

Socio-Economic Value Chain Dynamics of Banana Chips Micro-Enterprise: A Case Study of UD Dwi Tunggal in Lumajang, Indonesia

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ABSTRACT

Background: Banana chips micro-enterprises play a significant socio-economic role in rural Indonesia, particularly in regions where agriculture and household-scale processing form the foundation of local livelihoods. UD Dwi Tunggal in Lumajang represents a long-standing community-based enterprise whose production system, value distribution, and inter-actor relationships have not yet been examined through a socio-economic value chain perspective. Understanding these dynamics is essential to reveal how small enterprises sustain competitiveness amid growing market pressures and shifting consumer preferences.

Aims: This study aims to investigate the socio-economic dynamics of the banana chips value chain at UD Dwi Tunggal, with a focus on identifying key actors, mapping value creation processes, and analyzing how financial and non-financial benefits are distributed across the chain.

Methods: A descriptive qualitative-quantitative design was employed, combining field observations, semi-structured interviews, and cost-value computations. Primary data were collected from banana suppliers, enterprise owners, and regional distributors. Value chain mapping followed Porter's activity framework, while added value was calculated using a modified Hayami method to quantify income distribution and labor contributions.

Results: The findings show that the value chain is driven by three main actors—suppliers, processors, and distributors—whose interactions shape production continuity and market access. Monthly production costs reached approximately IDR 19.8 million, while revenue averaged IDR 54 million. The added value generated was IDR 71,464 per kilogram, indicating strong conversion efficiency and high economic contribution at the processing level. Socially, the enterprise functions as a stable livelihood source for workers and strengthens local supply networks.

Conclusion: The study concludes that UD Dwi Tunggal's value chain demonstrates both economic resilience and socio-cultural embeddedness, enabling the enterprise to sustain competitiveness through localized supplier relationships, community-based labor structures, and consistent product demand. These findings highlight the importance of strengthening rural micro-enterprises as socio-economic anchors in regional development.

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INTRODUCTION

The growth of micro-enterprises in rural contexts continues to be central to socio-economic stability, particularly in countries where informal food-processing activities dominate local industries. In Indonesia, household-scale snack industries such as banana chips production not only contribute to income generation but also reinforce community-based economic resilience across agricultural regions. UD Dwi Tunggal in Lumajang represents a typical example of a rural micro-enterprise whose operations rely on localized supply networks and socially embedded production practices, yet empirical analyses of its socio-economic dynamics remain limited. This knowledge gap is striking considering that contemporary studies emphasize the importance of understanding how value is created and distributed within micro-enterprise systems to strengthen community well-being. Research on micro-enterprises in other regions similarly highlights the interplay between financial resilience, social interaction, and localized resource structures, reinforcing the need for context-specific investigation (Behera et al., 2025; Mishra & Choudhury, 2025). The limited visibility of rural micro-enterprises in global academic discourse

further increases the urgency to document their practices systematically to inform both policy and community development efforts. For these reasons, examining the value chain of UD Dwi Tunggal is not only contextually relevant but also academically necessary to broaden the global conversation on rural economic sustainability. The present study thus positions this enterprise as a representative model for understanding how micro-scale food processors generate socio-economic impact within rural communities.

The urgency of this research is further heightened by structural changes in rural production systems, where traditional household industries face increasing pressure from market competition, fluctuating raw material prices, and changing labor availability. These pressures demand a deeper examination of how micro-enterprises adapt their value chain arrangements to maintain viability and sustain socio-economic contributions in their communities. Prior studies show that small enterprises often respond to external shocks by reorganizing supply relations and optimizing internal production processes to safeguard business continuity (Miklian & Hoelscher, [2022](#); Wang et al., [2022](#)). However, most existing analyses focus either on financial indicators or operational efficiency, leaving the socio-economic dimensions of micro-enterprise value chains largely underexplored. Understanding these dimensions is crucial, as rural micro-enterprises frequently serve a dual role as economic units and community anchors that support household livelihoods. UD Dwi Tunggal exemplifies this dual role, where the processing of banana chips not only generates income but also strengthens local labor networks, shared knowledge, and inter-household cooperation. By studying this case, the research offers insights into how micro-enterprises integrate social capital into economic activities in ways that enhance resilience. This makes the topic particularly compelling, as it bridges economic inquiry with social and cultural perspectives.

Another important reason for investigating the value chain of UD Dwi Tunggal is the need to expand empirical evidence on how small rural enterprises generate value-added products that support both local and regional markets. Micro-enterprises in the food sector often rely on incremental innovation and informal production strategies that differ substantially from the standardized models observed in larger industries. This divergence makes them important subjects of analysis for understanding alternative pathways of value creation in developing regions. Recent studies on micro-enterprise viability demonstrate that such businesses contribute significantly to local consumption patterns and food-system diversification, particularly when value-added processing strengthens product competitiveness (Dammak et al., [2025](#); Murdhani et al., [2025](#)). These insights underscore the relevance of analyzing enterprises like UD Dwi Tunggal, whose production of banana chips has become a recognizable local commodity in Lumajang. Moreover, analyzing value chain structures allows researchers to identify inefficiencies, social dependencies, and opportunities for community-capable upgrading strategies. The topic therefore holds high academic and practical importance for informing development policies and micro-enterprise capacity-building initiatives. Taken together, these considerations demonstrate that this study addresses an important and timely research question with meaningful implications for both theory and practice.

This study is grounded in the idea that micro-enterprises function not only as economic actors but also as socio-cultural institutions that shape livelihood patterns and community identity. While previous research has examined micro-enterprises from the perspectives of productivity, risk, and operational management, far fewer studies focus on how value chains operate as socio-economic systems embedded in community structures. The production of banana chips at UD Dwi Tunggal provides a relevant setting to explore this relationship, as it integrates agricultural supply, labor exchange, household-based processing, and regional distribution networks. Investigating these interactions offers a more holistic understanding of how rural enterprises sustain themselves within dynamic socio-economic environments. The rationale of this study is therefore to connect the analytical tools of value chain assessment with the socio-cultural dimensions of rural enterprise sustainability. This integration allows the research to contribute new insights to fields such as rural development, micro-enterprise studies, and

community-based economic analysis, aligning closely with the interdisciplinary scope of JOSCE. Through this approach, the study expands the academic conversation on micro-enterprises by offering evidence from a context that has been understudied in global literature.

Studies on micro-enterprises across different regions emphasize their importance as drivers of economic activity, employment generation, and local market diversification. Research on spatial interaction in micro-enterprise financial aid uptake, for instance, highlights how community characteristics influence the ability of small enterprises to access support networks during periods of economic instability (Tomelleri & Billé, [2025](#)). Similarly, analyses of micro-enterprise vulnerability demonstrate that structural constraints such as limited capital, small labor pools, and supply fluctuations can significantly affect long-term business sustainability (Bobinaite et al., [2025](#)). These findings are relevant to rural Indonesian enterprises like UD Dwi Tunggal, which operate within informal yet socially cohesive production settings. Furthermore, evidence from micro-enterprise development in emerging economies shows that value-added processing plays a key role in enhancing competitiveness and enabling small producers to penetrate regional markets (Jana et al., [2024](#)). This body of scholarship collectively underscores the need to examine micro-enterprises not only as economic units but also as socio-economic systems shaped by community dynamics and resource constraints. Thus, literature on micro-enterprise resilience and resource interaction provides essential theoretical grounding for analyzing the value chain in rural food-processing contexts. These insights justify the inclusion of UD Dwi Tunggal as a case study that contributes to the broader understanding of informal food-sector enterprises.

Another relevant body of literature concerns the role of digitalization, process optimization, and community-based adaptation within micro-enterprises. Research shows that micro-enterprises increasingly adopt lean processes and partial digitalization to improve efficiency, although adoption rates vary according to available skills and community readiness (O'Shanahan et al., [2025](#)). Studies in Indonesia further highlight how local micro-enterprises integrate traditional processing techniques with innovative product development to maintain competitiveness in evolving markets (Luthfi Ash Shiddiqie et al., [2023](#)). These insights suggest that micro-enterprises evolve through hybrid strategies that combine localized knowledge with incremental modernization. In developing regions, such hybrid approaches often strengthen the connection between enterprises and surrounding communities by enabling labor participation, shared resource management, and small-scale innovation. Literature on micro-enterprise performance also notes that social capital, trust networks, and cooperative relationships significantly influence business continuity in rural settings (Sungwa, [2025](#)). These perspectives reinforce the necessity of analyzing value chain structures not only from a financial standpoint but also from social and organizational angles. Overall, prior studies emphasize the interconnected nature of economic and social processes within micro-enterprises, supporting the analytical approach adopted in this research.

Despite substantial research on micro-enterprise performance and resilience, there remains a notable lack of empirical studies examining the socio-economic value chain of rural food-processing enterprises in Indonesia. Most existing studies focus on financial indicators or technological adaptation, leaving the relational and community-based dimensions of value creation insufficiently explored. Little is known about how localized supply chains function within rural settings where production systems depend heavily on informal labor, household participation, and long-term trust-based interactions. The absence of detailed value chain studies limits the understanding of how micro-enterprises distribute economic benefits and sustain social embeddedness within their communities. Furthermore, research rarely connects value-added calculations with community dynamics, making it difficult to capture the full socio-economic contribution of enterprises such as UD Dwi Tunggal. This gap becomes particularly important in rural contexts where social capital frequently replaces formal organizational structures, making conventional economic analysis incomplete. Addressing this gap requires a study that integrates value chain mapping with socio-economic interpretation to offer a more holistic understanding of micro-

enterprise sustainability. The present research is therefore needed to fill this overlooked intersection between economic assessment and community-based analysis.

The purpose of this study is to analyze the socio-economic value chain of UD Dwi Tunggal by examining how value is created, distributed, and sustained through interactions among suppliers, processors, and distributors. This research aims to identify the extent to which the enterprise generates added value that supports both household income and broader community livelihoods in Lumajang. The study hypothesizes that the value chain of UD Dwi Tunggal displays strong socio-economic embeddedness, allowing the enterprise to maintain resilience despite structural constraints typical of rural micro-enterprises. It also posits that localized supplier relationships and community-based labor practices form the backbone of the enterprise's economic viability. Additionally, the study suggests that value-added processes contribute significantly to regional market integration and rural income diversification. Through these hypotheses, the research seeks to advance theoretical understanding while providing practical insights for micro-enterprise development strategies. The overarching aim is to contribute knowledge that aligns with the interdisciplinary focus of JOSCE, particularly its emphasis on socio-economic systems, cultural practices, and community empowerment.

METHOD

Research Design

This study employed a descriptive qualitative-quantitative design to examine the socio-economic value chain dynamics of UD Dwi Tunggal through an integrated analysis of production activities, actors, and financial flows. The design was chosen because mixed-method frameworks allow researchers to capture both numerical value-added calculations and the social interactions underpinning rural micro-enterprise systems, which aligns with recommendations from contemporary micro-enterprise research (Charisma et al., 2025; García-Vidal et al., 2025; Wanyancha, 2025). A case study approach was used to provide an in-depth understanding of the enterprise as a socially embedded production unit rather than a purely economic structure. This design allowed the research to document detailed processes within the supply, processing, and distribution stages, enabling a nuanced interpretation of value creation. The combined strategy also ensured that economic indicators such as costs, revenues, and added value could be contextualized within community-based organizational dynamics. Prior studies emphasize that micro-enterprises often operate through hybrid informal-formal arrangements that require methodological flexibility to capture their authentic characteristics (Arshad & Azzam, 2025; Munir & Watts, 2025; Mutesi et al., 2025). Therefore, a flexible mixed-method case study was deemed the most suitable approach for this research context. The design ultimately enabled the study to produce holistic findings that integrate socio-economic patterns, production efficiency, and local livelihood structures.

Participants

Participants in this study consisted of actors directly involved in the banana chips value chain at UD Dwi Tunggal, including raw material suppliers, household-based processors, and distributors serving local and regional markets. The participant selection followed a purposive sampling strategy to ensure representation from each functional stage of the value chain, which is a common requirement in micro-enterprise value chain research (Muhwati & Salisbury, 2022; Silva et al., 2021). Interviews were conducted with the enterprise owner to gather insights on cost structures, labor organization, production routines, and market challenges. Four regular banana suppliers were included because their pricing decisions and delivery frequencies significantly influence production continuity. The research also involved three household workers who represented informal labor structures characteristic of rural micro-enterprises. Additionally, two distributors were interviewed to understand pricing transmission, customer preferences, and the broader market reach of the enterprise. This participant composition allowed the study to trace value transitions from upstream to downstream within the socio-economic system of the enterprise. The selected participants collectively provided a complete representation of the interactions that shape the functioning of UD Dwi Tunggal's value chain.

Instrument

Data were collected using three instruments: semi-structured interview guides, field observation sheets, and cost-value computation templates adapted from existing value chain literature. The interview guide contained open-ended questions designed to capture participants' experiences, production

routines, supply relationships, and perceptions of market conditions, ensuring the flexibility required for qualitative inquiry. Observation sheets were used to document workflow sequences, labor division, material flow, and price-setting practices within the enterprise. The cost-value computation template allowed the researcher to quantify costs, revenues, and added value using a framework comparable to those used in micro-enterprise studies across developing economies (Kajal et al., 2021; Sukrat & Leeraphong, 2024; Zhang et al., 2023). Instruments were validated through expert review to ensure content accuracy and suitability for the context of rural food processing. Field instruments were designed to align with the characteristics of micro-enterprises, which often rely on informal systems and tacit knowledge rather than formalized documentation. Using multiple instruments also supported triangulation, enhancing the reliability of findings derived from diverse sources of information. Together, these instruments enabled the study to capture both socio-economic dynamics and financial indicators central to the value chain analysis.

Data Analysis Plan

Data analysis followed a sequential process that combined qualitative thematic coding with quantitative cost-value computation to reflect the multidimensional nature of the value chain. Qualitative data from interviews and observations were transcribed, coded, and organized into themes related to actor roles, social embeddedness, production challenges, and market interactions. These themes were aligned with theoretical insights highlighting the relational foundations of micro-enterprise systems (Machado Becker et al., 2025; Nalweyiso et al., 2023). Quantitative analysis involved calculating production costs, revenues, and added value to determine how economic benefits were distributed across actors within the chain. The value-added calculations followed a modified Hayami method, which is widely used in small-scale agribusiness value chain assessments. Integration of qualitative and quantitative findings allowed the research to interpret financial outcomes in relation to social processes, providing a holistic understanding of enterprise sustainability. The analysis also examined how localized supplier relationships and informal labor structures influenced production efficiency and resilience. This combined approach ensured that the study produced evidence consistent with the socio-economic orientation of the research objectives and the interdisciplinary expectations of international journals.

RESULTS AND DISCUSSION

Results

Value Chain Structure and Financial Outcomes

The results showed that UD Dwi Tunggal operated through three main value chain actors: suppliers, processors, and distributors, each contributing distinct roles that shaped production continuity and revenue generation. Monthly production costs reached approximately IDR 19.8 million, dominated by raw materials, cooking oil, labor, and packaging expenses, reflecting the cost structures typical of micro-enterprise food processors. Revenue was reported at an average of IDR 54 million per month, indicating a substantial margin that supports household-level income stability. Value-added analysis demonstrated that the enterprise generated IDR 71,464 per kilogram of processed banana chips, highlighting strong economic conversion efficiency. The socio-economic embeddedness of the enterprise was visible in the informal labor structures and long-standing supplier partnerships that ensured raw material availability. Observations showed that interactions among actors were shaped by trust, repeated exchanges, and neighborhood ties, consistent with rural micro-enterprise characteristics. Distribution channels covered both local and regional outlets, expanding market access and reinforcing demand stability for the enterprise's products. These results indicate that UD Dwi Tunggal's value chain is a resilient, community-anchored system capable of sustaining steady economic performance.

Table 1. Cost, Revenue, and Value Added of Banana Chips at UD Dwi Tunggal

Component	Amount (IDR)
Raw material cost	8,400,000
Labor cost	6,000,000
Utility & oil	3,200,000
Packaging	2,200,000
Total Cost	19,800,000

Component	Amount (IDR)
Average Revenue	54,000,000
Value Added (per kg)	71,464

The table presents the breakdown of production costs, revenue, and the generated value added. Total monthly cost reflects the expenses required to maintain stable output under household-scale production. Revenue significantly exceeds cost, indicating strong profitability. The value-added calculation shows substantial enhancement of economic worth through processing activities.

Discussion

The findings reveal that UD Dwi Tunggal's value chain is shaped by socio-economic structures that combine informal labor, community-based supplier relations, and small-scale processing efficiency. These patterns correspond with global evidence showing that micro-enterprises often depend on trust-based resource flows and embedded social relations to maintain operational stability (Tomelleri & Billé, 2025). The presence of long-standing supplier relationships indicates that economic activities are inseparable from social capital, a consistent feature noted in studies of vulnerable micro-enterprises in Lithuania (Bobinaite et al., 2025). Moreover, the strong added value per kilogram reflects the capacity of rural enterprises to achieve viable economic margins despite operating without formalized systems. Research on informal food enterprises in India similarly highlights that value-added processing is a crucial pathway to enhancing competitiveness among small producers (Jana et al., 2024). The enterprise's stable revenue levels also align with studies documenting the resilience of micro-enterprises during market fluctuations when embedded in cohesive community networks (Sungwa, 2025). Another parallel can be drawn from urban micro-enterprises in Yogyakarta, which demonstrated viability when supported by local supply linkages and incremental product innovation (Luthfi Ash Shiddiqie et al., 2023). These converging findings suggest that UD Dwi Tunggal exemplifies a rural micro-enterprise model that balances social cohesion with economic performance. The enterprise's structure reinforces arguments that community-based value chains enhance sustainability in emerging economies.

The study also contributes to broader academic discussions on the role of micro-enterprises in shaping local development outcomes within the informal food-processing sector. Similar to insights from digital transformation studies in small enterprises, incremental improvements in workflow and production can strengthen efficiency without requiring large-scale technological investment (O'Shanahan et al., 2025). The enterprise's ability to maintain steady revenue despite fluctuating input prices reflects adaptive strategies that are also observed in micro-enterprises navigating uncertainty in developing economies (Bravo-Ortega et al., 2023). Additionally, UD Dwi Tunggal's value chain demonstrates the importance of value-added activities in enabling rural producers to access wider markets, a trend consistent with studies of micro-enterprises in Asia (Wu et al., 2025). The integration of community labor further mirrors patterns found in rural farming enterprises where social ties substitute for formal logistics systems, reducing transaction costs (Gupta et al., 2023). The findings also reflect the broader argument that micro-enterprise performance is influenced not only by economic assets but also by relational factors, such as cooperative trust and household-level participation (Sheng et al., 2023). This supports the argument that value chains should be interpreted as socio-economic systems rather than purely financial structures. Taken together, the results show that UD Dwi Tunggal aligns with global micro-enterprise behavior while also offering unique insight into rural Indonesian production networks. These insights provide valuable evidence that rural food micro-enterprises contribute significantly to community livelihoods and regional economic resilience.

Implications

The findings from this study offer important implications for rural development policy, micro-enterprise capacity-building, and value chain strengthening programs. The strong value-added outcomes indicate that small-scale food processors can achieve substantial economic contributions when supported by reliable supplier relationships and cohesive labor structures. Policymakers may leverage these insights by designing interventions that reinforce local supply chains rather than imposing

standardized models that overlook community dynamics. The enterprise's socio-economic embeddedness also implies that capacity-building programs should integrate community participation and informal learning processes. Furthermore, the resilience demonstrated by UD Dwi Tunggal suggests that rural micro-enterprises can serve as anchors for inclusive economic growth when supported through targeted financial and non-financial assistance. Development stakeholders may therefore prioritize micro-enterprises as key facilitators of livelihood diversification and regional economic stability. These implications highlight the strategic value of micro-enterprises within broader rural development agendas.

Limitations

This study acknowledges several limitations that should be considered when interpreting its findings. The research focused solely on one micro-enterprise, which may limit the generalizability of its socio-economic value chain patterns to other regions or product types. The reliance on semi-structured interviews introduces potential subjectivity, particularly in participants' recall of cost structures and production challenges. Quantitative analysis was constrained by the availability of financial records, which were documented informally and may not capture full monthly fluctuations. Observational data were collected during a limited time frame, potentially overlooking seasonal variations in raw material availability or labor demand. The study also did not incorporate comparative analysis with other micro-enterprises in Lumajang or neighboring districts. Furthermore, technological aspects of production were not deeply examined, which may limit understanding of innovation potential. Despite these limitations, the study provides rich context-specific insights that advance understanding of rural micro-enterprise value chains.

Suggestions

Future studies should include multiple micro-enterprises across different regions to strengthen comparative insights and enhance generalizability. Researchers may also employ longitudinal designs to capture seasonal shifts in production, supplier relationships, and market demand. Integrating digital workflow analysis could offer useful perspectives on how technology adoption might improve efficiency among rural food processors. Further, mixed-method studies combining ethnography with econometric modeling may reveal deeper interactions between social capital and financial performance. Policymakers should consider developing training modules that combine product innovation, value chain literacy, and community-based organizational skills. Collaboration between universities, cooperatives, and micro-enterprises could also support more effective knowledge transfer. Finally, future research should explore how rural value chains can be integrated with sustainable agriculture initiatives to enhance long-term community resilience.

CONCLUSION

This study concludes that the socio-economic value chain of UD Dwi Tunggal represents a community-anchored rural micro-enterprise system that integrates economic performance with long-standing social relations and localized production practices. The enterprise demonstrates how informal supplier networks, household-based labor structures, and trust-driven transactions can collectively support stable value creation in a rural setting. The substantial value-added generated from banana chips processing shows that micro-enterprises can contribute meaningfully to livelihood diversification and community resilience when embedded within cohesive social environments. These findings reinforce the argument that rural micro-enterprises function not only as economic units but also as cultural institutions that preserve inter-household cooperation and strengthen social capital. The study also demonstrates that value chain analysis, when interpreted through a socio-economic lens, provides a more holistic understanding of how rural enterprises sustain competitiveness without extensive formalization. This perspective aligns with JOSCE's emphasis on social systems, community empowerment, and culturally grounded development. The evidence presented suggests that supporting rural micro-

enterprises like UD Dwi Tunggal can enhance inclusive growth by reinforcing community-based production and expanding local economic opportunities. Overall, the research contributes to a broader understanding of how integrated socio-economic value chains can serve as drivers of sustainable development in rural communities.

AUTHOR CONTRIBUTIONS STATEMENT

Risa Ninda Parwana conceived the research topic, designed the study framework, and developed the methodological approach used in the investigation. She conducted field data collection, including interviews, observations, and documentation of financial and production activities within the value chain of UD Dwi Tunggal. She performed the qualitative and quantitative analyses, interpreted the findings, and constructed the socio-economic value chain model presented in the study. She wrote the full manuscript draft, revised the structure to align with international academic standards, and ensured consistency across the Introduction, Methods, Results, and Discussion sections. She also prepared tables, synthesized theoretical insights, and integrated relevant scholarly references to strengthen the conceptual foundation of the work. She critically reviewed the final version to maintain clarity, coherence, and alignment with the journal's focus and scope. Overall, she was fully responsible for the research execution and the preparation of the manuscript in its entirety.

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