



The Role of Non-Agricultural Rural Activities in the Transformation of Rural Areas in Kediri Regency

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Abstract

Rural-to-urban transformation is marked by increasing population movement and a shift from agricultural to non-agricultural sectors. This transformation reflects the impact of urbanization on rural areas, resulting in economic diversification and job pluralism. Non-agricultural rural activities provide alternative income sources, especially for households with limited or no agricultural land, contributing to labor absorption, economic growth, and poverty reduction. Kediri Regency in East Java exemplifies this phenomenon, with 29 villages reclassified as urban according to the Central Bureau of Statistic Regulation No.37 of 2010. This study aims to analyze non-agricultural rural activities in the context of rural transformation in Kediri Regency. It examines external and internal driving factors as well as the outcomes of such activities. A quantitative approach was used, including descriptive statistical analysis and Geographic Information Systems (GIS). A scoring method identified the most influential drivers and outcomes. The study used multistage sampling area and snowball techniques focusing on non-agricultural households in three villages: Bringin, Gempolan, and Petok, each with varying proximity to primary and secondary cities. Findings show that proximity to urban centers is the main external driver in Bringin, while physical capital dominates in Gempolan and Petok. Internally, innovation drives non-agricultural activities in Bringin and Petok, whereas access to credit is more influential in Gempolan. Income improvement is the most reported outcome across all villages. The research concludes with policy recommendations to support rural development programs aligned with the most significant influencing factors, fostering diversification and sustainable rural transformation.

Keywords: external driving factors; internal driving factors; non-agricultural rural activities; outcomes of non-agricultural activities; rural transformation.

1. Introduction

Urbanization has become one of the dominant global processes reshaping human settlements, particularly in developing countries. This trend involves increasing movement of populations from rural to urban areas, accompanied by changes in land use, employment structure, and spatial organization (Jedwab, Christiaensen, & Gindelsky, 2017; Tacoli, 2006). In Indonesia, the urban population continues to grow rapidly, with over 24,000 villages reclassified as urban between 1980 and 2020 (BPS, 2020). Such reclassification often reflects deeper economic and spatial transformations, particularly the shift from agricultural to non-agricultural livelihoods.

Rural transformation is a process of structural change involving a decline in agricultural employment and an expansion of non-agricultural sectors such as manufacturing, trade, and services (Berdegue, Rosada, & Bebbington, 2013). This process is linked to broader urbanization dynamics and is often accompanied by rural industrialization, increased mobility, and land-use change (Yang et al., 2020). In many

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rural contexts, non-agricultural activities serve as alternative income sources for households with limited agricultural land, thus contributing to labor absorption, poverty reduction, and rural economic growth (Haggblade, Hazell, & Reardon, 2010).

The case of Kediri Regency in East Java exemplifies this trend. According to Central Bureau of Statistics Regulation No. 37/2010, 29 villages in Kediri experienced a transition from rural to urban classification, indicating the extent of rural transformation in the region. From 2010 to 2020, Kediri saw an increase in population density and a marked decline in agricultural sector growth, while sectors such as agroindustry and small-scale manufacturing expanded.

This transformation is also driven by national policies that aim to accelerate rural development and economic diversification. Programs such as the Village Fund (Dana Desa) and the Integrated Village Development Program (Program Pembangunan dan Pemberdayaan Masyarakat Desa, or P3MD) have provided fiscal resources for rural infrastructure and entrepreneurship. These interventions not only improve physical accessibility but also stimulate local non-agricultural initiatives, especially in villages with proximity to urban centers.

In East Java, the rise of rural entrepreneurship is further supported by provincial programs such as Jatim Puspa (Jawa Timur Pemberdayaan Sosial Ekonomi Perempuan) and Kampung Keluarga Berkualitas, which aim to enhance household resilience and productivity. Kediri Regency, strategically located between major urban corridors, has become a node of peri-urban expansion, attracting spillover effects from Kediri City and Pare District. This proximity has facilitated access to broader markets, information, and mobility, encouraging households to explore non-farm income strategies.

Another important driver is digital connectivity, which increasingly enables rural residents to engage in online trade, digital services, and remote work. Although still uneven, the expansion of internet infrastructure in Kediri has enabled some rural businesses to reach consumers beyond local markets. These trends reflect the evolving landscape of rural economic life, where boundaries between rural and urban livelihoods are becoming more fluid.

However, the impact of these changes is not uniform. Some communities have successfully adapted to emerging opportunities, while others remain constrained by low levels of education, limited capital, and infrastructural deficits. Therefore, analyzing the role of non-agricultural rural activities across different village contexts is crucial for understanding the broader trajectory of rural transformation and informing more inclusive rural policies.

Despite the growing body of literature on rural transformation, there remains a gap in understanding how internal and external factors influence the emergence and sustainability of non-agricultural rural activities, especially in the Indonesian context (Ellis, 2000; Scoones, 1998). Understanding how these dimensions interact in different spatial contexts is essential for designing effective development policies (Tacoli et al., 2015; Christiaensen & Todo, 2014; Reardon et al., 2001).

This study aims to analyze the role of non-agricultural rural activities in the transformation of rural areas in Kediri Regency. It addresses three research objectives: (1) to identify the external driving forces that influence non-agricultural rural activities; (2) to examine internal household-level drivers; and (3) to evaluate the socioeconomic outcomes of such activities. By comparing three villages with varying distances to urban centers, this study seeks to provide context-specific insights into rural transformation and inform place-based development strategies.

2. Research Method

2.1. Study Area and Data Collection

This research was conducted in Kediri Regency, East Java, focusing on three rural villages: Bringin, Gempolan, and Petok that represent varying levels of proximity to urban centers. Bringin is located close to Pare District, a secondary urban center, while Petok lies near Kediri City, the primary city in the region. Gempolan, positioned at a relatively balanced distance from both centers, serves as an intermediary case. The selection of these villages was based on spatial typology using a multiple ring buffer analysis, allowing for a comparative assessment of rural transformation under different degrees of urban influences.



Figure 1 Study Area and Spatial Typology of Research Villages in Kediri Regency

Data collection combined both primary and secondary sources. Primary data were obtained through structured questionnaires distributed to rural households engaged in non-agricultural activities. These were supplemented by semi-structured interviews with selected informal and direct field observations to better capture local conditions, infrastructure, and socio-economic contexts. Due to the lack of a formal database of non-agricultural households, the study applied a multistage sampling technique. Villages were first selected purposively based on spatial criteria, and within each village, a snowball sampling approach was employed to identify and reach non-agricultural households. The minimum sample size of 100 was determined using the Lemeshow formula for unknown populations.

Secondary data were drawn from official sources such as the Central Bureau of Statistic (BPS), local development agencies, and village planning documents (RPJMDes), providing supporting information on demographic, economic, and infrastructural characteristics.

To capture diverse conditions, data were collected between March and July 2023 using multistage sampling. The first stage employed area sampling based on proximity to Kediri City and Pare, and the second stage used snowball sampling to locate households engaged in non-agricultural activities, as formal registries were unavailable. A total of 100 respondents were selected based on the Lemeshow formula for unknown populations.

Field data were complemented by GIS-based spatial analysis, which used buffer zones and accessibility layers to map spatial relations. Before deployment, the questionnaire was pilot-tested in a neighboring village, and revisions were made to improve clarity and measurement accuracy.

2.2. Variables and Analytical Approach

The analysis was structured around three key dimensions: external driving factors, internal household factors, and the outcomes of non-agricultural rural activities. External factors included land use, soil characteristics, access to infrastructure (roads, transport, telecommunications, electricity), and spatial proximity to urban centers. These were assessed through descriptive statistics and visualized using GIS-based spatial analysis to identify patterns related to accessibility and urban influence.

Internal factors focused on household demographics (age, gender, marital status), human capital (education, skills, innovation, technology use, community participation), and financial resources (savings and access to credit). These data were collected through structured questionnaires and interviews, then analyzed using descriptive statistics.

Outcomes were evaluated based on self-reported changes in income, labor engagement, and market access. A scoring method was applied to determine the relative significance of each factor and outcome across the study villages, allowing for comparison of rural transformation dynamics in different spatial contexts.

2.3. Theoretical Framework

This study employs the Sustainable Livelihood Framework (SLF) by Chambers and Conway (1992), complemented by Scoones (1998), to conceptualize how various types of capital natural, human, financial, physical, and social contribute to household livelihood strategies. In the Kediri case, the relevance of physical

capital (e.g., infrastructure), financial capital (e.g., credit use), and human capital (e.g., skills and innovation) is particularly salient.

Additionally, the study adopts a spatial perspective rooted in rural-urban linkage theory (Tacoli, 2006; Christiaensen & Todo, 2014), highlighting how proximity to urban centers influences rural economic behavior. The classification of the three research villages (Bringin, Gempolan, Petok) within 5, 10, and 20 km rings of primary and secondary cities provides a spatial typology that interacts with household capabilities. These combined frameworks help explain both structural drivers and household-level responses in rural transformation.

3. Result and Discussion

3.1. External Driving Factors

The spatial and infrastructural contexts of the studied villages strongly influenced the emergence and development of non-agricultural rural activities. In Desa Bringin, the dominant external driver was its proximity to the secondary urban center of Pare. Pare hosts a major regional market that serves as a distribution and aggregation point for agricultural and non-agricultural products alike. This market exerts a significant pull effect on surrounding villages, particularly Bringin, enabling rural producers to tap into broader consumer networks and benefit from economies of scale. The presence of this urban market contributes not only to trade access but also to local innovation in production and packaging processes, especially in honey-based enterprises, which are prominent in the village.

Meanwhile, in Desa Gempolan and Desa Petok, the primary external factor was physical capital, particularly in the form of road networks and transportation infrastructure. These villages lie closer to Kediri City, the regency's primary urban hub. Good road conditions and connectivity facilitated routine access to urban markets and service centers. Households here often engage in mobile vending and small-scale trade, with many reporting that efficient mobility is essential for sustaining their businesses. This finding supports the idea that infrastructure is a prerequisite for spatial integration and functional rural-urban linkages, particularly for micro-scale traders and informal entrepreneurs (Gordon & Craig, 2001; Yang et al., 2020).

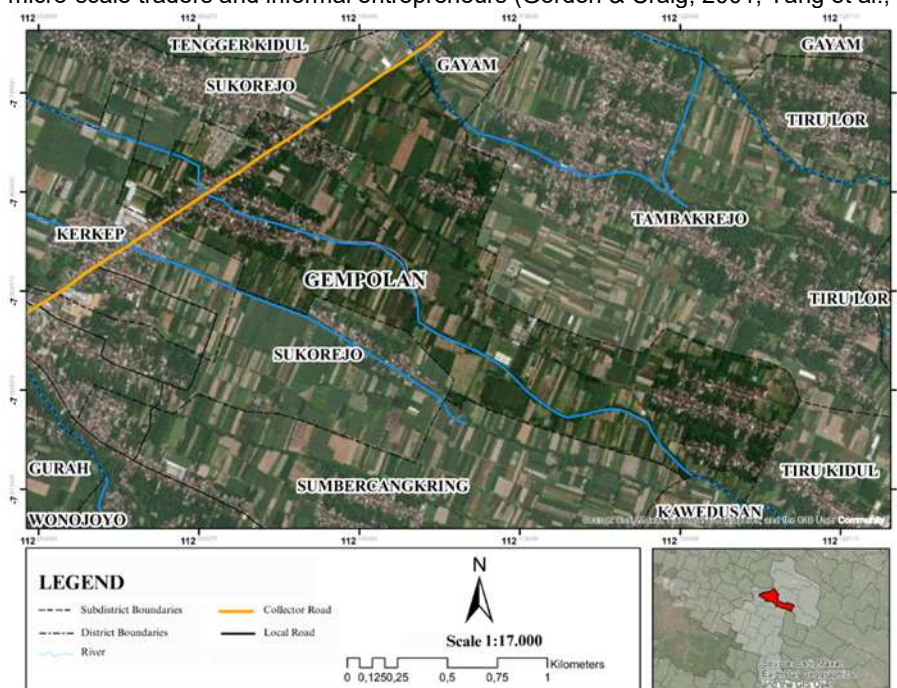


Figure 2 Road Network and Accessibility Distribution in the Study Villages

Additionally, in all villages, the availability of basic utilities such as electricity and telecommunications was viewed as enabling factors, though not as decisive as market proximity or road infrastructure. Importantly, policy presence, such as village development plans or business permit support, was weak and did not emerge as a significant external enabler—highlighting the dominance of spatial-economic rather than institutional factors in shaping rural transformation.

Furthermore, spatial accessibility influenced not only the feasibility of market-oriented production but also the exposure to innovation and knowledge exchange. Households in Bringin reported frequent interaction with buyers from outside the village and active participation in community business forums facilitated by traders from Pare. These interactions function as informal channels of information transfer, shaping business strategies and consumer-oriented adaptation.

In Gempolan, the infrastructural advantage particularly its location along a paved collector road—allowed residents to engage in mobile vending activities that extended into urban and peri-urban spaces. This form of economic mobility supports the idea that infrastructure facilitates not only physical movement

but also economic diversification. However, respondents also pointed out that traffic congestion and lack of pedestrian facilities in urban centers limited their selling hours, especially for vendors operating carts or motorcycles.

While road and transport facilities are widely regarded as enabling factors, access to digital infrastructure presented a mixed picture. Petok, being closer to Kediri City, had relatively better mobile signal and internet access. In contrast, Bringin experienced slower connectivity, which hampered online promotion efforts. Although a few younger entrepreneurs had adopted social media for marketing, poor coverage and digital illiteracy remained barriers, especially among older respondents.

Interestingly, formal institutions such as village offices, cooperatives, or local economic boards played only a marginal role in stimulating external support. Most respondents were unaware of available government schemes or found the registration process too complex to navigate. This suggests a gap between policy presence and grassroots implementation, which may weaken the long-term sustainability of externally-driven economic activities.

3.2. Internal Driving Factors of Household Participation

Internal household factors showed considerable variation depending on location and community characteristics. In Bringin and Petok, where educational attainment was relatively higher, innovation and human capital were key determinants. Many households in these villages had moved beyond subsistence trade and began to incorporate marketing strategies, digital platforms, and product differentiation into their operations. For instance, honey producers in Bringin reported experimenting with branding, packaging, and online sales. This reflects an emerging entrepreneurial orientation supported by both social networks and knowledge exchange.

In contrast, Desa Gempolan exhibited a different internal dynamic. While education and innovation levels were lower, the availability and usage of credit and microfinance had increased notably, especially over the past five years. Respondents attributed this to the rise in accessible loan programs during the COVID-19 pandemic, which they used to finance small-scale enterprises such as food vending, tailoring, and service delivery. Credit access in Gempolan was not only more prevalent but also more heavily relied upon compared to the other villages, underscoring its role as a foundational resource in contexts with fewer human capital assets.

Demographic variables such as age and marital status did not significantly differ across villages; however, the most active participants in non-agricultural activities were married adults aged 30–50, reflecting the productive age group most responsive to household livelihood diversification.

Human capital manifested not only in education level but also in soft skills such as risk-taking, creativity, and social networking. In Petok, for instance, a group of women initiated a home-based snack production business after participating in a church-organized skills training. Although initially informal, the business later expanded to serve school canteens in nearby sub-districts. This highlights how social capital and organized networks can substitute for limited physical resources, creating pathways for income diversification.

Another internal motivator was generational outlook. Younger household members in Bringin and Petok, especially those aged 20-35, expressed higher aspirations for self-employment and a preference for flexible, digital-based income. Some were involved in online reselling, freelance design, and social media promotion. Although these activities were still emerging, they signal a shift in rural economic identity from traditional labor-based roles to platform-based entrepreneurship.

In contrast, in Gempolan, the dependency on credit programs reflected a more survivalist orientation. Microloans were often used to cover daily operational costs rather than strategic investment. Some respondents shared that they joined multiple rotating savings groups (*arisan*) to patch financing gaps. This strategy helped mitigate income volatility but also increased financial vulnerability.

Technology adoption also varied across villages. In Bringin, the use of mobile payment platforms such as Dana and ShopeePay was growing, particularly among food vendors. Meanwhile, in Gempolan, cash-based transactions still dominated, and respondents were hesitant to shift due to perceived complexity and fear of scams. These differences highlight how internal household capacities interact with external contexts to shape non-agricultural engagement.

3.3. Outcomes of Non-Agricultural Activities

The primary outcome reported by households across all villages was income improvement. Respondents emphasized that non-agricultural work provided more stable and often higher returns compared to agriculture, especially in the face of decreasing land access and seasonal uncertainties. This aligns with regional trends in rural areas across Indonesia, where the contribution of non-agricultural income to total household earnings has increased substantially in recent decades.

Market integration was also highlighted as a key benefit, particularly in Bringin. Access to Pare's regional market enabled local producers to reach buyers beyond their immediate village, strengthening their economic positioning and negotiating power. This was less apparent in Gempolan and Petok, where market access remained more localized, often limited to sub-district markets such as Pasar Gurah and Pasar Jabang.

However, employment generation beyond the household unit remained limited. Most businesses were home-based and operated by family members. Respondents cited constraints such as limited scale, informal status, and lack of capital to expand or hire additional workers. Thus, while non-agricultural activities

enhanced income security and market reach, they did not yet translate into broader rural employment multipliers.

In Bringin, households operating honey-processing business reported an increase in monthly income by 20% to 40% compared to prior engagement in seasonal farm labor. However, many of these enterprises remained seasonal or semi-formal, often depending on festival periods or school holidays to boost sales. In Gempolan and Petok, respondents engaged in mobile trade and service-based activities (e.g., tailoring, motorbike repair) also experienced improved income stability, but reported difficulties in scaling up due to the absence of working capital and formal licenses.

Market access emerged as a crucial differentiator of outcomes. Producers in Bringin benefited from proximity to Pare's market, allowing them to test new products and adapt to consumer trends more easily, in contrast, vendors in Gempolan relied on fixed routes or sub-district markets, limiting exposure to diversified consumer segments. Several traders expressed the need for digital platforms or cooperative channels to overcome these limitations, although they lacked technical skills to initiate such steps independently.

Employment benefits were mostly restricted to immediate family members. None of the businesses surveyed had hired full-time labor from outside the household. In some cases, children or spouses assisted informally during peak times, but this did not constitute stable job creation. Respondents emphasized that the informal nature of their work, combined with limited profit margins, prevented them from expanding their operations or hiring help.

Despite these constraints, non-agricultural activities contributed to increased autonomy in household financial management. Several women-led enterprises reported greater control over earnings and decision-making, which translated into improved spending on children's education or household upgrades. These intangible outcomes underscore the broader social impact of rural non-agricultural work, beyond measurable economic gains.

3.4. Synthesis and Spatial Implications

The interaction between external and internal factors presents a clear spatial pattern in the transformation of rural livelihoods. Villages closer to secondary cities like Pare (e.g., Bringin) tend to benefit from market spillovers and community-driven innovation. Villages near primary cities like Kediri (e.g., Petok and Gempolan) depend more on infrastructural connectivity and financial capital to engage in non-agricultural work. These differences suggest that the type and scale of urban proximity (primary vs. secondary city) influence not just the extent but also the mode of transformation.

This nuanced understanding challenges the assumption of uniform rural development pathways. Instead, it highlights the importance of place-based policies that align with local assets and constraints. Enhancing credit access and road infrastructure may be appropriate for peri-urban areas, while promoting local entrepreneurship and market support mechanisms could be more impactful in villages with higher innovation capacity.

Ultimately, the case of Kediri Regency illustrates how rural transformation in Indonesia is a differentiated and spatially contingent process, shaped by the convergence of geographical positioning, physical connectivity, household capabilities, and emerging market dynamics.

The differentiated impacts observed among Bringin, Gempolan, and Petok illustrate the importance of spatial orientation in shaping the rural non-agricultural economy. Villages like Bringin, located near secondary cities with strong community-based innovation, represent a localized model of transformation that thrives on social capital and proximity-driven market integration. In contrast, Gempolan reflects a transitional model reliant on physical infrastructure and microfinance as coping mechanisms, while Petok aligns more with peri-urban economic structures with modest digital access and evolving service-based activity.

These distinct patterns suggest that one-size fits-all policies are likely to fall short in supporting rural transformation. A spatially informed development approach would categorize rural areas not only based on administrative status or agricultural potential but also on functional attributes such as market distance, digital connectivity, and entrepreneurial capacity. Such categorization can guide resource allocation and program targeting to ensure interventions match local conditions.

For instance, innovation-focused villages like Bringin may benefit more from capacity-building programs, e-commerce facilitation, and branding support. In contrast, Gempolan and Petok would require infrastructural reinforcement and simplified pathways to formalization especially for mobile vendors and service microenterprises. Moreover, the observed gendered patterns of enterprise control and labor engagement suggest that inclusive strategies must go beyond capital access, incorporating tailored training and care infrastructure to support women's economic participation.

Importantly, the spatial typology used in this study based on proximity rings from primary and secondary cities offers a replicable tool for planners and policymakers. It provides a practical framework to analyze rural transformation potentials at the village level, complementing demographic or sectoral statistic. This reinforces the notion that rural development is not solely about physical remoteness or resource endowment, but about how place, people, and policy intersect to enable or constrain progress.

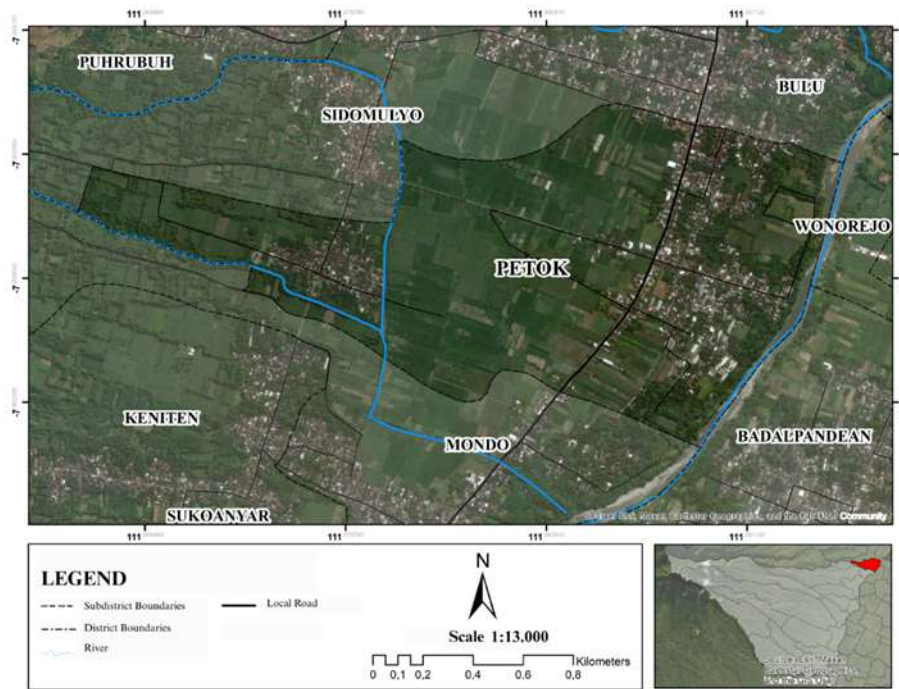


Figure 3 Spatial Interpretation of Rural Transformation Dynamics

3.5. Policy Implications

The findings of this study indicate that non-agricultural rural activities are not only economic alternatives but also strategic entry points for achieving inclusive and sustainable rural transformation. However, their success is contingent upon spatial factors, household capacities, and policy support. Therefore, the following policy implications are proposed:

1. Promote spatial differentiated rural development planning

The spatial typology applied in this study shows that villages closer to secondary urban centers (like Bringin) benefit more from entrepreneurial linkages and innovation flows, while those near primary cities (like Petok and Gempolan) depend more heavily on infrastructure and services. Policymakers should adopt place-based development models that align with each village's location-specific strengths and constraints (World Bank, 2022). Integrating spatial analysis into village planning documents (e.g., RPJMDes and RKPDes) would allow local governments to prioritize interventions that reflect actual transformation potential.

2. Expand access to digital and financial infrastructure

Digital infrastructure remains uneven across rural areas, yet its role in supporting microenterprise development is increasingly critical. Expanding internet connectivity and promoting digital literacy especially among women and youth can amplify the impact of non-agricultural business (FAO, 2021). Similarly, the availability of microcredit and simplified financing tools (such as branchless banking or e-wallets) should be expanded through collaboration with fintech companies and village-owned enterprises (BUMDes). Government programs like Kredit Usaha Rakyat (KUR) should be localized to reduce barriers to entry.

3. Simplify business formalization and licensing

Many rural entrepreneurs operate informally due to the complexity of administrative requirements. A streamlined "village-level registration system" or integration with OSS (Online Single Submission) systems at the sub-district level could reduce this burden. Formalization would improve access to training, legal protection, and public procurement programs helping rural businesses scale and diversify (ADB, 2023).

4. Invest in targeted entrepreneurship support programs

Villages with high innovation potential—such as Bringin—would benefit from programs that support branding, product development, and market expansion, including access to regional value chains. These interventions could be delivered through vocational training centers, digital incubators, or partnerships with local universities. Meanwhile, infrastructure-dependent villages (like Gempolan) may need foundational support before such programs can be effective.

5. Strengthen women's economic participation

Given the prominence of women-led home businesses in all study villages, policies should promote inclusive entrepreneurship. This includes access to capital, dedicated training modules, and enabling infrastructure such as childcare support or shared production facilities. Gender-sensitive policies can reduce household economic vulnerability while empowering rural women (UN Women, 2022).

In conclusion, rural transformation in Kediri and similar regions depends on policy coherence across spatial planning, infrastructure, finance, and capacity building. Non-agricultural rural activities must be positioned as a core element of rural development strategy, not merely as coping mechanisms for agricultural decline.

6. Conclusion

This study demonstrates that non-agricultural rural activities play a significant role in the ongoing transformation of rural areas in Kediri Regency. By analyzing three villages; Bringin, Gempolan, and Petok with varying proximities to urban centers, the research highlights the multidimensional drivers and uneven outcomes of rural transformation processes.

Spatial proximity to urban centers emerged as a critical external driver, enabling access to markets, information, and mobility. Villages near secondary cities, such as Bringin, were more responsive to entrepreneurial initiatives and innovation-driven economic activities. In contrast, villages closer to the primary city of Kediri (e.g., Petok and Gempolan) showed dependence on road infrastructure and microfinance to sustain livelihood diversification. These findings affirm the relevance of spatial typology in understanding rural economic behavior.

Internal household factors, especially human and financial capital, also shaped non-agricultural participation. Innovation, education, and social networks played a stronger role in Bringin and Petok, while access to credit and informal financial practices were more prominent in Gempolan. The generational shift towards digital tools and the role of women in home—based business point to new dynamics that require gender-sensitive and youth-focused development frameworks.

In terms of outcomes, non-agricultural activities contributed to improved income stability and limited market integration. However, most enterprises remained microscale, informal, and family-operated limiting their capacity to generate employment beyond the household. Structural constraints such as capital access, licensing complexity, and digital infrastructure gaps prevented further scaling and formalization mechanisms, and inclusive financing schemes will be key.

Finally, this research underscores the importance of using spatially grounded approaches in rural planning. Integrating spatial analysis tools with socioeconomic profiling can enhance the precision of rural development interventions. Future studies may benefit from incorporating longitudinal data to assess the durability of non-agricultural activities, as well as qualitative participatory methods to deepen understanding of household aspirations and community-level dynamics. In conclusion, the transformation of rural areas through non-agricultural pathways is a complex, place-based process that demands nuanced, inclusive, and adaptive planning.

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