

Bibliometric Analysis of the Role of MSMEs in Sustainable Village Development

Loso Judijanto
IPOSS Jakarta, Indonesia

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ABSTRACT

This study explores the academic landscape concerning the role of Micro, Small, and Medium Enterprises (MSMEs) in sustainable village development through a bibliometric analysis. Using data retrieved from the Scopus database and visualized with VOSviewer, the research maps keyword co-occurrence, thematic evolution, author collaboration, and international partnerships. The findings identify three primary research clusters: (1) MSME operations and formalization, (2) sustainable development and rural welfare, and (3) empowerment and ecotourism. Overlay and density visualizations reveal a temporal shift from general development goals toward more specialized and participatory strategies in recent years. Co-authorship networks show key contributors from Indonesia, with growing regional collaboration involving Malaysia and Australia. Despite increasing scholarly interest, the field remains fragmented, highlighting the need for more integrative frameworks and comparative, impact-driven research. This study offers a comprehensive synthesis of existing knowledge and provides a strategic foundation for future inquiry into MSMEs as drivers of inclusive and sustainable rural transformation.

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Corresponding Author:

Name: Loso Judijanto
Institution: IPOSS Jakarta, Indonesia
Email: losojudijantobumn@gmail.com

1. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) have increasingly been recognized as critical drivers of socio-economic transformation, especially in rural and underdeveloped areas. These enterprises not only serve as engines of employment and income generation but also contribute to community resilience and local economic diversification [1]. In many developing countries, including Indonesia, MSMEs

represent more than 90% of all business units and contribute significantly to gross domestic product (GDP) and employment rates. Their decentralized nature makes them well-suited for supporting village-level economic activity and creating inclusive development opportunities that reach the grassroots [2], [3].

The pursuit of sustainable village development has become a global priority aligned with the United Nations Sustainable Development Goals (SDGs), particularly Goal 8 (Decent Work and Economic Growth) and

Goal 11 (Sustainable Cities and Communities). Within this context, MSMEs play a pivotal role in fostering economic inclusion, supporting local entrepreneurship, and driving innovation in sectors such as agriculture, crafts, tourism, and food processing [4]. The alignment of MSMEs with sustainable practices, such as the use of local resources, eco-friendly production methods, and community-based business models further highlights their importance in achieving balanced growth at the village level.

In Indonesia, the implementation of the Village Law (Law No. 6 of 2014) has provided a robust framework for promoting local development through village-owned enterprises (BUMDes), many of which operate under MSME principles. These enterprises are designed to empower communities, manage local resources, and create business opportunities tailored to local potentials [5], [6]. The growing emphasis on sustainable rural development facilitated by the decentralization of governance and increased village fund allocations has propelled the role of MSMEs as vital agents of change in Indonesia's rural transformation agenda.

Despite the policy support and recognized potential, the actual contribution of MSMEs to sustainable village development is uneven and often under-researched. While some villages have successfully integrated MSMEs into local planning and development, others struggle with issues such as limited access to markets, inadequate infrastructure, weak institutional support, and insufficient human capital [7], [8]. These disparities point to the need for deeper academic investigation into how MSMEs are positioned within the broader sustainable village development framework and how their roles evolve over time.

The academic discourse on MSMEs and sustainable village development is broad but fragmented. Although many studies have explored the economic contributions of MSMEs or the implementation of rural development strategies, there is limited synthesis of how these two domains intersect.

A bibliometric analysis provides a powerful methodological approach to mapping this intersection, identifying key themes, influential authors, research clusters, and gaps in the literature [9]. By employing bibliometric tools such as VOSviewer, this study seeks to generate an evidence-based understanding of the scholarly landscape surrounding MSMEs and their role in village-level sustainability initiatives.

Although MSMEs are often hailed as key players in promoting sustainable development at the village level, the academic literature lacks a cohesive and comprehensive analysis of their roles, strategies, and impacts within this specific context. The existing research is dispersed across various disciplines and is often limited to case studies without a broader synthesis of trends, influential works, or methodological approaches. This fragmentation hampers the ability of policymakers, development practitioners, and scholars to formulate effective strategies and policies that leverage MSMEs for rural transformation. Therefore, there is an urgent need for a systematic bibliometric review to illuminate the intellectual structure and emerging patterns in this field of study. The objective of this study is to conduct a bibliometric analysis of academic literature related to the role of Micro, Small, and Medium Enterprises (MSMEs) in sustainable village development.

2. METHODS

This study employs a bibliometric analysis approach to examine the landscape of academic research concerning the role of Micro, Small, and Medium Enterprises (MSMEs) in sustainable village development. Bibliometric analysis is a quantitative method used to assess, map, and visualize the structure, development, and distribution of scientific knowledge within a particular field [9]. The method allows researchers to identify the most influential authors, institutions, keywords, and publication sources, as well as to uncover thematic trends and gaps in the literature. Given the interdisciplinary and

fragmented nature of the research on MSMEs and rural sustainability, bibliometric analysis offers a comprehensive way to synthesize existing knowledge and uncover latent patterns.

The data for this analysis were retrieved from the **Scopus database**, selected for its broad coverage of peer-reviewed academic journals across disciplines relevant to development studies, economics, entrepreneurship, and rural policy. A structured search was conducted using keywords such as "MSMEs," "village development," "rural development," "sustainability," and "small businesses," in various combinations. The search was limited to publications in English and included

journal articles, conference proceedings, and reviews published from 2000 to 2024. The final dataset was exported in RIS and CSV formats for compatibility with bibliometric tools. Duplicates and irrelevant records were manually filtered out to ensure data quality and relevance. The analysis was conducted using **VOSviewer**, a widely used software tool for constructing and visualizing bibliometric networks, including co-authorship, co-citation, and keyword co-occurrence networks [10].

3. RESULTS AND DISCUSSION

3.1 Network Visualization

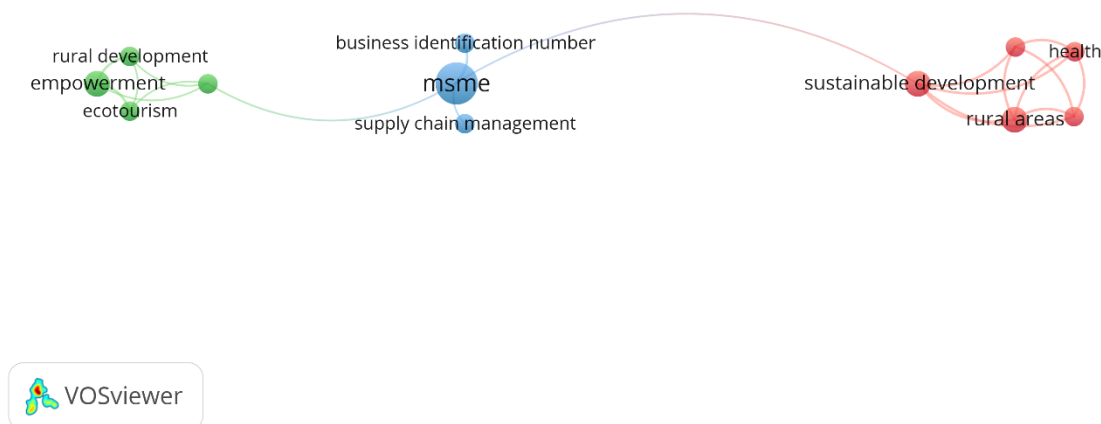


Figure 1. Network Visualization

Source: Data Analysis Result, 2025

Figure 1 presents a keyword co-occurrence map derived from bibliometric data on MSMEs and sustainable village development. In this network graph, each node represents a keyword, and the links between nodes indicate co-occurrence in the same set of publications. The colors signify different thematic clusters, showing the distinct but interconnected research domains

within the literature. The spatial proximity of the keywords reflects the strength of their association: the closer they are, the more frequently they appear together.

The central node in blue, "msme", serves as the pivot of the bibliometric network and is directly connected to terms like *business identification number* and *supply chain management*, indicating a research emphasis

on formalization and operational logistics of MSMEs. This suggests that part of the scholarly attention focuses on how MSMEs operate within systems of registration, legality, and logistical frameworks—critical components in enabling small enterprises to integrate into formal development initiatives.

The green cluster represents a thematic focus on *rural development*, *empowerment*, and *ecotourism*. This cluster points to a segment of literature that views MSMEs as tools for community-based development strategies, particularly those that emphasize participatory models and environmentally oriented economic activities. The link between empowerment and ecotourism signals that MSMEs are often discussed in the context of enabling local communities to take charge of their resources, especially in rural or natural settings.

Meanwhile, the red cluster, which includes *sustainable development*, *rural areas*, and *health*, represents a broader discourse around sustainability and well-being. The dense interconnection among these terms implies an integrated approach in the literature that views rural development not only as an economic objective but also as a holistic effort that includes public health and social resilience. The linkage of "sustainable development" to "msme" via a faint line further emphasizes that, although MSMEs are not always at the center of sustainable development discussions, they are increasingly recognized as relevant actors in achieving these goals, especially in rural contexts.

3.2 Overlay Visualization

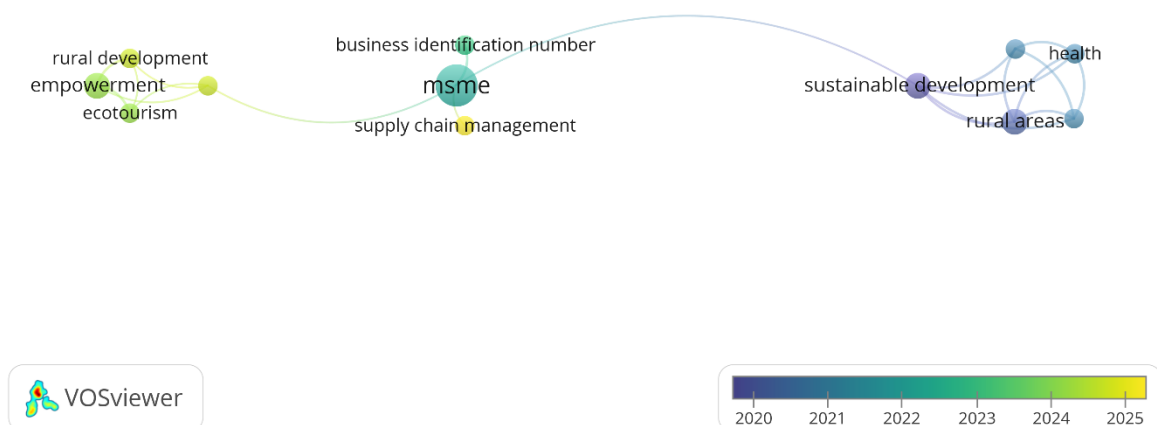


Figure 2. Overlay Visualization

Source: Data Analysis Result, 2025

Figure 2 illustrates the **temporal evolution** of keyword usage in publications related to MSMEs and sustainable village development, with the color gradient indicating the average

year of appearance for each term. Terms in blue shades—such as *sustainable development*, *rural areas*, and *health*—are associated with earlier publications, mainly from 2020 to 2022.

These earlier discussions focused on the foundational link between sustainability, rural well-being, and development policy, reflecting the global momentum generated by the SDGs and their initial influence on academic research in rural contexts. In contrast, keywords like *msme*, *business identification number*, and *supply chain management* appear in shades of green, representing studies emerging more prominently around 2023. This shift suggests a growing interest in the institutional, regulatory, and logistical dimensions of MSMEs within the rural development agenda. The emphasis on formalization (through business identification numbers) and supply chain integration highlights an

academic turn toward the operational aspects of MSMEs as they increasingly participate in structured and policy-driven rural economies. Most notably, the **latest emerging themes**—in bright yellow—include *empowerment*, *ecotourism*, and *rural development*. These terms are associated with publications closer to 2025, indicating a renewed research interest in community-led initiatives and sustainable tourism as key enablers of inclusive village development. The appearance of these themes toward the frontier of the timeline reflects the evolving discourse, where MSMEs are not only examined as economic actors but also as agents of social transformation, environmental stewardship, and rural innovation.

3.3 Citation Analysis

Table 1. The Most Impactful Literatures

Citations	Authors and year	Title
26	[11]	Technological Innovation to Increase the Competitiveness of MSMEs: Implementation of the Integrated Industry Village 4.0 Platform Innovación tecnológica para aumentar la competitividad de las MIPYMES: Implementación de la plataforma Aldea Integrada de la Industria 4.0
15	[12]	Development of GIS for buildings in the customary village of Minangkabau Koto Gadang, West Sumatra, Indonesia
13	[13]	Analysis of Maximization Strategy Intangible Assets through the Speed of Innovation on Knowledge-Driven Business Performance Improvement
4	[6]	Strengthening Tourist Village Attractions Through Empowerment of Rural Micro, Small, and Medium Enterprises (MSMEs)
4	[14]	Modeling Architecture with the TOGAF Framework to Support the Smart Village in Indonesia
4	[15]	Food crops-based and horticulture-based villages potential as growth center villages in Jambi Province, Indonesia
3	[4]	Model of Government Development for MSMEs Through One Village One Product (OVOP) Concept by the Cooperatives and MSMEs Office in Rokan Hilir Regency
3	[16]	ECONOMIC INSTITUTIONAL EMPOWERMENT MODEL AS A CLIMATE AND ENERGY INDEPENDENT VILLAGE BASED ON LOCAL WISDOM
2	[17]	Edu-Tourism Concept in Eco-Friendly Farm Development Design in Ngronggot Village, Nganjuk, East Jawa
2	[18]	Aligning Strategic MSME Entrepreneurship to Local Government Policy: A Case Study of a Tourism Village in Bogor Indonesia

Source: Scopus, 2025

3.4 Density Visualization

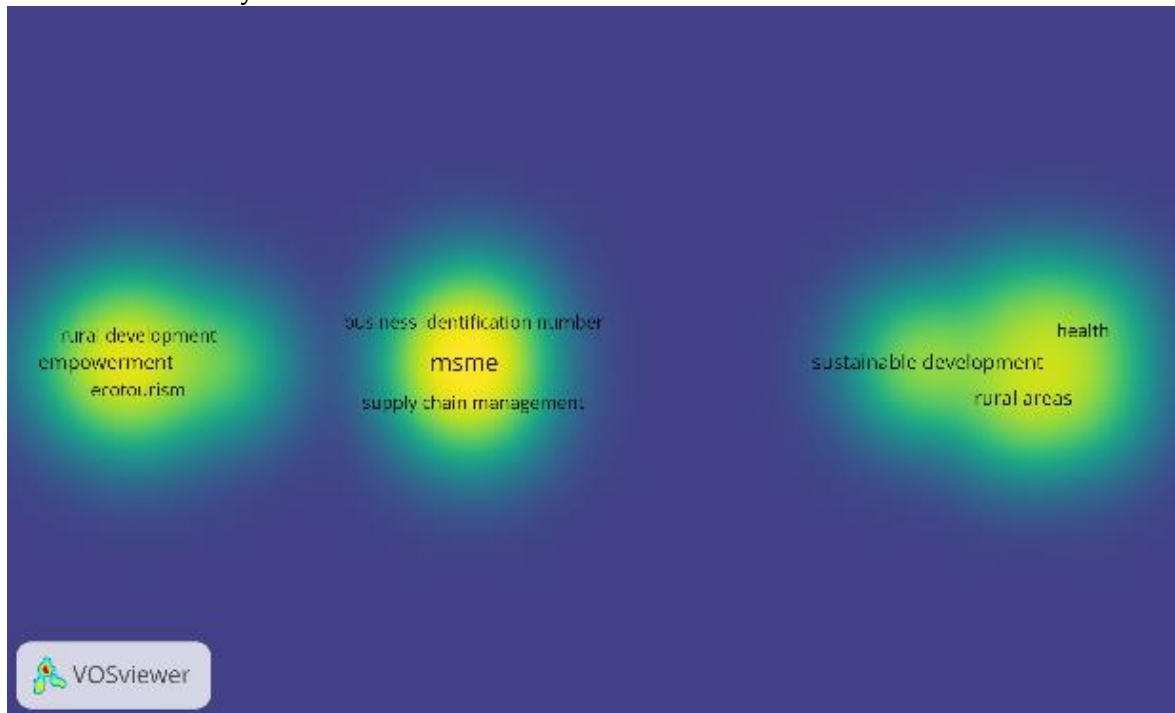


Figure 3. Density Visualization

Source: Data Analysis Result, 2025

Figure 3 presents the density of keyword occurrences in the scholarly literature on MSMEs and sustainable village development. Brighter (yellow-green) zones indicate areas with high keyword frequency and co-occurrence, while darker blue zones indicate lower density. The keyword “msme” is at the center of one of the most concentrated clusters, strongly associated with terms like business identification number and supply chain management. This suggests that a significant portion of the academic discourse has been focused on the formalization, operational logistics, and institutional integration of MSMEs within development frameworks.

On the opposite side of the map, a second dense cluster revolves around the keywords *sustainable development*, *rural areas*, and *health*. This indicates a substantial body of literature exploring the broader implications of sustainability in rural contexts, likely driven by global policy agendas such as the SDGs. Meanwhile, a third cluster to the left includes *rural development*, *empowerment*, and *ecotourism*, highlighting another prominent area of study that emphasizes community participation and nature-based entrepreneurship.

3.5 Co-Authorship Network

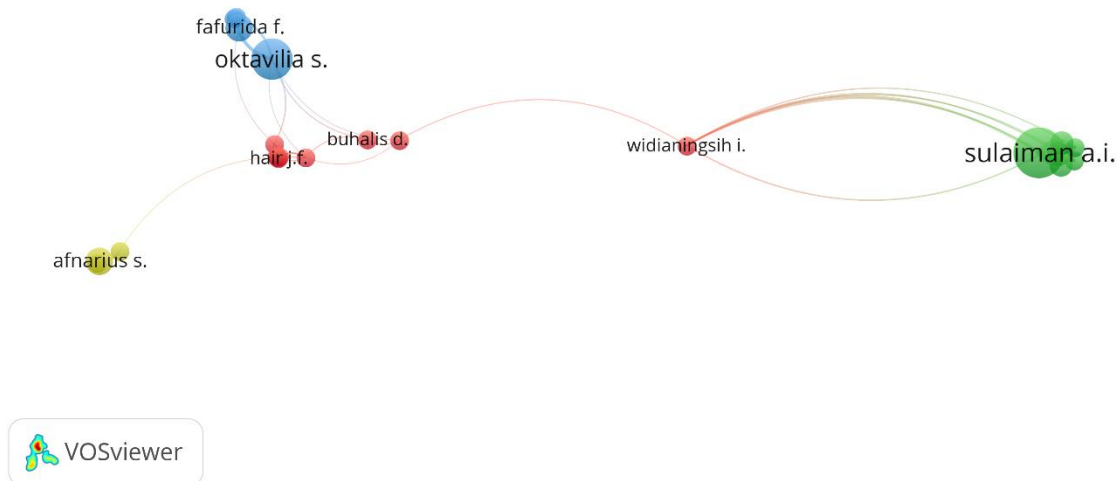


Figure 4. Author Visualization

Source: Data Analysis Result, 2025

Figure 4 highlights the collaborative structure among researchers contributing to the topic of MSMEs and sustainable village development. The author sulaiman a.i., represented in green, emerges as the most central and prolific node, with multiple co-authorship links indicating an active and cohesive research group. Another visible cluster is centered around oktavilia s. and hafrida f., shown in blue, forming a distinct collaboration network with internal links and

occasional connections to other clusters such as hair j. and buhalis d., shown in red. Interestingly, widianingsih i. appears as a bridging figure between the sulaiman and oktavilia clusters, facilitating intellectual exchange between otherwise distinct author communities. The presence of peripheral authors like afnarius s., connected with fewer links, suggests either emerging contributors or those engaging in one-off collaborations.

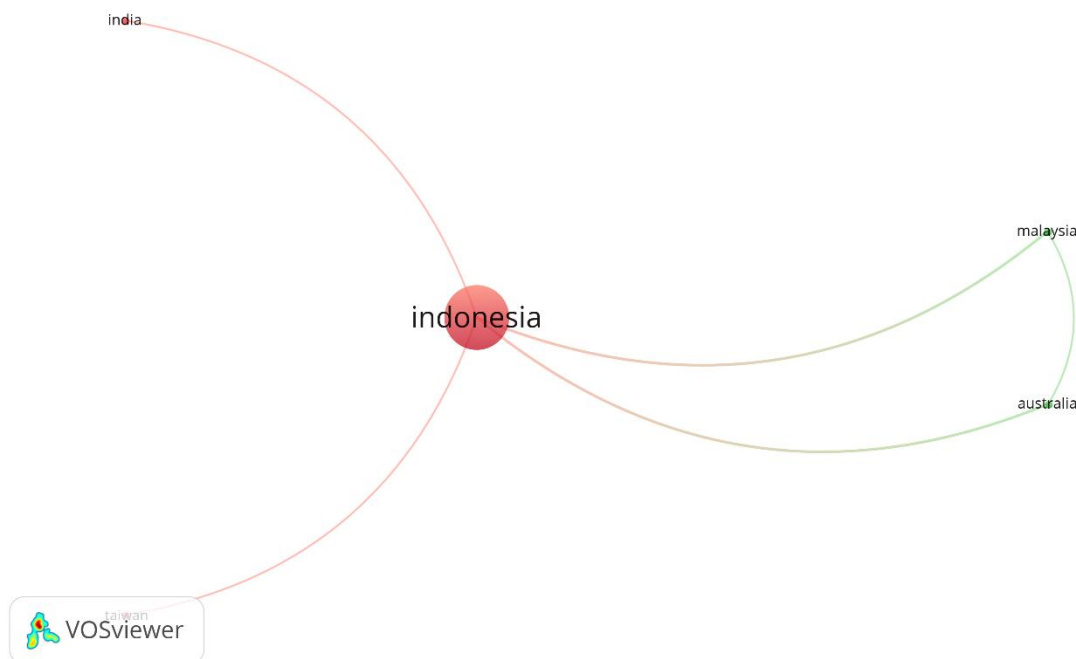


Figure 5. Country Visualization

Source: Data Analysis Result, 2025

Figure 5 highlights **Indonesia** as the dominant hub of international research on MSMEs and sustainable village development. Indonesia shows the strongest co-authorship connections with several countries, most notably **Malaysia** and **Australia**, which are linked via green lines, indicating relatively more recent and perhaps growing collaborations. Weaker but existing ties are also observed with **India** and **Taiwan**, reflecting broader regional cooperation within Asia-Pacific. The central position and large node size of Indonesia affirm its primary role in contributing to and coordinating research output in this field, while the emerging links with neighboring countries point to increasing globalization of rural development studies centered on MSMEs.

Discussion

1) Thematic Clusters and Evolving Focus Areas

The keyword co-occurrence map reveals three major thematic clusters that dominate the literature. The first cluster, anchored by the term “msme”, focuses on operational and institutional components,

including *business identification numbers* and *supply chain management*. This cluster reflects a pragmatic research agenda aimed at understanding how MSMEs function within formal economies, particularly in rural contexts. Studies under this theme frequently examine registration systems, production chains, and market integration, pointing to the structural enablers and constraints that determine MSMEs' success [14], [15]. The second cluster, centered on *sustainable development*, *rural areas*, and *health*, emphasizes broader developmental goals. This theme resonates strongly with the SDGs framework, particularly Goals 1 (No Poverty), 8 (Decent Work and Economic Growth), and 11 (Sustainable Communities). Research in this domain often examines how MSMEs contribute to poverty alleviation, public health, and ecosystem sustainability in rural settings. The interlinkage between sustainability and economic activity indicates an integrated approach where MSMEs are viewed as tools for systemic transformation rather than isolated economic units [4]. The third cluster, comprising terms such as *rural development*, *empowerment*, and *ecotourism*,

reflects a more community-oriented and participatory lens. This area of research explores how MSMEs, especially those rooted in cultural or ecological assets—can promote inclusive local economies. The prominence of "empowerment" suggests an underlying emphasis on gender equality, local agency, and bottom-up development. These studies align with the work of scholars like [16] who argue for participatory rural development and the role of small-scale entrepreneurship in enabling local ownership of change.

2) Temporal Trends and Research Evolution

The overlay visualization adds a dynamic dimension to the thematic analysis by highlighting the temporal trajectory of keywords. Earlier research (2020–2022) is characterized by foundational discussions around sustainability, health, and rural infrastructure. These themes gained prominence due to global development agendas and heightened awareness during the COVID-19 pandemic, which disproportionately impacted rural economies and spotlighted issues of resilience. In more recent years (2023–2025), attention has shifted toward operational dimensions of MSMEs, including formalization (*business identification numbers*) and logistics (*supply chain management*). This transition reflects a maturing research agenda moving from conceptual understanding to implementation-focused inquiries. The emergence of *empowerment* and *ecotourism* in 2024–2025 further suggests that scholars are increasingly exploring alternative development models where MSMEs are integrated with local culture and sustainability goals. These developments show that the field is both deepening and diversifying, moving beyond economics into interdisciplinary domains such as environmental studies, public administration, and tourism.

3) Keyword Density and Research Concentration

The density visualization underscores where scholarly attention is most concentrated. Unsurprisingly, *msme* appears as a core concept with high co-occurrence density, validating its centrality in the literature. Keywords such as *sustainable development*, *rural development*, and *empowerment* also exhibit high density, indicating that these are not just peripheral interests but central pillars of the academic conversation. What is particularly noteworthy is the separation between clusters in the heatmap. While MSME-related terms form one dense nucleus, sustainability-related keywords form another. This separation suggests that while both domains are robust, there remains room for better integration. Bridging the gap between business-oriented and development-oriented research can generate more holistic insights. For instance, how can supply chain innovations in MSMEs be explicitly linked to rural sustainability metrics? How might digital formalization efforts impact empowerment outcomes in village enterprises?

4) Author Collaboration and Intellectual Influence

The co-authorship analysis reveals several collaborative clusters, with *sulaiman a.i.*, *oktavilia s.*, and *hafrida f.* emerging as key contributors. The prominence of these authors suggests that Indonesia-based scholars are at the forefront of this research field. The author network also highlights cross-institutional and interdisciplinary collaboration, a positive sign for the maturity of the research ecosystem. However, the presence of disconnected or loosely linked authors such as *afnarius s.* signals potential fragmentation in the scholarly community. Strengthening networks through research consortia, conferences, or co-authored special issues could enhance knowledge cohesion. Another important insight is the role of bridging authors, such as *widianingsih i.*, who connect otherwise separate author clusters. These individuals are vital for cross-pollination of ideas and the development of transdisciplinary frameworks. Promoting

these integrative roles through academic networking and collaborative grants can foster innovation in the field.

5) Geographic Distribution and International Collaboration

The country collaboration map highlights **Indonesia** as the most central and active node in this research area. This is unsurprising given the country's large number of rural communities and national emphasis on MSMEs through policies such as the Village Law (UU No. 6/2014). The country's strong connections with **Malaysia** and **Australia** suggest active regional and cross-regional collaboration, especially within ASEAN and the broader Asia-Pacific. However, other countries such as **India** and **Taiwan** show only limited collaboration, and the overall internationalization of this research domain remains modest. Expanding partnerships to include African, Latin American, and European contexts could bring valuable comparative insights. For instance, rural MSMEs in India or Kenya may offer lessons in scalability, digital inclusion, or cooperative models that could be adapted to Southeast Asian contexts. Conversely, Indonesia's experience with BUMDes and village funds could be of interest globally.

6) Implications for Policy and Future Research

This bibliometric analysis reveals that while significant scholarly effort has gone into understanding MSMEs and rural development, there remains a need for greater thematic integration and global contextualization. First, future studies should focus on connecting business strategies with sustainable development outcomes. Concepts such as "circular economy", "green entrepreneurship", and "digital inclusion" are still underexplored in the context of rural MSMEs. Second, there is a need for more

longitudinal and impact-oriented research. Many studies remain descriptive or conceptual. Evaluating the real-world impact of MSME-led interventions on poverty, health, and environmental outcomes will provide stronger evidence for policymaking. The study highlights the opportunity for **more diverse methodological approaches**. Bibliometric studies like this one should be complemented with case studies, ethnographies, and mixed-methods research to capture the nuanced dynamics of village-based enterprises.

4. CONCLUSION

This bibliometric study has illuminated the structure, trends, and collaborations within the scholarly discourse on the role of MSMEs in sustainable village development. The analysis reveals three dominant thematic clusters, formalization and operations of MSMEs, sustainability and rural well-being, and community-based empowerment models, reflecting an increasingly interdisciplinary and evolving research landscape. Temporal and density visualizations show a shift from broad development themes toward more practical and community-centered approaches, while co-authorship and country collaboration networks highlight Indonesia's central role alongside emerging international partnerships. Despite the progress, the field remains fragmented, with opportunities for stronger thematic integration, global comparative studies, and impact-oriented research. By mapping the intellectual terrain of this topic, the study not only synthesizes existing knowledge but also offers strategic directions for future inquiry and collaboration, ultimately supporting more inclusive and sustainable rural development strategies through MSMEs.

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