I feel very proud. After retirement, I can still use my professional experience to help schools and students where it is needed. For me, that is a continuation of what I can contribute. Seeing my experience put to practical use makes this work meaningful.'
	Relational identification	Seconded cadres develop a dual sense of belonging	'I am from Nanshan, and I am also from Longsheng. Since coming to work here, I have spent more time with local cadres and residents and come to know the place better. Over time, I have come to see Longsheng as part of my work and life, rather than seeing myself only as a cadre sent here to provide assistance.'
		Long-term assistance fosters attachment to Guangxi	'Four years of assistance in Guangxi has been a precious experience for us . . . Guangxi has become our second home.'

Table 4. Illustrative evidence for the digital empowerment mechanism.

Aggregate Construct	Second-Order Theme	First-Order Concept	Illustrative Evidence
Digital empowerment mechanism	Digitally enabled collaborative management	Information platform enables real-time monitoring and adaptive scheduling	'Since the Guangdong–Guangxi collaboration information platform was built, many activities can be brought together and coordinated online. We can see how work is progressing across places and projects and adjust plans as implementation unfolds.'
	Digital oversight and feedback	Information technology enables continuous tracking of project progress	'We introduced information technology into project management, so we can track the stage each project has reached and how much has been completed. If progress falls behind or problems arise during implementation, we can identify them and make adjustments promptly.'

Table 4. *Cont.*

Aggregate Construct	Second-Order Theme	First-Order Concept	Illustrative Evidence
Digital empowerment mechanism	Applications of digital technology	Online classrooms facilitate the sharing of educational resources	'Through synchronous online classes and joint teaching activities, we share Nanshan District's course materials and teaching experience with Longsheng over the internet. Mountain schools no longer have to rely entirely on local teachers: they can take classes and plan lessons with Shenzhen schools, giving students access to a wider range of courses.'
		Livestream commerce creates new routes to employment and income	'Now that I have learned to sell products by livestream, I no longer have to leave home to find work. I can sell agricultural products from home, look after my family, earn extra income, and arrange my time more flexibly.'
		Online government services enable cross-regional processing	'I never thought I could handle Wuzhou tax matters here in Fengkai . . . It took less than five minutes. That is wonderful. I no longer have to worry about travelling across provinces for approval!'

Table 5. Selected secondary sources on Guangdong–Guangxi collaboration.

Document Title	Document Type	Selected Excerpt
Notice on Managing 2024 Guangdong Assistance Funds for Guangxi Collaboration Projects	Administrative notice	'Strengthen the management of collaboration fund projects.' In 2024, each partner county was to plan approximately 10 projects with a total budget of no more than RMB 55 million; each partner city could, in principle, allocate up to RMB 2 million to consumption-based collaboration, cadre training, and related projects.
Detailed Rules for Asset Management of Guangdong–Guangxi East–West Collaboration Projects (Revised 2024)	Asset management rules	'Project assets shall be managed as public-benefit assets, income-generating assets, or household-level assets.' Ownership of income-generating assets must be specified. County-level departments maintain asset registers, oversee operations and maintenance, and supervise the distribution of proceeds; audit departments assess asset performance annually.
Measures for the Management of Guangdong–Guangxi East–West Collaboration Funds	Fund management measures	'Project management expenses shall be charged at actual cost, up to 1% of the funds.' Funds should, in principle, be allocated to projects in the project pool. Project plans and related information must be disclosed at county, township, and village levels. Disbursement requires dual-signature approval by the project authority and the Guangdong collaboration office stationed in Guangxi.

Table 5. *Cont.*

Document Title	Document Type	Selected Excerpt
2025 Work Priorities of the Guangxi Department of Agriculture and Rural Affairs	Annual work priorities	'Support each partner county in developing at least one distinctive industry and each partner city in developing at least one industrial cluster.' The plan also advances Shenzhen Quality certification, the vocational education and employment alliance, and digital villages. New employment in partner areas must be no lower than in the preceding year.
2024 Government Work Report of the Guangxi Zhuang Autonomous Region	Government work report	'East–west collaboration ranked first among western provinces' in the 2022 assessment. The report identified deeper Guangdong–Guangxi collaboration as a 2024 priority for consolidating poverty-reduction gains and raising farmers' incomes.
2025 Government Work Report of the Guangxi Zhuang Autonomous Region	Government work report	'Continue to deepen Guangdong–Guangxi east–west collaboration and the Ten Thousand Enterprises Revitalizing Ten Thousand Villages initiative.' The measures appear under efforts to strengthen development capacity in formerly impoverished populations and areas, alongside industrial and employment assistance and the stabilization of migrant employment.
2024 Department-wide Performance Evaluation Report of the Shenzhen Bureau of Rural Revitalization and Collaboration Exchanges	Performance evaluation report	'Helped 13,600 people improve their skills and nearly 80,000 secure employment.' The report states that Shenzhen and four Guangxi cities jointly organized labor collaboration activities, including the Spring Breeze Action and Employment Assistance Month, and established the Guangdong–Guangxi High-Quality Vocational Education and Employment Alliance.

3.3. The Trajectory of Guangdong–Guangxi Collaboration

Guangdong–Guangxi collaboration began with the national launch of east–west poverty-alleviation cooperation in 1996. Starting in 2016, the two regions further institutionalized the partnership through the Framework Agreement on Guangdong–Guangxi Poverty-Alleviation Collaboration and a series of sectoral plans and implementation programs. On 25 February 2021, China announced the completion of its nationwide poverty-eradication campaign and shifted its policy focus toward consolidating poverty-reduction gains and advancing rural revitalization. Poverty-alleviation cooperation was subsequently broadened into east–west collaboration. The policy emphasis also shifted from compensatory transfer toward capacity building. Infrastructure investment, industrial development, employment support, and personnel exchange were increasingly integrated rather than provided separately.

3.3.1. From Infrastructure Deficits to Industrial Development and Institutional Capacity

As basic conditions improved, collaboration increasingly focused on industrial development and employment. The two regions jointly developed industrial parks and implemented the "Shenzhen Quality" initiative, encouraging Guangdong firms to launch projects and establish operations in Guangxi. By June 2023, the collaboration had led to the establishment 112 industrial parks and attracted RMB 8.328 billion in investment [44]. These projects created local jobs and encouraged some migrant workers to return.

> *My family told me that a factory had opened in the village and was hiring a lot of workers. The pay in Shenzhen was decent, but my home is here. I came back, and now I take home more than RMB 5000 a month. That is better than working far away from my family.*
>
> (Interview with a returned resident of J County, 12 September 2025)

Industrial development was accompanied by institutional experimentation and changes in local governance. In Village D in County D, for example, local authorities introduced a points-based system that linked accumulated points to benefits for residents and encouraged participation in village development, industrial activities, and community affairs. County D in City B also introduced a smart social governance platform to reduce the need for repeated administrative visits and move toward a "one visit at most" service model. The trajectory thus evolved from infrastructure provision to industrial development and institutional capacity, combining short-term resource support with longer-term capacity building.

3.3.2. Combining Vertical Coordination with Horizontal Collaboration

Over time, the collaboration developed a governance structure combining vertical coordination and horizontal collaboration. Vertically, Guangdong built on its earlier poverty-alleviation working group to establish a dedicated Guangdong–Guangxi task force. Together with relevant Guangxi departments, it created collaboration offices at provincial, partner-city, and county levels. Joint conferences, sectoral plans, co-located offices, and digital platforms clarified responsibilities and facilitated information exchange across administrative scales. The offices and the task force became hubs for consolidating information, matching resources, and coordinating implementation.

Horizontally, youth leagues, women's federations, civil-affairs departments, and other agencies mobilized social resources in Guangdong and connected firms, social organizations, professional groups, and individual citizens to assistance projects. China General Nuclear Power Group, for example, contributed RMB 61.4651 million in assistance funds and helped sell agricultural products worth RMB 35.1368 million [45]. The Silver-Age Action dispatched 299 retired medical and educational specialists and 58 agricultural technicians to participating localities in Guangxi [46]. Within this arrangement, governments coordinated and designed policy, firms supplied capital and technology, and social organizations provided training, research, and advisory support. Their complementary roles helped translate external resources into locally grounded benefits.

3.3.3. From One-Way Assistance to Reciprocal Development

Over time, Guangdong–Guangxi collaboration shifted from one-way assistance to more reciprocal forms of cooperation. Material transfer and project-based support were increasingly combined with cross-regional integration of industrial chains and markets, systematic human-capital development, and more stable forms of personnel support. Together, these arrangements have strengthened shared interests across regions and moved the partnership toward more mutually beneficial development.

Market-oriented development and industrial-chain integration have been central to turning assistance relations into more stable supply-and-demand linkages. To create predictable outlets for Guangxi's distinctive agricultural products, the two regions used "Shenzhen Quality" certification to connect local producers to higher-value consumer markets in the Guangdong–Hong Kong–Macao Greater Bay Area. Certification and market access supported product standardization, branding, and value addition. A grassroots official in T County, City B, described the change as follows:

> "*In the past, the fruit rotted in the fields; now nearly all of it can be sold*". (Interview, 14 October 2024)

Labor collaboration also shifted from worker transfer toward systematic human-capital development. Vocational education and employment alliances, together with "first-stop employment service stations" in Guangxi, strengthened occupational skills and labor-market adaptability. The arrangements generated benefits in both regions. They

provided Guangdong firms with a more reliable pool of trained workers while improving employment quality, stability, and income prospects for workers from Guangxi. Skills development, higher-quality employment, and industrial restructuring thereby became mutually reinforcing.

Personnel support addressed another constraint in less-developed regions: the difficulty of attracting and retaining highly skilled professionals. Through the Silver-Age Action, 299 retired medical and educational specialists from Guangdong were dispatched to Guangxi. Their contribution extended beyond short-term technical assistance. By drawing on accumulated experience and professional networks, they trained local personnel, introduced external resources, and helped convert temporary support into institutional capability.

3.3.4. Converting External Support into Endogenous Capacity

The sustainability of collaboration depends on whether external projects are converted into local organizational, knowledge, and industrial capabilities. Guangdong–Guangxi collaboration pursued this conversion by sequencing the introduction of outside actors, expanding training, and supporting the mobilization of local resources. In some villages, these measures repositioned local actors from project recipients to active operators.

The coordinated introduction of external actors brought new resources and expertise into rural governance. In May 2022, County L launched a village common-prosperity demonstration project involving the collaboration task force, the government of Nanshan District in Shenzhen, Tencent, the Tencent Charity Foundation, and the YouChange China Social Entrepreneur Foundation. The project incorporated villagers into planning and established a villager-owned company, strengthening local participation in project development and operation. A governance arrangement gradually emerged in which villagers took the lead while external organizations provided support.

As governance arrangements developed, knowledge and skills training became an important means of strengthening the capacity of local officials and seconded personnel. Since 2021, Guangxi has organized 412 training programmes for officials, involving 27,800 attendances, to improve practical skills and policy understanding. Training for villagers and officials also broadened local perspectives and provided a knowledge base for resource conversion and industrial development.

Changes in governance arrangements and local perspectives also enabled the collaboration to turn resource endowments into industrial opportunities. County F in City X possessed distinctive geological landscapes and a reputation for longevity, but visitors had historically stayed briefly and spent relatively little. With support from a cultural-tourism team, the county developed a longevity-culture experience zone around the theme of "the source of longevity". The project now attracts more than 150,000 visitors annually and has supported the growth of homestays, farm restaurants, and sales of specialty agricultural products. Previously underused endowments were thus converted into local industrial capability.

> "*We now attract visitors through our own culture. We no longer sit and wait for outsiders to come and help us*". (Interview with the manager of a homestay demonstration project in F County, 17 January 2025)

4. Producing Exogenous–Endogenous Synergy: Operating Mechanisms

The Guangdong–Guangxi case raises three connected questions: how collaboration is initiated, how it is sustained, and how it produces outcomes. Responses to recurring implementation problems gradually institutionalized three mechanisms: coordinated guidance, multidimensional incentives, and digital empowerment.

4.1. Coordinated Guidance

The Guangdong–Guangxi collaboration has evolved over more than two decades, with changing challenges and participants. Maintaining consistent action while coordinating responsibilities has therefore become a central governance challenge. To address this, Guangdong and Guangxi developed a coordination and guidance mechanism combining action planning with a multilevel organizational structure of paired-assistance offices and working teams.

Between 2021 and 2023, agreements such as the Framework Agreement on Comprehensively Deepening Guangdong–Guangxi Cooperation established common objectives and priorities while allowing local governments flexibility to adapt policy instruments to local conditions. Paired-assistance offices and working teams at autonomous-region, municipal, and county levels further coordinated responsibilities, exchanged information, and matched resources through regular meetings and task lists.

Under this structure, between 2021 and 2023, the Agricultural Development Bank of China provided RMB 88.34 million in education-related loans, while charitable donations reached RMB 10.33 million and supported 788 students from disadvantaged backgrounds. These outcomes suggest that formal coordination reduced participation costs for external organizations and helped dispersed resources around shared development objectives.

4.2. Sustaining Collaboration Through Multidimensional Incentives

Counterpart assistance is a long-term undertaking spanning region, administrative levels, and organizational sectors. Sustaining it requires more than administrative direction: actors must operate under predictable rules, recognize legitimate benefits, and develop durable relational commitment. Guangdong–Guangxi collaboration combines formal institutional constraints, material reciprocity, and relational identification to stabilize participation over time.

Guangdong–Guangxi collaboration established formal rules to govern project implementation. To protect earmarked funds, the two regions jointly issued regulations including the Detailed Rules for Asset Management of Guangdong–Guangxi East–West Collaboration Projects and the Management System for the Use of Social-Assistance Funds in Guangdong–Guangxi Collaboration. A dual-signature system requires disbursements to be approved by both Guangdong cadres second to Guangxi and local Guangxi officials. These rules strengthen accountability and reduce the risk of resource diversion.

Material reciprocity provides a second basis for sustained participation across assisting and recipient regions, governments and firms, and firms and local communities. The "Shenzhen Quality" initiative increases the value of Guangxi's agricultural products while supplying higher-value food to the Greater Bay Area. Labor collaboration eases recruitment constraints among Guangdong firms while increasing worker incomes in Guangxi. The Silver-Age Action enables retired professionals to continue contributing socially while providing recipient localities with sustained expertise. When collaboration accommodates legitimate organizational and individual interests, participants are more likely to continue investing in it.

Relational identification provides a third basis for continued collaboration. Geographic proximity, social relations, and accumulated experience jointly shape attachment between people and places [47]. Guangdong and Guangxi are the only contiguous provincial-level jurisdictions paired under the east–west collaboration programme. They are connected by watersheds, geographic proximity, related customs, and the cultural narrative of "drinking from the same river". This sense of common origin and mutual aid may move collaboration beyond instrumental exchange towards a regional community marked by solidarity and belonging.

4.3. Digital Empowerment Mechanism

As the scope of collaboration expands and governance demands increase, enhancing coordination efficiency and expanding the reach of collaborative outcomes have become central challenges for Guangdong–Guangxi collaboration. Digital platforms provide local actors with new ways to access knowledge, integrate resources, and strengthen their capacity for action. They can reduce local actors' information-acquisition costs [48], connect dispersed information, organizations, and products [49], and thereby break down information barriers among participants and reduce the coordination costs of cross-regional, multi-actor collaboration [50].

Against this background, Guangdong and Guangxi have advanced digital empowerment by building information platforms and promoting digital applications to enhance information integration and resource coordination. System-level information platforms and locally deployed digital applications work in tandem and together constitute the digital empowerment mechanism of Guangdong–Guangxi collaboration. Specifically, system-level platforms broaden local actors' access to external information and help align it with local needs, while locally deployed applications integrate this information into local production processes and everyday practices, enabling external resources to be gradually absorbed and transformed into local capacity.

In 2022, the Guangxi office responsible for Guangdong–Guangxi collaboration established an integrated information platform organized around checklists, ledgers, electronic records, and clear assignment of responsibilities. The platform enabled real-time monitoring and dynamic scheduling. Monthly reports allowed comparisons across jurisdictions, prompt identification of delayed tasks, and assignment of responsibility to specific units. Project progress, expenditure, cadre visits, and other implementation activities were recorded throughout implementation, generating data for early warning, correction, supervision, and auditing. The platform thus enhanced information visibility, responsibility traceability, and risk control.

The platform thereby increased information visibility, traceable responsibility, and risk control. Online classes delivered instructional resources to areas facing teacher shortages and limited educational provision. Digital commerce initiatives connected Guangxi producers more rapidly to Greater Bay Area markets and increased value addition and improved distribution efficiency. In County D, City B, a smart social governance platform used remote video links for online mediation, allowing residents to resolve disputes and access administrative services closer to home. These applications embedded digital technology in routine governance rather than treating it as an external technical add-on.

5. Context-Contingent Pathways of Exogenous–Endogenous Synergy

The Guangdong–Guangxi case reveals a general logic underlying exogenous–endogenous synergy while also showing that rural areas in western China do not all face the same constraints of limited resources or underdeveloped ideas about development. Instead, their starting conditions vary considerably. Some localities lack both resources and development ideas; others have ideas but lack the resources to act on them; still others have substantial resources but have yet to develop an effective strategy. This heterogeneity calls for context-sensitive ways of coupling external support with endogenous initiative.

The formation of endogenous capacity depends not only on external inputs and local resource endowments, but also on whether local actors can challenge established ways of thinking and develop new ideas [51]. Accordingly, drawing on cross-case comparisons and structured data analysis of Guangdong–Guangxi collaboration, we identify three context-contingent action models based on differences in resource reconfiguration and ideational innovation among recipient localities (Figure 2): integrated advancement, ideational activa-

tion, and resource mobilization. These pathways are not mutually exclusive. They overlap in practice and may converge toward an ideal type in which resources and developmental ideas develop in tandem. Tables 6–8 present the data structures and illustrative evidence.

Table 6. Illustrative coding evidence for integrated advancement.

Aggregate Construct	Second-Order Theme	First-Order Concept	Illustrative Evidence
Integrated advancement (Combined resource and ideational inputs)	Resource availability (low)	Weak industrial and business base	'In the past, the village mainly relied on farming. Many young people left to work elsewhere. We had no established industry, so it was difficult to build one quickly on our own.'
		Limited infrastructure and operating capacity	'After the project arrived, roads and parking facilities gradually improved. The outside team also showed us how to run homestays and manage the business.'
	Ideational innovation (low)	Limited recognition of how existing resources could support industry	'The terraces and old houses had always been here, but we had never seriously considered how to use them to develop an industry.'
		External actors prompt new ways of combining resources	'Only after the task force and the foundation came did we begin to think about bringing the terraces, old houses, ethnic culture, and tourism together.'

Table 7. Illustrative coding evidence for ideational activation.

Aggregate Construct	Second-Order Theme	First-Order Concept	Illustrative Evidence
Ideational activation (Strong resource base, limited development strategy)	Resource availability (high)	Established cultural and tourism resources	'We are not short of resources here. We have the natural environment, a longevity culture, and tourist attractions. Tourism did not have to start from scratch.'
		Existing industry provides a basis for further development	'The scenic area and basic tourism facilities were already in place. The main problem was that visitors stayed only briefly, and there were too few activities that encouraged them to spend more.'
	Ideational innovation (low)	Existing development strategy is relatively narrow	'Previously, tourism centered largely on the scenic area itself. We had not thought through how to combine the natural environment, culture, and wellness resources.'
		External ideas reshape the development strategy	'The biggest change the assistance team brought was not money, but a new way of thinking. We used to focus on what resources we had; later, we began to consider how to combine them and turn them into products.'

Table 8. Illustrative coding evidence for resource mobilization.

Aggregate Construct	Second-Order Theme	First-Order Concept	Illustrative Evidence
Resource mobilization (Development ideas in place, resources scarce)	Resource sufficiency (low)	Insufficient funding and implementation capacity	'We had the idea, but implementing it was too costly. Relocating the entire village also meant arranging resettlement, infrastructure, and subsequent industries. The locality could hardly bear all this on its own.'
		Insufficient employment and public-service resources	'Residents were most concerned about how they would make a living after moving. Employment, education, and health care had to be addressed together; simply relocating people would not work.'
	Ideational innovation (high)	Local actors develop a proposal early	'We had long considered relocating the old village as a whole and linking heritage protection with tourism. We did not start thinking about it only after assistance funds became available.'
		Locally generated ideas precede external resources	'We had discussed the proposal before, but funding, technical support, and follow-up arrangements were lacking, so we could not implement it. When collaboration resources arrived, the original idea gradually became feasible.'

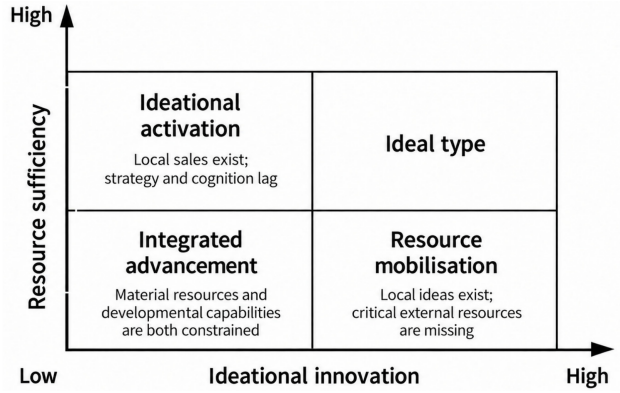


Figure 2. Context-contingent action models of exogenous–endogenous synergy.

To distinguish these models, we classified recipient localities as relatively high or low in resource sufficiency and ideational innovation, using coded interview evidence in Tables 6–8 and pre-collaboration conditions as the baseline. Resource sufficiency captured local economic foundations, infrastructure, and implementation capacity. Ideational innovation captured whether local actors had developed resource-combination strategies before external support or adopted ideas introduced by external actors.

5.1. Integrated Advancement Through Resource and Ideational Activation

Integrated advancement applies where recipient localities face both limited material resources and weak development capacity. External actors combine material inputs with ideational support to activate the local development system. Village M in City X illustrates this pathway. The village, located on the southwestern slopes of the Yuecheng Mountains, has a distinctive terraced agricultural landscape and valuable agricultural heritage resources. Yet a weak industrial base and long-term out-migration left it lacking both development resources and organizational capacity.

> "*In the past, households in Village M were scattered along the mountain, farm incomes were very low, the agricultural base was weak, and many villagers had no choice but to leave for work.*" (Interview with the head of the Guangdong–Guangxi collaboration office in L County, 15 September 2025)

Village M's agriculture–culture–tourism industry emerged through a coordinated package of assistance. Since 2021, the task force has acted as lead organizer and brought Tencent, the Rural Development Foundation, and other partners into a joint working group. Assistance funds supported parking facilities, road widening, and wastewater pipelines. Foundation specialists also helped establish a locally based management team, producing an arrangement in which villagers led decision-making while external organizations supplied resources and expertise.

> "*Today, villagers' way of life has changed dramatically. Some have renovated old houses and courtyards, opened homestays and farm restaurants, become business owners, and earned substantial incomes*" (Interview with the head of the Guangdong–Guangxi collaboration office in L County, 15 September 2025)

Integrated advancement combines material provision with ideational activation. External support first relaxes material constraints and then expands local actors' capacity to identify and pursue development opportunities. As local agency strengthens, external inputs and endogenous action become mutually reinforcing.

5.2. Ideational Activation Through Cognitive Reframing

Ideational activation applies where a locality possesses relevant resource endowments but lacks an effective development strategy or governance frame. External support operates primarily through concept introduction, knowledge transfer, professional demonstration, and cognitive reframing. This pathway emerges where local resources already exist but actors have not yet recognized how those resources can support development.

The rural-complex project in County F, City X, illustrates this pathway. Although early Guangdong assistance improved infrastructure, the decisive intervention was an integrated "ecology + culture + tourism" concept introduced during project planning. The Guangdong team did not replace local decision-makers. Targeted training and demonstration sites helped cadres, villagers, and firms develop a shared understanding that culture could guide industrial development and that industry could, in turn, finance cultural preservation. With this support, County F integrated longevity culture, environmental improvement, and tourism, converting an existing resource advantage into development capability. As one county official explained,

> "*The greatest change the assistance team brought us was not money, but a new way of thinking*". (Interview, 17 November 2024)

Ideational activation can therefore be understood as a form of soft institutional embedding. External actors contribute less by substituting material or technical capacity than by reshaping local cognitive frames and action logics. Concepts and methods introduced from

Guangdong in industrial planning, digital governance, and organizational coordination provide reference points for local institutional adjustment. By strengthening capacities for self-renewal, this pathway may move recipient actors from passive acceptance towards locally initiated innovation.

5.3. Resource Mobilization for Locally Generated Innovation

Resource mobilization applies where a supported locality has developed a locally grounded proposal but lacks the finance, technology, expertise, or market access required for implementation. External support supplies these critical resources and uses them to leverage local innovation. The pathway is therefore most relevant where developmental ideas are comparatively strong but material and network resources remain scarce.

In 2017, the manager of a scenic area in County R, City X, proposed relocating an old village of stilt houses as an integrated whole. The proposal was locally generated, but the high cost of relocation and uncertainty concerning post-relocation employment and livelihoods weakened resident support.

> "*At the time, my relatives and brothers said they could go there to work, but moving both the house and the whole family there to live was simply impossible.*" (Interview with a resident of R County, City X, 16 July 2024)

The collaboration introduced funding, technology, and professional personnel to reduce these uncertainties. To address employment, the assisting region invested RMB 1 million in the Miao cultural performance, creating more than 120 jobs for relocated households and nearby residents. A further RMB 1 million financed a smart-classroom distance-education project. Ten groups comprising 60 medical professionals were dispatched to township health centers in County R and provided technical training to more than 600 participants. These interventions improved education and healthcare while reducing some of the risks surrounding implementation of the local proposal.

Resource mobilization is distinguished by the use of external inputs to realize locally generated plans rather than to create continuing dependence. External resources support implementation but do not substitute for local project ownership. When recipient localities absorb and recombine these inputs, external support may become a more durable driver of local development. The pathway can thereby support a shift from externally propelled growth towards endogenous development.

5.4. Embedded Symbiosis as an Ideal Type

Although the three pathways begin from different combinations of resources and ideas, each may move towards an ideal type of embedded symbiosis. In this condition, external and endogenous actors form a development community through joint value creation, shared risks, and reciprocal benefits. Capital, technology, and managerial experience from the assisting region become embedded in the recipient region's social networks and industrial ecology. Local agency is expressed not only through more effective resource use but also through the capacity to generate and circulate distinctive cultural value, ecological products, or governance practices. Repeated interaction may generate institutional trust, stable knowledge-sharing platforms, complementary industrial chains, and flexible coordinating arrangements. Counterpart assistance then becomes less a donor–beneficiary relationship than a durable form of co-development.

6. Discussion and Conclusions

The findings show why the volume of transferred resources cannot by itself explain the durability of counterpart assistance. External finance, personnel, technology, and administrative expertise generated opportunities, but produced endogenous capacity only when

coordinated guidance connected actors, multidimensional incentives sustained participation, and digital infrastructures improved information flows and adaptive implementation. Conversion, rather than transfer, is the central process: repeated interaction, institutional embedding, and learning turn external inputs into locally usable capabilities. This process perspective helps explain why similar instruments produce different outcomes across recipient localities.

The article also brings neo-endogenous development theory into dialogue with a synergetic perspective on collaboration. Neo-endogenous development highlights connections between local agency and external networks, whereas synergetics directs attention to how interdependent actors align and stabilize their behavior. Their combination distinguishes general operating mechanisms from context-contingent pathways. Coordination, incentives, and digital infrastructure explain how synergy emerges; integrated advancement, ideational transformation, and resource mobilization explain how that process varies with local resources and development orientations. The framework thereby connects collaborative governance to place-specific trajectories of capacity formation.

Several implications extend beyond the Guangdong–Guangxi case. Cross-regional programs are more likely to support durable development when external actors diagnose local conditions, preserve local discretion, and build reciprocal relations with firms, social organizations, and communities. Transferability, however, should not be assumed. China's paired-assistance system is embedded in a hierarchical administrative structure able to assign responsibilities, mobilize resources across jurisdictions, and monitoring implementation through designated accountability mechanisms. Where comparable steering capacity is absent, similar functions may rely on contractual partnerships, intermediary organizations, fiscal incentives, or negotiated intergovernmental arrangements.

The analysis has four limitations. First, a single embedded case supports process tracing and within-case comparison but cannot establish how frequently the identified mechanisms operate elsewhere. Second, some evidence relies on retrospective accounts that may be affected by recall or presentation bias, although documentary triangulation reduces this risk. Third, anonymization protects participants but limits the contextual detail available for independent assessment. Finally, the design provides neither a counterfactual nor a causal estimate of program effects. Future research should compare paired relationships with different institutional capacities, trace change longitudinally, and combine qualitative mechanism analysis with outcome indicators and credible comparative designs.

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Institutional Review Board Statement: Ethical review and approval for this study were waived in accordance with Chapter 3, Article 32 of the Ethical Review Regulations for Life Sciences and Medical Research Involving Humans issued by the Chinese government, as this study is a non-interventional social science and public administration study. It did not involve any human experiments, clinical procedures, medical interventions, psychological interventions, biological samples, or manipulation of participants' physical or psychological conditions. The interviews conducted in this study were used solely to collect participants' views and experiences concerning policy implementation, inter-

governmental collaboration, and rural development practices. Participation was entirely voluntary. Before each interview, the participants were informed of the purpose of the research, the voluntary nature of their participation, and the intended academic use of the information collected. Informed consent was obtained prior to the interviews. All interview materials used in the manuscript were anonymized, and no personally identifiable or sensitive personal information is disclosed.

Informed Consent Statement: Verbal informed consent was obtained from the participants. Verbal consent was obtained rather than written because: before each interview, the research team explained the purpose of the study, the voluntary nature of participation, the intended academic use of the information provided, and the interviewee's right to decline to answer any question or discontinue the interview. Audio recording was conducted only with the interviewee's explicit permission. Oral consent covered participation in the interview, audio recording, transcription, and the use of anonymized quotations for academic purposes. All interview transcripts, quotations, and case identifiers used for analysis and publication were anonymized to protect the interviewees' identities and confidentiality.

Data Availability Statement: The original contributions presented in this study are included in the article. Further inquiries can be directed to the corresponding author(s).

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

Appendix A

Table A1. Profile of interview participants across case areas.

Participant ID	Position or Functional Role	Affiliation	Interview Sessions
1. Village cadres (n = 13)			
LS-04	Secretary of the CPC MH Village Branch responsible for village governance and project coordination	MH Village, LS County	2
FC-03	Village Party Branch Secretary responsible for rural revitalization project implementation	Village A, FC County	2
FC-04	Village Committee Director responsible for public services and resident coordination	Village B, FC County	1
LY-03	Village Party Branch Secretary responsible for agricultural projects and village governance	Village A, LY County	2
LY-04	Village Committee Director responsible for project coordination and resident mobilization	Village B, LY County	1
ZP-03	Village Party Branch Secretary responsible for demonstration-village construction	Village A, ZP County	2
ZP-04	Village Committee Director responsible for community services and project implementation	Village B, ZP County	1

Table A1. *Cont.*

Participant ID	Position or Functional Role	Affiliation	Interview Sessions
DX-03	Village Party Branch Secretary responsible for rural construction and project coordination	Village A, DX County	2
DX-04	Village Committee Director responsible for public services and resident mobilization	Village B, DX County	1
LZ-03	Village Party Branch Secretary responsible for project implementation and village governance	Village A, SJ County	2
LZ-04	Village Committee Deputy Director responsible for public services and collective affairs	Village B, RS County	1
TD-03	Village Party Branch Secretary responsible for demonstration-village construction	Village A, TD County	1
TD-04	Village Committee Director responsible for employment assistance and resident coordination	Village B, TD County	1
2. Government officials (n = 21)			
LS-05	Office Director responsible for coordinating Guangdong-Guangxi collaboration programs	Guangdong-Guangxi Collaboration Office of LS County	2
LS-06	Grassroots official responsible for local project implementation and community coordination	LS County Government	2
LS-08	Staff member responsible for project liaison and administrative support	Guangdong-Guangxi Collaboration Office of LS County	1
LS-09	Deputy Director responsible for rural revitalization policy and project coordination	LS County Rural Revitalization Bureau	1
LS-10	Office Director responsible for coordinating Guangdong-Guangxi collaboration programs	Guangdong-Guangxi Collaboration Office of LS County	1
LS-11	Section Chief responsible for rural revitalization project implementation	LS County Rural Revitalization Bureau	1
LS-12	Office Director responsible for coordinating Guangdong-Guangxi collaboration programs	Guangdong-Guangxi Collaboration Office of LS County	1
LS-13	Office Director responsible for coordinating Guangdong-Guangxi collaboration programs	Guangdong-Guangxi Collaboration Office of LS County	1
LS-14	Section Chief responsible for project administration and monitoring	LS County Rural Revitalization Bureau	1
FC-01	Director responsible for overall Guangdong-Guangxi collaboration coordination	SH-FC Guangdong-Guangxi Collaboration Working Group	2
FC-02	Deputy Director responsible for rural revitalization projects	FC County Rural Revitalization Bureau	2

Table A1. *Cont.*

Participant ID	Position or Functional Role	Affiliation	Interview Sessions
LY-01	Director responsible for Guangdong-Guangxi collaboration coordination	YT-LY Collaboration Office	2
LY-02	Deputy Director responsible for rural revitalization projects	LY County Rural Revitalization Bureau	2
ZP-01	Director responsible for Guangdong-Guangxi collaboration-work coordination	DH-ZP Collaboration Working Group	2
ZP-02	Deputy Director responsible for rural revitalization projects	ZP County Rural Revitalization Bureau	2
DX-01	Director responsible for Guangdong-Guangxi collaboration coordination	JH-DX Collaboration Office	2
DX-02	Deputy Director responsible for rural revitalization projects	DX County Rural Revitalization Bureau	2
LZ-01	Director responsible for city-level Guangdong-Guangxi collaboration coordination	LZ Guangdong-Guangxi Collaboration Office	2
LZ-02	Section Chief responsible for labor collaboration and skills training	SJ County Human Resources and Social Security Bureau	2
TD-01	Director responsible for Guangdong-Guangxi collaboration coordination	PJ-TD Collaboration Working Group	2
TD-02	Deputy Director responsible for rural revitalization projects	TD County Rural Revitalization Bureau	2
3. Residents (n = 14)			
3.1 Returning residents employed locally (n = 7)			
LS-03	Return migrant employed locally	MH Village, LS County	2
FC-06	Return migrant employed locally or engaged in rural entrepreneurship	Rural Community, FC County	1
LY-06	Return migrant employed locally or engaged in rural entrepreneurship	Rural Community, LY County	1
ZP-06	Return migrant employed locally or engaged in rural entrepreneurship	Rural Community, ZP County	1
DX-06	Return migrant employed locally or engaged in rural entrepreneurship	Rural Community, DX County	1
LZ-05	Return migrant employed locally and participating in community services	Community A, SJ County	1
TD-05	Return migrant employed locally and participating in rural revitalization projects	Rural Community, TD County	1
3.2 Residents without prolonged migrant-work experience (n = 7)			
LS-01	Village resident and household representative	MH Village, LS County	2
LS-02	Village resident participating in local project implementation	MH Village, LS County	2
LS-07	Village resident participating in rural revitalization projects	MH Village, LS County	2

Table A1. *Cont.*

Participant ID	Position or Functional Role	Affiliation	Interview Sessions
FC-05	Local resident participating in collaboration-supported agricultural programs	Rural Community, FC County	1
LY-05	Local resident participating in collaboration-supported agricultural programs	Rural Community, LY County	1
ZP-05	Local resident participating in collaboration-supported agricultural programs	Rural Community, ZP County	1
DX-05	Village resident affected by collaboration-supported rural construction	Rural Community, DX County	1

Note. The case areas listed in this table comprise the complete set of point-to-point assistance destinations under the Guangdong-Guangxi collaboration framework covered by this study. To preserve anonymity, no full place names are reported.

As implementers of government plans, village cadres can explain how collaboration projects were introduced into their villages, how implementation was organised, and what difficulties arose. Selection therefore focuses on their involvement in collaboration projects, while current office-holding status serves only to distinguish their experiences. Current village cadres can describe ongoing project operations, whereas retired village cadres can provide accounts of the early stages of project development. Together, these perspectives provide detailed and coherent evidence on the collaboration process.

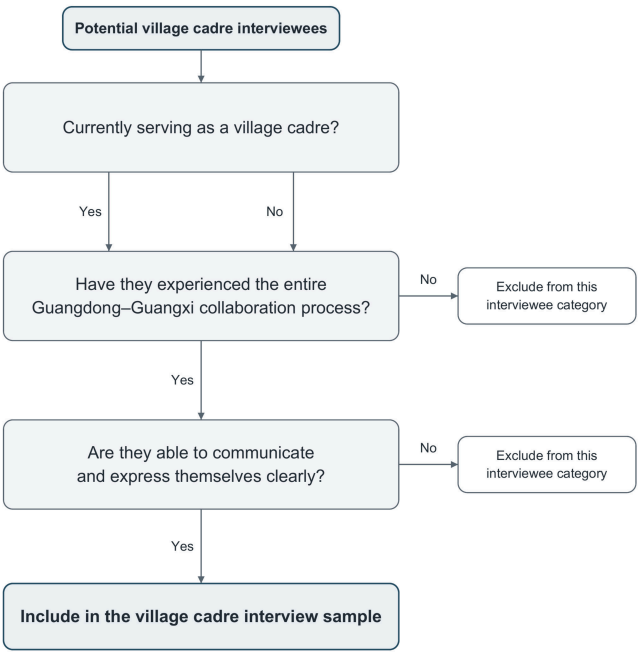


Figure A1. Selection Criteria for Village Cadre Interviewees.

Selecting government officials who are currently in office and directly responsible for Guangdong–Guangxi collaboration helps identify interviewees familiar with current policies, the division of responsibilities, and project management practices. Officials with experience of the entire collaboration process can explain how policies were translated into action, how coordination barriers arose, and how the relevant departments responded.

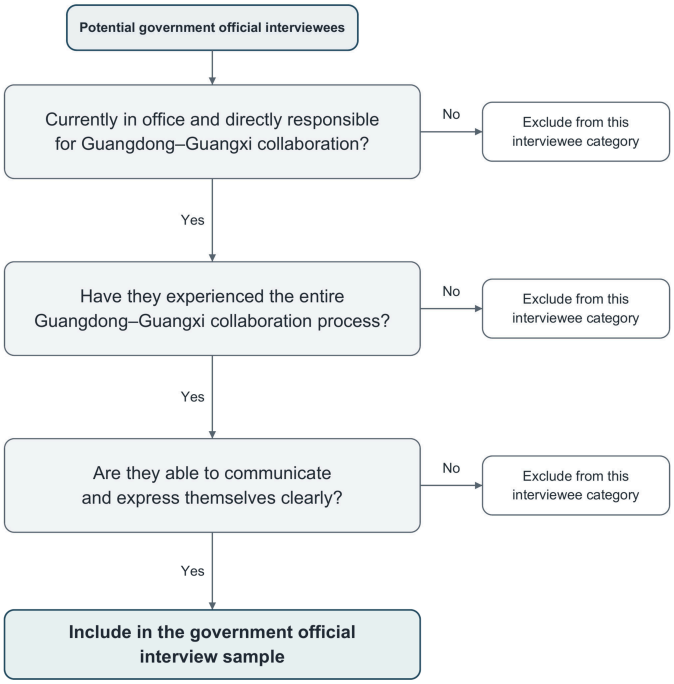


Figure A2. Selection Criteria for Government Official Interviewees.

Distinguishing residents who returned to their villages for employment from long-term local residents provides different perspectives. The former can explain whether Guangdong–Guangxi collaboration created better development opportunities for them, while the latter can describe continuing changes in village life. Classification by age group helps identify how Guangdong–Guangxi collaboration affects residents of different ages, with each age group accounting for one-third of the resident sample.

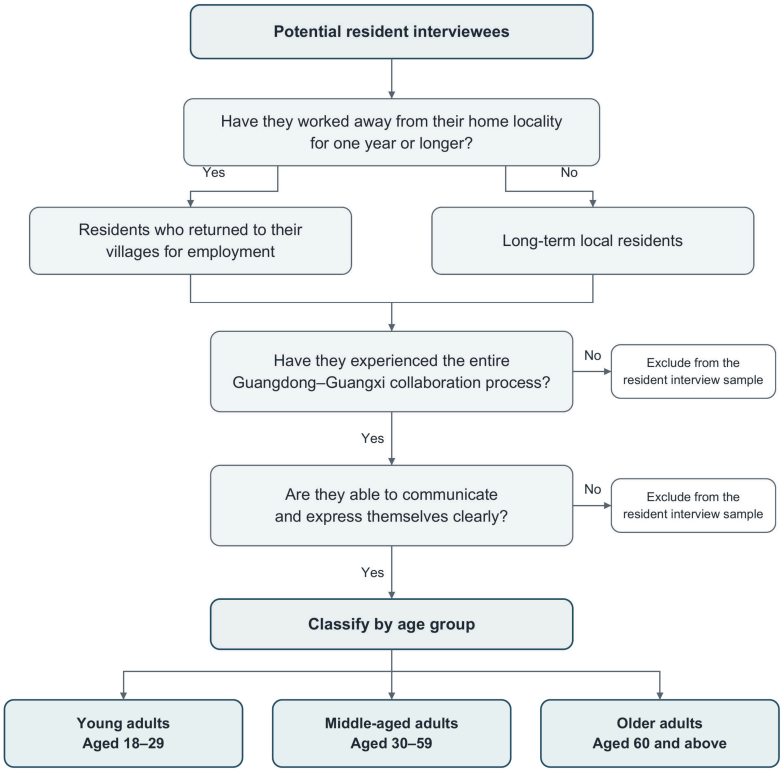


Figure A3. Selection Criteria for Resident Interviewees.

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