

The Two-Legged Strategy; How Batu City Farmers Rationally Navigate the Tourism Industry

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Abstract

This study explores how farmers in Bulukerto Village, Batu City, rationally diversify their livelihoods amid an agricultural crisis and expanding tourism. It addresses three core questions; (1) how farmers respond to agrarian decline through diversification, (2) how unequal access, social capital, and agrarian identity influence their decisions, and (3) how theoretical synthesis explains this dynamic within structural constraints. The research combines James S. Coleman's Rational Choice Theory, which highlights decisions based on material and non-material resources, cost-benefit logic, values, and social norms, with Henry Bernstein's political economy approach, which emphasizes power structures, asset control, and class relations. To bridge these perspectives, the study also draws on the concepts of bounded rationality and embedded agency. A qualitative case study approach was used, focusing on farmers in Bulukerto Village, Bumiaji Subdistrict, Batu City. Data collection techniques included semi-structured interviews, non-participant observation, and document review. Thematic analysis identifies three diversification types: (1) capital-based, involving formal tourism ventures by farmers with financial or institutional access; (2) labor-based, such as driving or guiding, pursued by low-capital farmers through informal networks; and (3) informal household-scale strategies led by women or youth, often using digital platforms. This study concludes that sustainable rural diversification requires equitable access to productive resources, digital upskilling, and inclusive tourism programs that preserve agrarian identity. It offers a multi-level analytical lens that integrates agency, social structure, and local context in understanding livelihood transitions in post-agrarian rural areas. Policy recommendations call for transparent resource allocation in tourism, empowering farmer cooperatives for fair benefit-sharing, and promoting agritourism that balances traditional land use with new income streams.

Keywords: Livelihood diversification; Bounded rationality; Social capital; Agritourism; Rural transition

1. Introduction

Livelihood diversification among farmers is a critical issue in the study of economic development and sustainability, particularly in rural areas of developing countries.

Livelihood diversification can be understood as a strategy employed by individuals or households to develop multiple income sources in order to enhance economic resilience and reduce the risks associated with reliance on a single source of income (Habib et al., 2023; Pede et al., 2024). This strategy has long been recognized as a response to the structural vulnerabilities inherent in the agricultural sector, including harvest uncertainties, price fluctuations, and the impacts of climate change (Burbano and Meredith, 2021; Kimbu et al., 2022). Therefore, livelihood diversification is not merely a short-term phenomenon, but rather a reflection of long-term adaptation to economic conditions.

In the context of Batu City, which has undergone significant socio-economic transformation, new opportunities have emerged for farmers to engage in alternative sectors, particularly tourism. Since the shift in the city's development vision from agropolitan to a tourism-oriented city, policy directions have increasingly prioritized the development of the service and recreation sectors. This can be seen from data from Batu City's Central Bureau of Statistics (2021), a significant decrease in the number of farmers, from 34,011 in 2010 to 30,001 in 2020, inversely correlated with the rise in employment in the service sector. The data reveals a concerning decline in agricultural sector employment (-12%) alongside a sharp rise in service sector jobs (+332%) over 2010–2020, suggesting rapid sectoral shifts that may threaten food security and traditional livelihoods in Batu City.

Table 1. Changes in the Number of Workers in the Agricultural and Service Sectors of Batu City (2010–2020)

Year	Agricultural Sector Worker	Service Sector Worker
2010	34.011	14.932
2020	30.001	64.524

Source: BPS Batu (2011; 2021)

The declining number of farmers in Batu City is also driven by various structural issues within the agricultural sector, such as challenges related to agricultural inputs and outputs, high production costs, unpredictable harvest yields, significant maintenance expenses, declining land quality, land-use conversion, and the limited role of farmer groups (Ngadi et al., 2023). These persistent problems have contributed to a decreasing interest among the community to pursue farming as a livelihood, prompting a shift toward other sectors, particularly the service industry.

At the same time, the tourism sector offers the promise of higher and more stable income, with jobs perceived as more attractive, particularly among the younger generation. Based on the researcher's field observations, the tourism industry in Batu has experienced rapid growth, indicated by the high volume of visitors during weekends and holidays. This development has stimulated the emergence of new forms of livelihood, including informal employment such as street vending, tour guiding, and managing homestays. This shift has encouraged many farmers to either leave agriculture entirely or combine it with tourism-related activities, which can be understood as a rational response to declining agricultural yields and the emergence of new economic opportunities (Ohe, 2020; Gascón and Mamani, 2022; Rocca and Zielinski, 2022).

However, this diversification process does not occur uniformly or without challenges. Based on the researcher's fieldwork findings in Bulukerto Village, Batu City, the majority of farmers have not entirely abandoned the agricultural sector despite the rapid growth of tourism, which promises higher income. The phenomenon known as the "two-legged strategy", where farmers maintain agricultural activities while simultaneously operating tourism ventures such as adventure tourism, educational tours on apple chip production, or other types of tourism, reflects a complex rational consideration. Their decisions are shaped by rational economic calculations,

expectations of better income, the need to manage agricultural uncertainties, and the desire for safer working conditions (Bires and Raj, 2020; Ćurčić *et al.*, 2021).

Furthermore, entering the tourism sector requires new resources and capital, skills in hospitality and services, and access to social networks that many farmers do not possess (Umam *et al.*, 2022). As a result, some farmers succeed in making the transition because they have capital, skills, or strong social networks (Kodir *et al.*, 2020; Yusriadi *et al.*, 2024). Conversely, farmers who lack access to these resources tend to remain in agriculture or choose more limited diversification pathways. This situation raises the main question underlying this research, namely, how farmers in Batu City make decisions to diversify their livelihoods into the tourism sector amid declining agricultural productivity and the development of the tourism industry.

Previous studies have highlighted the link between livelihood diversification among farmers and the development of rural tourism. Research by Li *et al.*, (2020), Liu *et al.*, (2020), Moahid and Maharjan (2020), Iqbal *et al.*, (2021) and Yusriadi *et al.*, (2024) identifies factors such as land ownership, assets, education level, age, and access to credit as key determinants influencing farmers' diversification behavior. In the Indonesian context, studies Umam *et al.*, (2022) and Sianipar *et al.*, (2024) emphasize the role of social capital and financial access constraints as central to the success of farmers' transitions into tourism-related sectors. Research Gascón and Mamani (2022), Kimbu *et al.*, (2022), and Lak and Khairabadi (2022) further underscores the significance of social norms and community identity in shaping farmers' economic motivation to participate in tourism, while Zulgani *et al.*, (2023) arguing that local institutions are instrumental in supporting successful village-based tourism diversification. Similarly, Dickes *et al.*, (2020) and Zvavahera and Chigora (2023) demonstrate that diversification decisions are not solely driven by economic rationality but are also shaped by cultural, social, and historical factors.

Nevertheless, most of these studies fall short of explaining how social structures and embedded community norms are internalized and reflected in farmers' individual cost-benefit calculations, as emphasized by Coleman (2008) in his theory of preference formation through norms and social networks. Moreover, there remains a lack of research that explicitly connects agrarian class structures with farmers' capacity to diversify into tourism, even though production relations and agrarian inequality significantly constrain farmers' economic choices (Dharmawan *et al.*, 2021; Sidik and Habibi, 2024). In other words, farmers' success or failure in responding to tourism opportunities cannot be separated from their positionality within the rural socio-economic hierarchy. So far, few studies have explicitly combined micro-level rational choice approaches with agrarian political economy to examine how farmers make livelihood decisions in structurally unequal agrarian contexts.

This study seeks to fill that gap by integrating James Coleman's rational choice theory with Henry Bernstein's political economy of agrarian change as an innovative analytical framework. Coleman's theory highlights that individuals act based on resource evaluation, cost-benefit analysis, values, preferences, and norms (Ritzer and Goodman, 2008). However, to avoid an overly individualistic perspective, Coleman's theory is critiqued and complemented by Bernstein's structural approach, which asserts that farmers' choices are inextricably linked to systems of power, asset control, and class relations rooted in rural settings (Bernstein, 2017). By synthesizing these two perspectives, this research aims to capture the complexity of farmers' decision-making as it unfolds within the interplay between agency and structural constraints.

To address this research gap, the study seeks to answer three central questions.

1. How do farmers in Bulukerto Village rationally respond to the agricultural crisis and choose livelihood diversification strategies in the tourism sector?
2. How do unequal access, social capital, and agrarian identity shape farmers' preferences and influence the diversification decisions they make?
3. How can a synthesis of James Coleman's rational choice theory and Henry Bernstein's agrarian political economy approach be used to explain the dynamics of farmers'

decision-making in the context of rural economic transformation marked by structural inequality?

These three questions form the foundation for analyzing how farmers' economic choices are shaped not only by individual calculation, but also by their social position, community norms, and agrarian power structures that both constrain and enable new economic opportunities.

Specifically, this study focuses on farmers in Bulukerto Village, Bumiaji District, Batu City, who maintain their agrarian identity while engaging in tourism activities. It examines how limitations in resources, such as lack of capital, skills, or social networks, shape the diversification strategies they choose. Through this perspective, the study aims to offer both theoretical and practical contributions; first, by advancing a sociological understanding of livelihood strategies under structural transformation, and second, by informing local policymakers about the necessary conditions to support the development of inclusive and farmer-friendly tourism.

2. Literature Review

Understanding livelihood diversification among farmers requires a theoretical foundation that juxtaposes competing perspectives on agency and structure in decision-making. This study applies a theoretical confrontation approach by drawing on Rational Choice Theory as the thesis and the Political Economy of Agrarian Change as the antithesis, before developing a synthesis that bridges the two frameworks to analyze farmers' livelihood strategies amid rural transformation.

From the thesis perspective, James S. Coleman's Rational Choice Theory (2008) offers a micro-level framework that views individuals as purposive actors who make decisions by calculating the expected utility of different choices based on the resources at their disposal. In the context of livelihood diversification, farmers are seen as rational agents who respond to agricultural distress and tourism opportunities by reallocating labor and capital to maximize economic benefit. This theory emphasizes the importance of individual agency, resource endowment, preference structures, and goal-oriented behavior in decision-making processes (Ritzer and Goodman, 2008). Recent applications of rational choice frameworks in rural economic transition have emphasized how access to capital, skills, and market information conditions farmers' capacity to engage in new livelihood pathways (Ahmad et al., 2023). Studies by Liu et al., (2020), Moahid and Maharjan (2020), Iqbal et al., (2021) and Yusriadi et al., (2024), identify additional factors such as land ownership, education, and access to credit, further supporting the view that diversification decisions are shaped by individual resource configurations.

Contrasting with the individualistic assumptions of Rational Choice Theory, the Political Economy of Agrarian Change (Bernstein, 2017) offers a structuralist critique. This perspective argues that farmers' decisions are shaped not only by individual preferences but also by the political and economic forces that organize rural life. Processes such as land commodification, agrarian labor restructuring, and state-market intervention limit the autonomy of smallholders and shape livelihood trajectories in coercive ways. Tourism development, from this perspective, is not merely an opportunity but a force that often displaces traditional livelihoods, exacerbates inequalities, and marginalizes certain farming communities (Kimbu et al., 2022). Livelihood diversification, therefore, may reflect structural necessity rather than voluntary adaptation.

The theoretical synthesis arises by integrating these perspectives through the lens of Herbert Simon's bounded rationality in (Barros, 2010) and embedded agency (Granovetter, 2018). This synthesis acknowledges that while farmers do make strategic livelihood decisions, their rationality is constrained by limited access to resources, asymmetric information, cultural norms, and institutional barriers. Farmers' actions are shaped by their structural position within both the local agrarian system and the broader tourism economy. Hence, livelihood diversification can be seen as both a rational economic response and a socially embedded survival strategy under shifting structural pressures.

The existing gap in the literature lies in the insufficient integration of these theoretical perspectives in explaining diversification decisions within agrarian communities facing tourism expansion. Many studies either treat farmers as rational economic agents or as passive victims of structural forces, but few analyze how rational action is conditioned by and negotiated within social structures (Cordaro and Desdoigts, 2021; Sok et al., 2021; Chen, 2022; Clark et al., 2023). This study aims to fill this gap by applying a synthesized theoretical lens to examine how farmers in Bulukerto Village, Batu City, make livelihood decisions amidst agricultural decline and tourism expansion.

3. Methods

3.1 Data description

This study relies on primary data collected through semi-structured interviews, non-participant observation, and document analysis. The main informants are farmers in Bulukerto Village, Batu City, who have diversified their livelihoods into the tourism sector. The sampling technique employed was purposive sampling (Creswell, 2015), with criteria including farmers who are actively engaged in tourism activities and have prior experience in agriculture.

A total of 17 informants were selected based on data saturation and the diversity of their tourism involvement, ranging from adventure tours, educational activities, cafes, and travel services to flower stalls and souvenir businesses, while still maintaining agricultural activities such as apple, citrus, vegetable, bonsai, and coffee farming. Informants varied in age, gender, and community roles, with notable participation from women. This diversity enabled the study to capture a holistic picture of how farmers rationally respond to both agricultural decline and the rise of tourism. Thematic analysis was conducted through transcription, manual coding, and categorization of emerging themes, supported by observational and document-based validation. Data interpretation was guided by Coleman's rational choice theory, while also considering socio-ecological factors and local norms. To strengthen validity, the researcher applied triangulation across methods and conducted member checks to ensure data accuracy and reliability.

3.2 Methods

This study employs an intrinsic case study design to gain an in-depth understanding of the process by which farmers diversify their livelihoods into the tourism sector in Bulukerto Village, Batu City. An intrinsic case study was selected because the primary focus of the research is to explore the social and economic dynamics and complexities within a specific local context, rather than to generalize the findings (Yin, 2019). This model is appropriate for investigating phenomena that are bounded by clearly defined space, time, and subjects (Creswell, 2015). Therefore, the research location was purposively selected, namely Bulukerto Village in the Bumiaji Subdistrict of Kota Batu, a historically apple-farming area that has undergone significant changes due to land conversion and the growth of the tourism industry. Moreover, the village serves as a compelling representation of the dynamics of farmers who are simultaneously engaged in tourism-related activities.

This study examines the decision-making processes of farmers in Bulukerto Village as they diversify their livelihoods into the tourism sector, driven by the dual pressures of agricultural decline and tourism growth in Batu City. While the agricultural sector faces declining productivity, land conversion, and rising input costs, tourism offers more frequent and flexible income, particularly attractive to younger and adaptive rural actors.

To understand this transition, the study integrates two theoretical perspectives. Rational choice theory Coleman (2008), views farmers as rational agents who assess available resources, costs, and social norms to make optimal decisions. In contrast, the Political Economy of Agrarian Change Bernstein (2017), emphasizes that these decisions are shaped by structural factors such

as power relations, class dynamics, and unequal access to tourism opportunities.

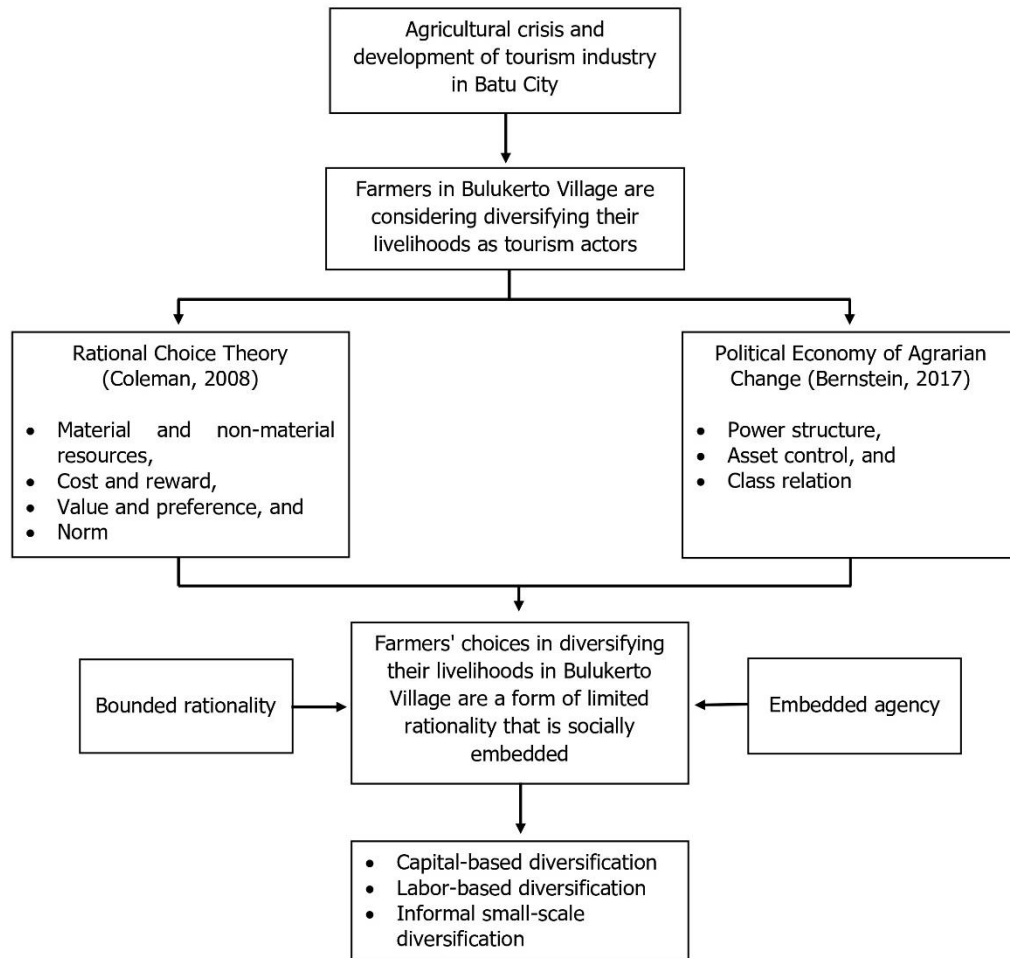


Figure 1: Research Framework

To reconcile these views, the framework employs the concepts of bounded rationality Simon's (Barros, 2010) and embedded agency (Granovetter, 2018), recognizing that while farmers make strategic decisions, these are constrained by limited information, unequal capital, and social norms. Within this framework, three main forms of livelihood diversification are identified; 1). Capital-based diversification involving formal tourism enterprises developed by farmers with financial assets or institutional support, 2). Labor-based diversification, relying on physical skills like driving or guiding, typically accessed through revenue-sharing and informal arrangements, 3). Informal small-scale diversification, often home-based and seasonal, carried out by women or older farmers with minimal capital and strong local networks.

These findings demonstrate that livelihood diversification in Bulukerto is not merely a rational economic choice. It is a socially embedded strategy shaped by unequal access to resources, position within village power structures, and the desire to preserve agrarian identity amid structural transformation.

4. Results

This chapter presents the main findings from the field research, which was designed to answer three key research questions. The findings are organized into two main subsections, reflecting the patterns of structural transition and the emerging forms of livelihood diversification in Bulukerto Village.

4.1 Structural Drivers of Livelihood Transformation

The decline of the apple farming sector in Bulukerto Village has become the main catalyst for livelihood diversification. Informants consistently reported that climate change, high production costs, soil degradation due to chemical fertilizers, and low selling prices have rendered apple cultivation increasingly unprofitable and less attractive as a primary commodity (Samudra et al., 2021; Ariadi, 2022).

"Apple farmers are shifting now... production costs are too high, so many have gone bankrupt. Previously, it was all apple orchards; now, many have been replaced with citrus." (Informant AS)

A similar view was expressed by SG, a local figure and pioneer of the Gelora Garden tourism development,

"In 2020, many farmers collapsed... by 2023, apples were down to just 20 percent. Most of the trees died, and much of the land was left idle." (Informant SG)

The apple crisis has been exacerbated by weak structural support from the village government. One of the main complaints from farmers concerns the removal of fertilizer subsidies and the lack of concrete incentives from local authorities to sustain the agricultural sector. Rather than being encouraged to continue farming, many residents feel abandoned by policies that tend to prioritize non-agricultural development (Juvitasari et al., 2025). This has led to a weakening of farmer regeneration and a declining interest among younger generations to take up farming.

"The government doesn't urge people to farm, nor do they support agriculture. For instance, fertilizer subsidies have been removed. The government should take firm action to develop agriculture and boost the local economy." (Informant SG)

Although some assistance programs exist, such as the distribution of fertilizer or farming equipment through farmer groups, most farmers consider such aid symbolic and insufficient to meet actual needs on the ground. This reinforces the perception that state support for agriculture has significantly declined.

"There's aid through farmer groups, but it's very limited. For example, with free fertilizer, we only get a small amount and have to buy the rest ourselves. As for tools, they only gave us two, even though there are 20 of us. So we have to take turns using them, sometimes they break before our turn comes." (Informant ST)

These conditions suggest that the apple crisis in Bulukerto is not merely caused by natural factors or market dynamics but is also reinforced by weak village policies that are unresponsive to the sustainability of the agricultural sector (Zyl and Merwe, 2022). Another structural factor accelerating this transition is the unequal access to markets and limited promotional reach. Unlike neighboring areas such as Tulungrejo, Bulukerto lacks a strong branding identity for apples, which significantly reduces its competitiveness in the agricultural market.

"When it comes to apples, people think of Tulungrejo. We don't know how to brand Bulukerto." (Informant AS)

The lack of strategic support from the government, in terms of fertilizer subsidies, support

for farmer groups, market access, promotional strategies, and youth farming incentives, has hastened the shift in livelihood orientation among farmers, particularly those who have access to the tourism sector. From a structural perspective, Batu City's economic transformation has become increasingly evident over the past two decades. According to informants, since the early 2000s, especially during the administration of Mayor Edi Rumpoko the tourism sector has experienced rapid development, marked by the emergence of modern attractions and a surge in visitor numbers. This is reflected in data from BPS, which recorded over 10 million tourist visits to Batu City in 2023 (Badan Pusat Statistik Kota Batu, 2024).

This rapid growth in tourism has not only reshaped the local economic landscape but has also made tourism a major contributor to the region's locally generated revenue (PAD), especially through taxes on hotels, restaurants, and entertainment. With this significant contribution, it is clear that Batu City's economic structure has undergone a fundamental shift, from an agrarian base to one increasingly dominated by the service and tourism sectors.

Consequently, the phenomenon of farmers diversifying into tourism-related activities has become more prevalent, often while retaining their agricultural base by switching to alternative crops such as citrus or flowers. For example, Informant SH, who comes from a farming family, now works as both a tourism jeep driver and a landscaper,

"We used to grow apples, but many trees were cut down. Now people look for crops that align with tourism, like citrus picking or guava picking, it brings faster returns."
(Informant SH)

Meanwhile, Informant AP, who was once involved in apple farming, stated that apples can no longer be relied upon due to declining demand and unstable prices,

"Apples can't be depended on anymore. I help friends in the tourism business, work as a jeep driver, and still maintain a small farm." (Informant AP)

In response to these pressures, most farmers do not completely abandon agriculture. Instead, they begin formulating hybrid livelihood strategies, combining more flexible farming (e.g., citrus, bonsai, cut flowers, ornamental plants, or coffee) with micro enterprises or tourism services. This indicates that livelihood transformation in Bulukerto is gradual and rational, not a total occupational shift, reflecting the principle of farming while engaging in tourism, the two-legged strategy (Ohe, 2020). This finding indicates that farmers' decisions to move away from apple farming and enter the tourism sector are not merely reactive, but rather the result of a rational evaluation of available resources and opportunities.

4.2 Forms and Modalities of Diversification

The livelihood diversification strategies adopted by farmers in Bulukerto in response to the apple farming crisis are both adaptive and diverse. Based on interview data, diversification generally falls into three main categories: capital-based, labor-based, and informal small-scale models. However, behind these classifications lie social, cultural, and ecological dimensions that also shape the form and sustainability of diversification (Cavalleri et al., 2022).

4.3 Capital-based Diversification

Capital-based diversification in Bulukerto Village refers to livelihood strategies employed by farmers who are able to shift their economic orientation through initial investment and access to productive resources (Baby and Kim, 2024). Actors within this category possess not only financial capital but also social and institutional networks that enable them to develop tourism businesses in a formal and integrated manner. The key characteristic of this form of

diversification is the combination of long-term business orientation with a collective vision for village development.

One example of this diversification can be seen in the initiative to process apples into chips and offer educational tourism experiences. Informants LI and U, a farming couple who also run a tourism venture, explained that their efforts began with concern over the large volume of unsold and spoiled apples. Using personal savings and gradually purchasing equipment, they built a production unit that has since grown into an educational tourism destination involving the participation of local residents.

"It started when the harvest could not be sold; it was a waste to let them rot. We processed them ourselves, bought machines little by little, until we could produce regularly. Now, visitors can also see the production process from beginning to packaging." (Informant LI)

In addition to increasing the value of local products, this initiative has created employment opportunities for housewives and village youth. This strategy shows how capital-based diversification not only strengthens household income but also builds a sustainable ecosystem of small-scale enterprises (Habib et al., 2023). Thus, the economic benefits generated can be sustained at the local level and serve as a foundation for the resilience of rural communities amid the volatility of the agricultural sector.

Another case of capital-based diversification is found in Gelora Garden, an integrated agrotourism site managed by informant SG. With a background in apple and citrus farming, SG recognized that the agricultural crisis needed to be addressed with innovation. He integrated agriculture, micro enterprises, and adventure tourism into a cohesive ecosystem. Gelora Garden offers ATV rides and off-road jeep tours, with some of the vehicles provided through village government support, while operations are fully managed by a local team.

"If we only rely on agriculture, we won't survive. That's why I built a tourism venture still rooted in farming. ATVs, fruit picking, flower gardens, all come from here, but there is also a contribution from the village. We manage it together." (Informant SG)

Informant SG has also become a pioneer in promoting local potential through small business partnerships and the development of village tourism branding. His efforts have strengthened economic resilience among farmers while adding value to local products and services through collective schemes. Such consolidation has proven effective in increasing village income, as integrated branding and cross-actor networks are able to attract broader tourist demand (Jafarli and Canavari, 2025).

Capital-based diversification is also demonstrated by informant AS, owner of Cafe Omah Semut, who invested in the culinary sector in response to the stagnation of apple farming. Although acknowledging that the business is not yet fully stable, AS has long-term plans to develop the cafe as a center for cultural education and creative local products.

"I am preparing a gallery in this cafe, which will feature Batu's agriculture and cultural heritage. Hopefully, visitors won't just eat but also learn and understand the village's identity." (Informant AS)

Meanwhile, informant YB represents a model of capital-based diversification combined with entrepreneurial capacity and interregional networks. Starting as a worker in rafting and outbound services, he expanded into event organizing, paintball, and customized tourism trips. Through a system of contracts and relationships with multiple partners, he has built an independent business unit capable of handling hundreds of guests.

"I built it slowly, I paid for the paintball equipment in installments. Now I have 28 sets. If we have a large group, we divide them into teams. It's all about relationships and cooperation. Capital is not just about money, it's also about networks."
(Informant YB)

Capital-based diversification demonstrates the capacity of farmers to become active agents in village economic transformation, rather than passive recipients of change. Through gradual investment, cross-sector collaboration, and strategic use of local resources, individuals in this category have shaped a model of social entrepreneurship that combines commercial value with community solidarity (Cavalleri et al., 2022). This highlights that in the case of Bulukerto, the success of transformation is not only determined by tourism opportunities but also by capital readiness and the willingness to take risks.

Table 2. Capital-Based Diversification Informants

No.	Informant	Gender	Age	Type of Tourism Business	Type of Agriculture
1.	U	Male	47	Educational tourism manager for making apple chips	Apple Farming
2.	LI	Female	44	Educational tourism manager for making apple chips	Apple Farming
3.	SG	Male	47	Owner of Gelora Garden (Cafe and Adventure)	Apple and orange farming
4.	AS	Male	48	Owner of Omah Semut Cafe	Apple Farming
5.	YB	Male	43	Even Organatizer, and travel	Ornamental and cut flower farming

Source: Researcher Processing (2025)

4.4 Labor-Based Diversification

Labor-based diversification in Bulukerto is rooted in practical skills such as driving, basic mechanical repair, and familiarity with natural terrain, enabling farmers to take on new roles as jeep tour drivers without requiring substantial financial capital (Cavalleri et al., 2022). Their income typically follows a revenue-sharing scheme, where the driver's fee and fuel costs are covered first, and any remaining profit is shared with the vehicle owner.

"Sometimes the driver gets one hundred, fuel costs one hundred, and the rest goes to the car owner. But if the car breaks down, all the money can go to repairs."
(Informant ES)

For informant ES, working as a jeep driver is not only an economic strategy but also an extension of his long-standing hobby in trail biking. This sentiment is echoed by informants ST and P, who note that their earlier farming experience, often involving transporting harvests by truck, provided the driving skills that later became useful in off-road tourism driving.

Due to the seasonal nature of tourism, driver income tends to fluctuate (Radlińska and Gardziejewska, 2022). Informant AK reported earning only two trips per day at the peak of the holiday season, with no orders on regular weekdays. Informant AP added that he keeps a small

citrus field to ensure a stable income when tourist demand for jeep rides drops. A similar situation applies to SH, who returns to his work as a landscaper and cleaning staff in tourist sites during the low season.

This multi-occupational strategy is also evident in the case of informant P. After incurring losses from apple trading, he rented land to grow ornamental flowers and began learning landscape design. Post-pandemic, with increased demand for outdoor tourism in 2022, he also started working as a jeep driver. For P, the flexibility of his work allows him to shift between tending to flowers, designing gardens, and driving according to market fluctuations.

Informant ST, on the other hand, practices a "hybrid" livelihood strategy. He continues cultivating bonsai as a form of long-term investment, his "retirement savings", while simultaneously leading a local jeep-driving team. In his interview, he also described informant AD, a vegetable farmer who accepts jeep orders only when agricultural work is not urgent. This was confirmed by AD himself,

"My focus is on vegetable farming, but I also drive jeeps whenever I have spare time." (Informant AD)

This pattern demonstrates that agrarian identities are not abandoned but are negotiated through dual livelihoods that balance daily cash needs with a long-term commitment to farming (Foss, 2020; Marewo, 2023). In addition, women's participation in the labor-based tourism economy is visible in the role of informant LE, who manages both the cafe and adventure tourism operations at Gelora Garden. She steps into this role when the owner is unavailable, showing how administrative competence can create gender-inclusive spaces in the tourism economy. Overall, labor-based diversification creates a layered economic ecosystem; 1). Dependence on assets owned by others encourages profit-sharing models that reduce entry barriers but also compress income margins, 2). The seasonal nature of tourism and fluctuating demand lead workers to maintain a portfolio of occupations, farmer, driver, landscaper, or flower vendor, to manage risk, 3). Social capital (such as access to jeep owners and approval from village leaders) is crucial in securing orders and operational space. For instance, informant ES reported needing to "formally ask permission" from the village head before being allowed to operate, 4). The persistence of agrarian identity is evident in the continued cultivation of bonsai (ST), vegetables (AD), citrus (AK), and ornamental flowers (P, SH, and AP), even as these individuals become increasingly active in the tourism sector.

Table 3. Labor-Based Diversification Informants

No.	Informant	Gender	Age	Type of Tourism Business	Type of Agriculture
1.	ES	Male	44	Adventure tourism coordinator and marketing	Orange Farming
2.	P	Male	54	Tourist jeep driver	Cut and decorative flowers
3.	ST	Male	46	Tourist jeep driver	Bonsai plants
4.	AK	Male	26	Tourist jeep driver	Orange farming
5.	SH	Male	44	Tourist jeep driver	Cut flower farming
6.	AP	Male	34	Tourist jeep driver	Cut flower farming
7.	LE	Female	36	Gelora Garden Manager	Cut flower farming
8.	AD	Male	40	Tourist jeep driver	Vegetable Farming

These findings reinforce the argument that farmers' rationality in Bulukerto is both bounded and embedded. Their decisions are not purely based on profit calculations but are shaped by social networks, preferences for certain types of work deemed "lighter," and efforts to maintain the continuity of farming culture amid the growing pressures of the tourism economy.

4.5 Informal Small-Scale Diversification

Informal small-scale diversification has emerged as a household-level adaptive strategy that operates with minimal capital investment. Its foundation lies in family labor, particularly women and flexible local social networks that can swiftly respond to tourism demand or shifts in the horticultural market (Cavalleri et al., 2022).

In Dusun Gemulo, for instance, informant YN treats her flower garden as a "production space" and her home terrace as a "digital storefront." She cultivates roses and peacocks (Celosia), while her son handles online marketing through WhatsApp conversations and marketplace platforms.

"When orders are high, we immediately bring extra stock to the kiosk along the tourist route, everything is managed in-house to keep costs down." (Informant YN)

This reflects a system in which the primary capital is trust among family members and relationships with regular buyers. A similar transformation is seen in the dynamics of the Flower Group in Buludendeng. As the group leader, informant C shared how the collapse of apple prices in the early 2000s prompted farmers to replace fruit trees with cut flowers.

"Now almost all land has been converted, the important thing is that it sells quickly." (Informant C)

This statement underscores a shift in orientation from seasonal commodities to products with shorter harvest cycles and more predictable margins. Transactions are typically cash-based between farmers or conducted through inter-village barter, minimizing dependence on middlemen and accelerating cash flow (Fink *et al.*, 2020; Nasiro, 2024). In distribution, informant A both a farmer and vendor, has moved from passively waiting for buyers to actively delivering flowers to major cities and promoting them via WhatsApp.

"In the past, we just planted and waited. Now if there are no buyers here, I send them to Yogyakarta or Malang via WA groups." (Informant A)

This signifies a transition from passive to proactive business logic, enabled by micro-scale digital networks. With increasing access to online markets, the geographic reach of flower sales now extends beyond village borders, generating more consistent daily cash flow. These digital connections indirectly strengthen the bargaining position of smallholder farmers, as prices are negotiated directly between producers and end buyers (Gumbi *et al.*, 2023).

Meanwhile, informant H leveraged his coffee roasting skills to launch *Siman Kopi*, under the Arjuno coffee brand, promoted via social media. His cold-brew product has been featured in cafes outside the region.

"The market will always seek it, my job is to maintain quality and build a team." (Informant H)

This highlights the importance of horizontal collaboration among farmers and flexible sales channels. Such an approach not only allows farmers like H to develop competitive local brands but also contributes to the emergence of a dynamic village-level entrepreneurship

ecosystem. These initiatives reflect the capacity of a new generation to reframe agricultural products, from raw commodities to cultural and economic assets with added value (Habib *et al.*, 2023)

Altogether, these findings affirm that informal small-scale diversification is not merely a side activity. It serves as an economic buffer when the primary agricultural sector is under strain and represents a form of social innovation, from the use of domestic space as a production unit, to micro-scale digital platforms, to barter practices that preserve capital circulation at the village level (Cavalleri *et al.*, 2022). In other words, this strategy combines household entrepreneurship, community solidarity, and low-cost technological adaptation to build agritourism economic resilience in Bulukerto.

Table 4. Informal Small-Scale Diversification Informants

No.	Informant	Gender	Age	Type of Tourism Business	Type of Agriculture
1.	H	Male	30	Coffee Entrepreneur (Siman Kopi)	Coffee Farming
2.	C	Male	47	Flower Kiosk Owner	Cut flower farming
3.	A	Male	51	Flower Trader at Souvenir Kiosk	Ornamental and cut flower farming
4.	YN	Female	47	Flower seller	Ornamental flower farming

Source: Researcher Processing (2025)

Thus, these findings reveal that farmers' diversification strategies are not solely determined by the availability of capital, but are also deeply influenced by their social position within the village structure, the strength of their social networks, legitimacy granted by local actors, and their enduring agrarian identity. Diversification is not merely a pragmatic response to the apple crisis, but also a reflection of preferences shaped by norms, culture, and power relations embedded in the local community.

5. Discussion

5.1 Farmers' Rationality in Diversifying Livelihoods into the Tourism Sector

Farmers' decisions to diversify their livelihoods in Bulukerto Village can be understood through the lens of James Coleman's rational choice theory. This theory posits that individuals act based on an evaluation of available resources, cost-benefit calculations, as well as personal preferences and internalized norms (Coleman, 2008; Ritzer and Goodman, 2009). In the context of Bulukerto, the crisis in the apple farming sector, marked by declining productivity, rising production costs, deteriorating soil quality, and the removal of government fertilizer subsidies, has compelled farmers to seek more promising livelihood alternatives. This finding indicates that the shift to the tourism sector represents a rational response to worsening economic conditions.

The study shows that farmers mobilize a variety of resources to support this transition. They draw upon assets such as land, technical skills, and social and familial networks to access new opportunities. For instance, informants SG and AS combined agrarian assets with village-based educational and culinary tourism, while informants ST and ES leveraged their automotive skills and social connections to work as jeep tour drivers. Others chose to diversify through informal and home-based sectors, such as selling flowers and coffee through social media platforms (as in the cases of informants YN and H). Youth-led innovation was also evident, particularly in product digitalization and online marketing, supporting findings by Liu *et al.*, (2020), Qu (2020), and Zyl and Merwe (2022), that highlight the importance of social innovation

and family networks in rural adaptive strategies.

These strategies are not uniform but are adapted to each household's specific circumstances. Some farmers engaged in capital-based diversification by developing structured tourism businesses, while others relied on labor flexibility to alternate between farming and tourism-related work. Others opted for informal, home-based models in response to limited financial capital.

Farmers' rationality in this context is not solely profit-oriented; it also takes into account social continuity and local values. Many informants continue agricultural activities even after entering the tourism sector. This reflects what can be described as a "two-legged strategy", in which farmers maintain their agrarian identity while simultaneously developing new livelihoods in the service sector. This approach aligns with the concept of rational calculation under resource constraints and supports the findings of Liu et al., (2020) and Wu et al., (2024), who emphasize the importance of adaptive strategies in rural economic transitions.

In conclusion, the livelihood diversification strategies pursued by farmers in Bulukerto represent a form of rationality shaped by local context, resource limitations, and structural pressures stemming from the agricultural crisis. In such conditions, their entry into the tourism sector can be seen as a logical calculation as well as a form of social innovation aimed at sustaining household and community economies.

5.2 Inequality of Access, Social Capital, and Agrarian Identity in Shaping Diversification Decisions

The livelihood diversification strategies pursued by farmers in Bulukerto cannot be separated from structural inequalities and uneven access to both social and economic resources. While diversification is a rational response to the apple farming crisis, not all farmers have equal opportunities to take advantage of the tourism sector. This disparity reflects the fact that successful diversification is largely determined by the strength of social capital, access to networks, and the farmers' position within the village's social structure.

The findings reveal that farmers with close relational ties to village authorities or local institutions, such as SG and ES are more likely to gain legitimacy and access to tourism facilities, such as managing ATV rides or jeep tours. This form of symbolic social capital plays a crucial role in opening up economic opportunities in tourism. In contrast, farmers such as AK, AP, and SH, who lack strong institutional connections, are limited to roles as informal laborers or users of others' assets under profit-sharing schemes with limited bargaining power (Rahman et al., 2020; Zhou et al., 2024).

Social capital in the form of community group membership or external networks also serves as a significant differentiator. For example, informant C, through a flower cooperative, was able to build distribution partnerships, fulfill large orders, and access out-of-town markets more consistently (Fink, Jack and Masiye, 2020; Kalifa, 2024). Meanwhile, informants YB and H utilized interregional networks to develop tourism-related businesses such as event organizing and local coffee product ventures. Access to digital technologies and social media also functions as a form of cultural capital that strengthens the adaptive strategies of younger generations (Cavalleri et al., 2022).

This inequality is further reinforced by the reality that the village's social structure determines not only economic access but also social legitimacy. Farmers perceived as representing the village's values or identity are more likely to receive support from village policies. Symbolic capital, such as local prestige or historical ties with village leaders, as in the cases of SG and ES, enhances their chances of becoming key actors in the local tourism economy, while others remain trapped in subordinate positions dependent on more powerful stakeholders (Rahman, et al., 2020).

At the same time, a strong agrarian identity continues to influence the direction of

farmers' diversification. Many informants expressed reluctance to abandon farming altogether. Instead, they chose to retain their land or shift to more flexible crops such as flowers, oranges, bonsai, or coffee. This strategy not only reflects resistance to a complete identity shift, but also underscores how preferences are shaped by values and agrarian legacies passed down through generations (Ohe, 2020; Luo *et al.*, 2022).

Individual preferences also play a role in shaping diversification paths. Informants like ST and ES, for example, showed an interest in adventure-based activities, which they expressed through their work as jeep tour drivers. YN and P, meanwhile, chose flower cultivation as a creative outlet and income source. Some combined economic strategy with identity expression such as AS, who developed a cafe alongside an educational agricultural gallery, or YB, who pursued international tour guide certification to expand market reach (Sun *et al.*, 2022; Starr, 2023).

Thus, farmers' diversification decisions are not merely rational responses to crisis conditions, but are also shaped by access structures, the strength of social capital, and deeply held agrarian values that influence their preferences. In Coleman's framework, preferences and actions are shaped by internalized norms and social networks. In contrast, Bernstein's perspective emphasizes that these choices reflect farmers' positions within the agrarian class structure and local power relations. It can therefore be concluded that the diversification strategies adopted by Bulukerto farmers are the result of a tension between individual rationality and the social structures that either constrain or enable action.

By understanding how access inequality, social networks, and agrarian identity interact, this study shows that successful diversification is highly dependent on the local socio-economic context. Diversification is not only a matter of adapting to opportunity, but also a struggle to maintain one's position and identity within a shifting economic landscape.

5.3 Bounded and Embedded Rationality within Unequal Structures

While the rational choice approach, which emphasizes individual calculation of resources and goals, is useful for explaining some of the farmers' diversification strategies, it is insufficient to capture the full complexity of the diversification process in Bulukerto. As Bernstein (2017) argues, farmers' economic decisions cannot be separated from the unequal socio-economic structures and local power relations. Access to tourism facilities, such as ATV fleets or village-based development projects is more easily obtained by those with close ties to village authorities or BUMDes institutions. Conversely, farmers without such relational access are only able to participate as casual laborers, lacking ownership over the means of production. This disparity reflects the persistence of patron–client relationships in shaping farmers' economic participation (Kodir *et al.*, 2020; Umam *et al.*, 2022; Yusriadi *et al.*, 2024).

In addition to social access, asset ownership plays a significant role in enabling diversification. Farmers such as U, LI, SG, and AS, who possessed initial capital, were able to build tourism businesses and become key actors. In contrast, farmers with limited assets could only assume subordinate roles within collaborative arrangements or revenue-sharing systems. These findings are consistent with studies by Li *et al.*, (2020), Moahid and Maharjan (2020) and Iqbal *et al.*, (2021), which highlight asset ownership as a major determinant of farmers' diversification behavior.

Social norms, including agrarian identity and social legitimacy granted by local leaders, also influence farmers' decisions to remain in agriculture while exploring tourism opportunities. The connection to local narratives of agricultural pride and long-standing village ties fosters a sense of attachment to land and traditional commodities (Gascón and Mamani, 2022; Kimbu *et al.*, 2022; Zulgani *et al.*, 2023).

Farmers' preferences for remaining in agriculture or choosing alternative occupations, such as driving tourist jeeps are expressions of an agrarian identity shaped during the golden age of apple farming, when formal education was not prioritized. This is supported by findings

from Liu et al., (2020), Moahid and Maharjan (2020) and Iqbal et al., (2021), which indicate that lower education levels contribute to farmers' continued attachment to land-based and community-centered work.

Therefore, farmers' diversification strategies in Bulukerto are not simply the result of individual cost-benefit calculations but are deeply embedded in their social positions within an unequal agrarian structure. This study contributes by bridging Coleman's micro-level rationalism with Bernstein's agrarian political economy. While Coleman explains that farmers' actions are shaped by internalized norms and social networks (Coleman, 2008), Bernstein emphasizes that these choices are rooted in power relations, asset distribution, and rural class structures (Dharmawan et al., 2021; Sidik and Habibi, 2024).

Diversification among Bulukerto's farmers is not merely a survival strategy but also a process of identity transformation and social repositioning amid rural economic restructuring. This aligns with the perspectives of Dickes et al., (2020), Ohe (2020), Prayitno et al., (2023), Zvavahera and Chigora (2023) and Wilkes (2024), who stress the importance of interpreting economic strategies as part of broader social and symbolic changes within communities.

As such, a synthesis with the concepts of bounded rationality and embedded agency is necessary. Under conditions of uncertainty, farmers make decisions using limited information and seek to maximize outcomes based on available resources, as emphasized by (Barros, 2010). At the same time, their decisions are inseparable from the social context, community values, and local norms, reinforcing Granovetter's (2018) argument that agency is always embedded in social networks. Empirical evidence shows that social ties, community support, experiential technical skills, and personal preferences, such as a love for driving or a desire for comfortable work, play vital roles in shaping diversification strategies.

Thus, farmers' rational choices are not the result of autonomous individual action but emerge from the interaction between agrarian structural pressures (Bernstein, 2017), rational resource assessments (Coleman, 2008), and the constraints of limited information and embedded social ties (Barros, 2010; Granovetter, 2018). Diversification into tourism is, therefore, a rational strategy rooted in microeconomic realities, community-based social structures, and an evolving agrarian identity amid the broader transformation of rural life.

6. Conclusion

This study reveals that livelihood diversification among farmers in Bulukerto, whether capital-based, labor-based, or informal small-scale, is not merely a reactive response to agricultural crisis but a strategic adaptation shaped by rational decisions and structural conditions. Drawing from Coleman's theory, farmers evaluate material and non-material resources, calculate potential costs and rewards, and act according to values, preferences, and norms internalized through social networks (Coleman, 2008). These decisions are context bound, while some farmers capitalize on land, skills, and village connections to establish formal tourism ventures, others rely on labor, family support, and micro-digital markets to survive. Agrarian identity remains an anchoring force in shaping hybrid strategies that combine farming heritage with tourism income.

However, these decisions are not made in a vacuum. Power structures, asset control, and class relations, emphasized by (Bernstein, 2017), limit the space for action, making diversification deeply shaped by structural inequalities. Farmers' responses also reflect bounded rationality Simon's (Barros, 2010) and embedded agency (Granovetter, 2018), as they operate with limited information, local norms, and social constraints. Their livelihood strategies become a negotiation between agency and structural barriers, between aspiration and access. Taken together, the findings answer three core research questions, they show that farmers respond rationally to agrarian decline, that their strategies are shaped by unequal access, norms, and status, and that combining Coleman's micro-rationality with Bernstein's structural critique and supported by

Simon and Granovetter's insights, provides a robust framework for understanding rural transformation. Therefore, policy interventions should ensure fair asset distribution, strengthen digital skills, and promote inclusive tourism models that honor agrarian identity.

7. Implication of research

This research offers both theoretical and practical implications for understanding livelihood diversification among farmers in rural areas undergoing tourism transformation. Theoretically, the study enriches the framework of rational choice theory by demonstrating how farmers' decisions are not purely economic calculations but are shaped by bounded rationality embedded in social structures. By integrating Coleman's rational choice theory with Bernstein's agrarian political economy, as well as the concepts of bounded rationality and embedded agency, this study highlights the need for a multidimensional perspective in analyzing livelihood strategies. It emphasizes that economic decisions are not made in a vacuum, but are influenced by structural constraints, social networks, and cultural norms.

Practically, the findings suggest that policy interventions aimed at promoting rural tourism must consider the heterogeneous resources and social positions of farmers. Tourism programs should be designed to ensure inclusive participation by strengthening local social capital, providing equitable access to productive assets, and addressing existing power imbalances. Support for skill development, financial access, and participatory governance mechanisms is essential to prevent marginalization and to ensure that tourism development contributes to sustainable rural livelihoods. Moreover, maintaining agricultural activities alongside tourism is crucial to preserve food security, cultural identity, and environmental sustainability in rural communities. Policy recommendations include the establishment of transparent mechanisms for resource allocation in tourism projects, strengthening farmer cooperatives to negotiate access and benefits, and integrating agritourism models that respect traditional land use while providing additional income opportunities. These steps are essential to support farmers in making informed and viable diversification choices in the face of ongoing agrarian and ecological challenges.

8. Limitation of study and future research

This study has several limitations that should be acknowledged. First, the research is based on a single case study in Bulukerto Village, which limits the generalizability of the findings to other rural contexts undergoing tourism transformation. While the in-depth qualitative approach provides rich contextual insights, it may not fully capture the diversity of experiences among farmers in other regions with different agrarian structures or tourism models. Second, the study relies primarily on interview data and non-participant observation, which may be subject to self-reporting biases and the interpretive lens of the researcher. The absence of longitudinal data also restricts the ability to assess long-term impacts of livelihood diversification on household welfare and community dynamics. Third, while the study integrates multiple theoretical perspectives, it does not quantitatively measure the influence of each factor (e.g., social capital, asset ownership, or political affiliation) on farmers' decisions, leaving room for further empirical validation through mixed-method or quantitative approaches.

Future research should consider comparative case studies across different rural tourism destinations to explore how contextual variables such as land tenure systems, state policies, or local governance structures influence diversification outcomes. Longitudinal studies are also needed to examine the sustainability of diversified livelihoods over time, especially in the face of market volatility, environmental degradation, and changing political landscapes. In addition, future work could explore the role of gender, youth, and intergenerational dynamics in shaping livelihood strategies, as well as the potential unintended consequences of tourism development on rural social fabric, ecological resilience, and agrarian identity. Such research would deepen our understanding of how rural communities adapt to structural transformations and what forms of support are most effective in fostering equitable and sustainable rural futures.

Authors' contributions and responsibilities

Sofiurrohman contributed to the conceptualization of the research, designed the methodology, conducted fieldwork including interviews and observations, and led the writing of the original manuscript draft. He was also responsible for integrating theoretical frameworks and synthesizing the discussion.

Anif Fatma Chawa was responsible for supervising the research process, refining the theoretical framework, and providing critical input in the analysis and interpretation of findings. She contributed significantly to the revision and editing of the manuscript for academic clarity and coherence.

Iwan Nurhadi contributed to the development of the research instruments, assisted with data validation and triangulation, and participated in manuscript editing. He was also involved in reviewing related literature and ensuring methodological rigor.

Moch Hisyam Putra contributed to the overall refinement of the manuscript.

All authors read and approved the final manuscript and are equally responsible for all aspects of the work, including ensuring its integrity and accuracy.

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Competing interests

The authors declare that there are no potential conflicts of interest related to the research, authorship, or publication of this article.

Data Availability Statement

The data that support the findings of this study are available upon reasonable request from the corresponding author.

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