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The Dual Role of Middlemen in Triwungan Village in the Utilization of Digital Technology to Improve the Economic Welfare of Tobacco Farmers

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Abstract

This study is motivated by the continuing dependence of tobacco farmers on middlemen for capital access, market information, and product distribution, despite the growing influence of digital technology on agricultural communication and marketing practices. This study aims to analyze the dual role of middlemen in Triwungan Village, Kotaanyar District, Probolinggo Regency, in utilizing digital technology and to examine its implications for the economic welfare of tobacco farmers. A qualitative approach with a descriptive design was employed. Data were collected through observation, in-depth interviews, and documentation, with informants selected using purposive sampling. The data were analyzed through reduction, presentation, and conclusion drawing, while validity was ensured through source and method triangulation. The findings indicate that middlemen perform a dual role not only as intermediaries in crop marketing but also as providers of capital, sources of market information, and key connectors within the tobacco distribution chain. The use of WhatsApp has accelerated communication and transaction processes; however, digitalization has not substantially altered the structural dependence of farmers on middlemen.

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Instead, it has strengthened the position of middlemen within the marketing system. Consequently, although farmers experience improved access to information and greater communication efficiency, their bargaining position remains relatively weak. This study concludes that digital technology, when embedded within unequal agrarian marketing relations, may reinforce intermediary dominance rather than automatically improve farmers' economic independence. The findings contribute to a more contextual understanding of digitalization in rural agricultural economies and offer practical implications for strengthening farmer-centered market access, digital literacy, and bargaining capacity.

Keywords: Digital Agricultural Marketing; Farmer Bargaining Position; Middlemen; Tobacco Farmers; Rural Economic Welfare

INTRODUCTION

The agricultural sector remains one of the most important pillars of rural economic development in Indonesia, particularly in regions where agricultural commodities serve as the primary source of livelihood. Among various agricultural commodities, tobacco occupies a strategic position due to its significant economic value and its contribution to household income in many rural communities. Tobacco farming has long been recognized as a major source of employment and income generation for farmers, especially in areas with favorable agroecological conditions for tobacco cultivation (Sahadewo et al., 2021). In many tobacco-producing regions, agricultural activities not only support local economic growth but also shape the social and cultural structure of rural communities (Tri Puspita Ganes Agustina et al., 2021).

One of the tobacco-producing areas in Indonesia is Triwungan Village, Kotaanyar District, Probolinggo Regency, East Java. As one of the local centers of tobacco production, the village relies heavily on tobacco cultivation as a primary economic activity. Agricultural production in the village contributes significantly to household income and serves as a foundation for the livelihoods of many farming families. Despite the economic importance of tobacco farming, farmers continue to face various challenges related to production, marketing, access to capital, and market information.

In the tobacco marketing system, middlemen or local collectors (tengkulak) occupy a central position in connecting farmers with broader markets. The role of middlemen extends beyond purchasing agricultural products; they frequently function as providers of

capital, facilitators of market access, distributors of agricultural inputs, and sources of information regarding commodity prices and market demand (Arofah & Setiawan, 2022). Such functions make middlemen indispensable actors within rural agricultural economies where institutional support and formal market access remain limited.

Previous studies have demonstrated that the relationship between farmers and middlemen is often characterized by a patron-client structure. Through the provision of production loans, financial assistance, and guaranteed purchases of agricultural outputs, middlemen establish long-term economic relationships with farmers that influence production and marketing decisions. This dependency frequently arises because farmers possess limited access to formal credit institutions and alternative marketing channels. Consequently, middlemen become the most accessible actors capable of supporting farming activities throughout the production cycle (Arissaryadin et al., 2024).

The significance of middlemen within agricultural systems has generated diverse perspectives in academic discourse. Some studies portray middlemen as exploitative actors who weaken farmers' bargaining positions through unequal market relationships and price determination mechanisms (A. Prasetyo & Samudro, 2023). In this perspective, middlemen contribute to structural dependency that limits farmers' opportunities to obtain optimal prices and economic benefits from their agricultural products (Akbar et al., 2025). Similarly, studies on agricultural marketing systems reveal that oligopsonistic market structures often place farmers in vulnerable positions because marketing decisions are largely controlled by intermediary actors (W. Prasetyo, 2017).

Conversely, other scholars argue that middlemen should not be viewed solely as exploitative agents. In many rural contexts, they perform crucial economic and social functions that sustain agricultural production and facilitate market integration. Middlemen often provide financial assistance, transportation services, marketing guarantees, and risk-sharing mechanisms that enable farmers to continue production despite limited resources (Arsyad et al., 2018). Their presence becomes particularly important in areas where institutional support systems remain weak and where farmers lack direct access to buyers or processing industries (Hardinawati & Fauzy, 2014).

The continuing relevance of middlemen becomes increasingly significant in the context of digital transformation. Rapid developments in information and communication technologies have introduced new opportunities for improving agricultural marketing

systems and expanding market accessibility. Digital technologies have enabled agricultural actors to access market information more efficiently, communicate with buyers in real time, and participate in broader marketing networks beyond local geographical boundaries (Afridhianika & Yudhianto, 2025). Digitalization has therefore emerged as an important strategy for enhancing agricultural competitiveness and improving farmers' economic welfare.

The integration of digital technology into agricultural activities has transformed traditional marketing mechanisms. Social media platforms, mobile applications, and online communication tools provide new channels for disseminating information and facilitating commercial transactions. Digital technologies have contributed to greater efficiency in information exchange, reduced transaction costs, and enhanced coordination among actors within agricultural supply chains (Roy & Sarkar, 2023). The adoption of digital technology has also been associated with improvements in agricultural productivity and market responsiveness (Sahputra et al., 2024).

In recent years, agricultural digitalization has been promoted as an essential component of sustainable agricultural development. The implementation of digital technologies is expected to strengthen farmers' access to information, reduce information asymmetry, and improve market transparency (Puspita Sari, 2019). Digital innovations have also created opportunities for shortening supply chains and reducing dependence on conventional intermediaries by enabling direct interactions between producers and consumers (Wardani et al., 2025).

However, the benefits of digitalization are not always distributed equally among agricultural actors. Several studies indicate that technological adoption tends to be concentrated among individuals who possess greater economic resources, educational backgrounds, and access to digital infrastructure (Vernanda et al., n.d.). In rural communities, disparities in digital literacy and technological access often create new forms of inequality that may reinforce existing power structures rather than eliminate them (Richard Fleeming Himawan et al., 2025).

This situation is particularly relevant in the context of relationships between tobacco farmers and middlemen. While digital technologies theoretically provide opportunities for farmers to access broader markets independently, practical implementation often reveals a different reality. In many cases, middlemen are better positioned to utilize digital technologies

due to their stronger economic capacities, broader networks, and greater access to information. Consequently, digitalization may strengthen rather than diminish the strategic role of middlemen within agricultural marketing systems (Aristayudha et al., 2025).

In Triwungan Village, the emergence of digital technology has begun to influence interactions between farmers and middlemen. Some middlemen have adopted communication platforms such as WhatsApp and social media to coordinate transactions, monitor market conditions, and expand their marketing networks. Through these technologies, information regarding tobacco quality, harvest schedules, and market prices can be exchanged more rapidly and efficiently. Nevertheless, the majority of farmers continue to rely on conventional communication channels and face limitations in utilizing digital technologies for independent marketing purposes.

The unequal distribution of digital capabilities creates an important issue concerning the implications of digitalization for farmers' welfare. On one hand, the utilization of digital technology by middlemen may facilitate more efficient marketing processes and improve market connectivity. On the other hand, greater technological control by middlemen may increase farmers' dependency and reinforce asymmetrical power relations within tobacco supply chains. Consequently, the impact of digitalization on farmers' welfare remains complex and requires further investigation.

Farmer welfare represents a multidimensional concept encompassing not only income levels but also access to resources, economic security, educational opportunities, healthcare services, and sustainable livelihoods. In the context of tobacco farming, welfare is strongly influenced by market accessibility, production stability, bargaining power, and price certainty (Alfiaturrohmah et al., 2025). Although tobacco is considered a high-value commodity, many farmers continue to experience economic vulnerability due to fluctuating prices and limited market control (Ibrahim et al., 2022).

Several studies have emphasized the importance of technological innovation in improving agricultural welfare outcomes. Digital technologies can facilitate access to information, improve production management, and enhance market efficiency, thereby contributing to higher income generation and economic resilience among farming households (Hayati et al., 2025). Nevertheless, successful implementation depends on the extent to which farmers can access and effectively utilize technological resources.

From a theoretical perspective, this study employs the concept of social capital to understand the dynamics underlying relationships between farmers and middlemen. Social capital refers to networks, trust, and social norms that facilitate cooperation and collective action within communities (Putnam, 2000). Trust constitutes a critical element in economic relationships because it reduces transaction costs and enhances coordination among actors (Fukuyama, 1995). Within agricultural communities, trust-based relationships often determine access to credit, information, and marketing opportunities.

The interaction between tobacco farmers and middlemen in Triwungan Village reflects the importance of social capital in sustaining economic activities. Long-standing relationships characterized by mutual trust and social reciprocity enable both parties to cooperate despite unequal economic positions. Social networks also facilitate information exchange and resource mobilization that support agricultural production and marketing activities.

Although numerous studies have examined farmer dependency on middlemen, tobacco marketing systems, and agricultural digitalization separately, limited research has explored the intersection of these issues within a single analytical framework. Existing studies primarily focus on dependency patterns, pricing mechanisms, or technological adoption independently without examining how middlemen utilize digital technologies and how such utilization influences farmers' economic welfare. This limitation indicates a significant research gap in understanding the evolving role of middlemen in the era of agricultural digitalization.

The novelty of this research lies in its examination of the dual role of middlemen as both traditional agricultural intermediaries and digital actors within the tobacco marketing system. Unlike previous studies that predominantly portray middlemen as conventional marketing agents, this research investigates how digital technology transforms their functions and influences their relationships with farmers. Furthermore, this study integrates the perspectives of digital transformation, social capital, and farmer welfare to provide a more comprehensive understanding of contemporary agricultural marketing dynamics.

Based on these considerations, this study aims to analyze the dual role of middlemen in Triwungan Village in utilizing digital technology and to examine its implications for tobacco marketing systems and the economic welfare of tobacco farmers. The findings are expected to contribute to the development of agricultural economics literature, particularly

regarding digital transformation in rural agricultural systems, while also providing practical insights for designing more inclusive and equitable digital agriculture policies.

METHODS

This study employed a qualitative approach with a descriptive research design to gain an in-depth understanding of the dual role of middlemen in utilizing digital technology and its implications for the economic welfare of tobacco farmers in Triwungan Village, Kotaanyar District, Probolinggo Regency. A qualitative approach was selected because it enables researchers to explore social realities through the experiences, perceptions, and meanings constructed by individuals directly involved in the phenomenon under investigation. Qualitative research emphasizes contextual understanding and interpretation of social interactions rather than numerical measurement, allowing researchers to examine complex socio-economic dynamics in their natural settings (Akin et al., 2026). The descriptive design was applied to systematically describe existing conditions and social processes without manipulating the research environment (Arikunto, 1980).

The research design focused on examining the relationship between the dual role of middlemen, the utilization of digital technology, and the economic welfare of tobacco farmers. The study was guided by three primary indicators. The first indicator concerned the dual role of middlemen, including their functions as providers of production capital, marketing intermediaries, sources of market information, and connectors between farmers and buyers or tobacco-processing companies. The second indicator involved digital technology utilization, encompassing the use of communication applications, social media platforms, and other digital tools to facilitate marketing and distribution activities. The third indicator addressed farmers' economic welfare, which was reflected in their ability to meet household needs, sustain farming operations, access broader markets, and improve agricultural income. These indicators served as the foundation for developing observation guidelines and interview protocols throughout the study.

The research was conducted in Triwungan Village, Kotaanyar District, Probolinggo Regency. Preliminary observations were carried out in November 2025 to obtain an initial understanding of the socio-economic conditions of tobacco farmers and the marketing system involving middlemen. Following the completion of administrative procedures and research permits, fieldwork was conducted through a series of observations, interviews, and

documentation activities. The entire research process, from preliminary preparation to data analysis, was undertaken over several months in accordance with the stages of qualitative inquiry.

Research participants consisted of tobacco middlemen and tobacco farmers who were directly involved in production and marketing activities. Participants were selected using purposive sampling, a technique that allows researchers to identify informants based on specific criteria relevant to the research objectives. This sampling strategy was considered appropriate because only certain individuals possessed sufficient knowledge and experience regarding the implementation of digital technology in tobacco marketing. Middlemen were selected as key informants due to their central role in financing, collecting, and distributing tobacco products, while farmers were included to provide insights into their experiences, perceptions, and socio-economic conditions within the existing marketing structure.

In qualitative research, the researcher functions as the primary instrument responsible for collecting, interpreting, and analyzing data (Arikunto, 1980). To support data collection, several complementary instruments were utilized, including semi-structured interview guides, observation sheets, mobile devices for recording and documentation, and field notes. The interview guide was developed based on the research indicators to ensure comprehensive exploration of issues related to marketing practices, digital technology adoption, and farmer welfare.

Data were collected through observation, interviews, and documentation. Observation was conducted using a passive participant approach, enabling the researcher to observe marketing activities, interactions between farmers and middlemen, and the use of digital technology without directly participating in those activities. Semi-structured interviews were employed to provide flexibility in exploring emerging issues and obtaining rich, detailed information from participants. Through in-depth interviews, informants were encouraged to share their experiences and perspectives regarding marketing relationships, digital technology utilization, and its impact on their economic well-being. Documentation served as supplementary evidence and included photographs, village records, agricultural data, field notes, and other relevant documents.

Data analysis followed the interactive model developed by Miles and Huberman, consisting of data reduction, data display, and conclusion drawing (Qomaruddin & Sa'diyah, 2024). Data reduction involved selecting, categorizing, and simplifying information obtained

from interviews, observations, and documentation. Relevant information concerning middlemen's roles, digital technology utilization, and farmer welfare was identified and organized systematically. The reduced data were then presented in narrative form to facilitate interpretation and understanding of relationships among categories. Finally, conclusions were drawn through continuous interpretation and reflection on the collected data. Verification was conducted throughout the analytical process to ensure that conclusions remained consistent with empirical evidence.

To ensure trustworthiness, several validation techniques were employed, including prolonged engagement, persistent observation, and triangulation. Prolonged engagement enabled the researcher to gain a deeper understanding of the local context and establish stronger relationships with participants. Persistent observation allowed for detailed examination of recurring patterns and social interactions. Furthermore, both methodological and source triangulation were applied. Methodological triangulation involved comparing findings obtained from observations, interviews, and documentation, while source triangulation involved comparing information gathered from different categories of informants, including middlemen and farmers. These procedures enhanced the credibility, dependability, and validity of the research findings, ensuring that the study accurately reflected the realities experienced by participants.

RESULTS

This study was conducted in Triwungan Village, Kotaanyar District, Probolinggo Regency, involving one tobacco middleman and one tobacco farmer as the primary informants. The findings indicate that the middleman plays multiple roles beyond serving as a marketing intermediary. These roles include providing production capital, agricultural inputs, and market information to farmers. Although the use of digital technology remains limited, it has contributed to improving communication and information exchange within the tobacco marketing system.

Based on the interview findings, Mr. Mistono began working as a tobacco middleman in 2016 after previously working as a tobacco farmer. His experience as a farmer enabled him to understand farmers' difficulties in accessing markets and production capital. As his marketing network expanded, his role evolved from a simple intermediary into a connector

between farmers and larger buyers, including tobacco processing companies and external traders.



Figure 1. Interview Between the Researcher and the Tobacco Middleman

Figure 1 shows the interview process between the researcher and the tobacco middleman at a tobacco storage facility. The interview was conducted to explore the middleman's role in tobacco marketing activities, price determination, capital assistance provided to farmers, and the utilization of digital technology in marketing practices.

The findings reveal that during the harvest season, the middleman directly evaluates tobacco quality before purchasing farmers' products. After purchasing the tobacco, he is responsible for distributing and marketing it to larger buyers. In addition, he provides support in the form of fertilizer and production loans to farmers who require financial assistance. This support begins during the planting stage and contributes to sustaining farming activities.

Regarding marketing practices, digital technology utilization remains relatively simple. The middleman reported that communication with both farmers and buyers is primarily conducted through WhatsApp. The application is used to exchange information regarding tobacco conditions, harvest readiness, and market prices. Although advanced digital marketing platforms have not yet been adopted, WhatsApp has improved the speed and efficiency of information dissemination.

The study also found that the relationship between middlemen and farmers is largely based on trust and continuous communication. Although no formal contracts exist, social relationships play a significant role in maintaining long-term cooperation. Farmers remain free to sell their products to other buyers; however, trust and previous assistance provided by the middleman often influence their marketing decisions.

These findings were supported by interviews with Mr. Junaidi, a tobacco farmer in Triwungan Village. The farmer explained that tobacco is sold only after the slicing and drying processes have been completed. The middleman then evaluates the quality before the transaction takes place. Prices are determined through mutual negotiation while considering prevailing market conditions.



Figure 2. Interview Between the Researcher and the Tobacco Farmer

Figure 2 shows the interview process between the researcher and a tobacco farmer in Triwungan Village. The interview aimed to explore farmers' experiences in marketing tobacco through middlemen, receiving production assistance, accessing market information, utilizing digital technology, and experiencing changes in household economic conditions.

The farmer stated that limited access to tobacco processing companies is the primary reason for selling tobacco through middlemen. Furthermore, support provided by middlemen in the form of fertilizer and production loans significantly contributes to farming

sustainability. This assistance indirectly influences farmers' decisions to continue selling their harvests to the same middlemen.

Digital technology utilization among farmers remains limited to WhatsApp-based communication. Market and price information is generally obtained through middlemen and farmer communication networks. This finding indicates that access to marketing information remains more concentrated among middlemen than farmers.

Economically, tobacco farming continues to serve as a major source of household income. The farmer reported that tobacco sales help meet daily household needs, including food expenses and children's educational costs. Furthermore, economic conditions have gradually improved in recent years, particularly when tobacco prices increase. However, stable tobacco prices remain the most important factor for improving farmer welfare in a sustainable manner.

Table 1. Summary of Research Findings on the Dual Role of Middlemen and Farmers

Aspect	Tobacco Middleman (Mr. Mistono)	Tobacco Farmer (Mr. Junaidi)
Role in supply chain	Acts as intermediary, market connector, and buyer of tobacco products	Producer and seller of tobacco through middlemen
Experience background	Former farmer (since 2016), transitioned into middleman role	Long-term tobacco farmer relying on seasonal production
Capital support	Provides production capital, fertilizer, and input assistance to farmers	Receives production loans and agricultural input support
Market access	Direct access to large buyers and tobacco processing companies	Limited access to formal markets and depends on middlemen
Price determination	Assesses tobacco quality and negotiates prices with buyers	Accepts negotiated prices based on market conditions
Digital technology use	Uses WhatsApp for communication with farmers and buyers	Uses WhatsApp mainly for communication with middlemen
Information access	Dominant source of market price and demand information	Relies on middlemen and peer farmers for market information
Economic impact	Strengthens distribution efficiency and market linkage	Tobacco farming supports household income and basic needs

Table 1 shows that the middleman plays a central and multi-layered role in the tobacco marketing system, extending beyond simple intermediation to include financial support, information control, and market access facilitation. Meanwhile, farmers remain in a dependent position, particularly in accessing capital, market information, and price negotiation processes, which indicates an ongoing structural imbalance in the tobacco value chain despite the presence of digital communication tools.

DISCUSSION

The findings of this study indicate that the dual role of middlemen in Triwungan Village has undergone a transformation from a conventional marketing intermediary into a more complex actor who simultaneously functions as a provider of capital, agricultural inputs, market information, and digital communication services. This finding demonstrates that middlemen are not merely economic actors operating within the tobacco marketing chain but also play a significant social role in supporting farmers' agricultural activities. The existence of middlemen emerged from farmers' limited access to formal financial institutions and direct marketing channels. Consequently, middlemen became an alternative solution that facilitated production and marketing processes. This condition reflects that the relationship between farmers and middlemen cannot be understood solely as a transactional exchange but also as a social relationship built upon trust, reciprocity, and mutual dependence.

The study reveals that the provision of production inputs and capital assistance by middlemen significantly influences farmers' marketing decisions. Farmers who receive loans or agricultural inputs tend to sell their tobacco harvests to the middlemen who supported them during the planting season. This finding supports the argument of Arofah and Setiawan that middlemen function not only as buyers but also as providers of capital and information, thereby creating a patron-client relationship between farmers and middlemen. In such relationships, economic assistance often generates social obligations that shape farmers' decisions regarding where and to whom they sell their products. In the context of Triwungan Village, this pattern is evident through farmers' preference to market their harvests to middlemen who have provided financial or material assistance. The decision is not solely driven by economic considerations but also by feelings of gratitude, trust, and social comfort that develop through continuous interaction.

However, this study also identifies a distinct characteristic that differentiates the farmer-middleman relationship in Triwungan Village from the conventional patron-client model. While patron-client relationships are generally characterized by strong dependency and exclusive marketing arrangements, the findings indicate that farmers still retain the freedom to choose buyers based on price and mutual agreement. Although social ties and economic support influence marketing decisions, farmers are not formally bound to sell their products to a particular middleman. This finding suggests that the traditional patron-client relationship has evolved into a more flexible partnership model. The relationship remains

embedded in trust and reciprocity, yet it allows farmers greater autonomy in making economic decisions. Therefore, this study extends the patron-client perspective by demonstrating that economic dependence does not necessarily eliminate farmers' bargaining opportunities when market competition remains present.

Another important finding concerns the utilization of digital technology in tobacco marketing. The results show that digital technology has been adopted in a limited manner, primarily through WhatsApp communication between farmers and middlemen. Information regarding tobacco readiness, market prices, and delivery schedules can now be exchanged more efficiently compared to conventional face-to-face communication. This finding supports the argument proposed by Sahputra et al. that digital technology enhances communication efficiency and accelerates information dissemination within the agricultural sector. Likewise, the findings align with Puspitasari (2019) perspective that digitalization can improve market accessibility and facilitate agricultural distribution processes. In Triwungan Village, digital communication has reduced information delays and enabled more responsive coordination between farmers and middlemen.

Nevertheless, the study demonstrates that digitalization has not yet transformed the overall structure of tobacco marketing. The use of technology remains limited to communication activities rather than extending to digital marketplaces, e-commerce platforms, or direct online transactions between farmers and buyers. As a result, digitalization in this context can be categorized as being at an early stage of adoption. The technological changes observed are procedural rather than structural. Farmers continue to rely on middlemen for market access, and digital tools have not yet empowered them to establish direct relationships with factories or larger buyers. This finding expands previous literature by highlighting that the presence of digital technology alone does not automatically produce market transformation. The impact of digitalization largely depends on how technology is distributed, utilized, and integrated into existing agricultural marketing systems.

A particularly significant finding concerns the unequal distribution of digital capabilities between middlemen and farmers. The study reveals that middlemen utilize digital technology more intensively than farmers. Middlemen actively communicate with buyers, access market information, and distribute price information through mobile devices and WhatsApp. In contrast, farmers largely depend on information obtained from middlemen or fellow farmers. From the perspective of economic sociology, access to information

constitutes an important source of power in economic relationships. Actors who possess broader access to market information tend to enjoy stronger bargaining positions and greater influence over transaction processes. Consequently, digitalization in Triwungan Village has not eliminated information asymmetry but has, to some extent, reinforced the strategic position of middlemen within the tobacco marketing chain.

This finding differs from the study conducted by Fitriya Ayu Firnanda, which suggests that information technology and social networks can reduce farmers' dependence on middlemen. In the case of Triwungan Village, digital technology has not substantially weakened farmers' dependence because middlemen continue to function as the primary gateway to both market information and market access. This discrepancy indicates that the effectiveness of digitalization in empowering farmers is highly context-dependent. In environments where farmers possess limited digital literacy and limited access to broader market networks, technology may strengthen existing intermediaries rather than replace them.

From a marketing perspective, the findings demonstrate that middlemen provide practical benefits for farmers. Most farmers lack direct access to tobacco factories or large-scale buyers; therefore, middlemen serve as an efficient bridge connecting production with broader markets. This finding is consistent with the study conducted by Lusiana Ulfa, which found that farmers often choose middlemen because they offer convenience, accessibility, and reduced transaction costs. In Triwungan Village, these advantages are further reinforced by kinship relationships between farmers and middlemen, creating a sense of trust and security during transactions. Consequently, middlemen contribute to reducing market barriers that might otherwise hinder tobacco commercialization.

Despite these advantages, the findings also indicate that easier market access does not necessarily translate into stronger bargaining power for farmers. Tobacco prices remain heavily influenced by market dynamics and product quality, while information regarding prices and market conditions continues to be mediated through middlemen. This situation reflects an asymmetrical marketing structure in which access to information is unevenly distributed. Farmers benefit from guaranteed market channels but have not yet achieved full independence in accessing markets directly. Therefore, the marketing system simultaneously provides opportunities and limitations for farmers.

Regarding economic welfare, the study reveals that the dual role of middlemen and the utilization of digital technology have contributed positively to household economic conditions. Tobacco farming remains a significant source of income for rural households, supporting daily consumption needs, educational expenses, and other family expenditures. The substantial increase in tobacco prices—from approximately IDR 34,000 per kilogram in 2016 to around IDR 75,000 per kilogram during the study period—has further strengthened farmers' income levels. These findings support welfare theories that define welfare in terms of individuals' capacity to fulfill essential needs and maintain sustainable livelihoods.

However, improvements in welfare remain conditional and relatively fragile. Farmers' incomes continue to depend heavily on fluctuations in tobacco prices and harvest quality. As indicated by Yaqin et al. (2025), tobacco farmers frequently face challenges associated with price instability, technological limitations, and dependence on marketing intermediaries. Similar conditions were observed in Triwungan Village, where farmers identified price stability as a critical factor for improving long-term welfare. Consequently, the welfare gains experienced by farmers cannot yet be interpreted as evidence of complete economic independence. Instead, welfare remains closely linked to market conditions and the continued presence of middlemen within the marketing system.

The findings of this study provide several implications. Theoretically, the research contributes to the development of studies on agricultural marketing by demonstrating that patron-client relationships can evolve into more flexible partnership arrangements without entirely removing elements of economic dependence. The study also contributes to digital agriculture literature by showing that digital technology may reinforce existing intermediary structures when access and digital competencies remain unequal. Practically, the findings suggest the need for policies aimed at enhancing farmers' digital literacy, expanding direct market access, and strengthening farmer organizations. Such efforts could reduce information asymmetry and improve farmers' bargaining positions within agricultural markets. Methodologically, the study highlights the importance of combining social and technological perspectives when examining rural marketing systems, as economic transactions are deeply embedded within social relationships and communication networks.

Despite these contributions, several limitations should be acknowledged. First, the study was conducted in a single village and involved a limited number of key informants, which may restrict the generalizability of the findings to other tobacco-producing regions.

Second, the research employed a qualitative approach that focused on understanding experiences and perceptions rather than measuring causal relationships quantitatively. Third, the analysis of digital technology utilization was limited to existing practices within the local context, where technology adoption remains relatively simple. Future research may expand the scope by involving multiple regions, incorporating quantitative measurements of welfare outcomes, and examining the effectiveness of advanced digital agricultural platforms in reducing farmers' dependence on intermediaries.

Overall, this study demonstrates that the dual role of middlemen in Triwungan Village generates both positive and challenging consequences. On one hand, middlemen facilitate access to capital, production inputs, market channels, and information, thereby supporting the continuity of tobacco farming activities. On the other hand, their dominant control over market information and distribution networks sustains farmers' dependence and limits their bargaining power. Digital technology has improved communication efficiency, yet it has not fundamentally transformed the structure of tobacco marketing. Thus, digitalization currently functions more as a tool that strengthens the effectiveness of middlemen rather than as an instrument that directly empowers farmers and creates a more equitable marketing system.

CONCLUSION

This study aimed to examine the dual role of middlemen in Triwungan Village, their utilization of digital technology, and its implications for tobacco marketing systems and farmers' economic welfare. The findings reveal that middlemen perform functions that extend beyond their traditional role as marketing intermediaries. They act as providers of capital, suppliers of production inputs, sources of market information, and facilitators connecting farmers with broader market networks. These findings demonstrate that middlemen occupy both economic and social roles within the local agricultural system. The relationship between farmers and middlemen is characterized by trust, social proximity, and mutual benefit, making middlemen an integral component of tobacco marketing activities in Triwungan Village.

The study further indicates that digital technology has contributed to improving communication efficiency and information exchange within the marketing process, particularly through the use of WhatsApp. Digital communication enables faster

dissemination of information regarding market prices, harvest conditions, and distribution arrangements, thereby enhancing marketing effectiveness. Nevertheless, the adoption of digital technology remains limited and largely confined to communication purposes. It has not yet evolved into the use of digital marketing platforms or direct market access mechanisms for farmers. Consequently, digitalization has not substantially reduced farmers' dependence on middlemen and, in many cases, has reinforced the strategic position of middlemen within the tobacco supply chain.

From an economic welfare perspective, the dual role of middlemen, supported by digital communication technologies, has contributed positively to farmers' livelihoods by facilitating household consumption, educational expenditures, and the continuity of farming activities. However, the level of welfare achieved remains highly dependent on tobacco price fluctuations, harvest quality, and farmers' limited access to market information. These findings suggest that improvements in farmers' welfare cannot be attributed solely to technological adoption but also require stronger access to information, greater market participation, and enhanced bargaining power among farmers.

Theoretically, this study contributes to the literature by demonstrating that farmer-middleman relationships may evolve beyond conventional patron-client structures into more flexible partnership arrangements while still maintaining elements of economic dependence. Practically, the findings highlight the importance of strengthening digital literacy, expanding market information access, and empowering farmers to participate more actively in agricultural marketing systems.

Based on these findings, farmers should be encouraged to improve their digital competencies to access market information independently and diversify marketing opportunities. Middlemen are expected to maintain transparent and mutually beneficial relationships while supporting farmers' adaptation to digital technologies. Universities and relevant institutions should strengthen community engagement programs, digital literacy training, and technology-based agricultural marketing initiatives. Future studies are recommended to involve broader geographical coverage, larger participant groups, and further investigation into the effectiveness of agricultural digital platforms in promoting farmers' independence and sustainable economic welfare.

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