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STRATEGIES FOR DEVELOPING PALM OIL MARKETING CHANNELS: A LITERATURE REVIEW ON PROFIT MARGINS, FARMER SHARES, AND DISTRIBUTION CHAIN OPTIMISATION

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Abstract
This study aims to analyse strategies for developing palm oil commodity marketing channels through a literature review approach that highlights aspects of profit margins, farmers' share, and distribution chain optimisation. This study was motivated by the issue of uneven distribution of added value between farmers and industry players, as well as logistical inefficiencies in the palm oil marketing system in Indonesia. The results of the analysis show that the uneven profit margins and low *farmer's share* are mainly caused by the length of the distribution chain, weak farmer institutions, and limited access to market information. Distribution chain optimisation can be achieved through the application of digital technology, price transparency, and institutional integration between farmers, cooperatives, and the processing industry. Digitalisation, strategic partnerships, and logistics policy reforms are key strategies for creating an efficient, inclusive, and sustainable marketing system. This study recommends the development of a technology-based and sustainable collaborative marketing model as the basis for policies to improve the competitiveness and welfare of palm oil farmers at the national level.
Keywords: palm oil, profit margin, farmer share, distribution chain, agribusiness marketing, systematic literature, market efficiency.

Introduction

The palm oil industry is one of the strategic sectors in the Indonesian economy, both in terms of its contribution to the Gross Domestic Product (GDP) and as a source of livelihood for millions of farmers and workers in the agricultural and processing industries. This commodity is not only a leading export, but also plays an important role in national food and energy security ((Woittiez & et al., 2017) . Globally, Indonesia is the world's largest palm oil producer, with land area continuing to expand and production volume increasing annually. However, behind these achievements, there are still many

challenges to be faced, particularly in terms of marketing and distribution of production outputs (Darmawan, 2020) .

The palm oil marketing channel in Indonesia generally involves many actors, ranging from small farmers, middlemen, cooperatives, palm oil mills, to exporters. This complex structure often creates an imbalance in the distribution of profits, where farmers, as the main producers, receive the smallest share of the added value generated. High profit margins tend to be enjoyed by downstream actors, such as large traders and exporters, while farmers face various obstacles such as logistics costs, information asymmetry, and limited access to wider markets(Ismiasih, 2019) . This imbalance in profit distribution not only affects the welfare of farmers, but also the sustainability of the industry as a whole . When farmers do not receive adequate incentives, they tend to be less motivated to improve productivity and production quality. This could ultimately threaten the availability of raw materials for the processing industry and reduce the competitiveness of Indonesian palm oil products in the international market (Mensah & et al., 2022) . Therefore, there needs to be a marketing channel development strategy that can improve the profit distribution structure and ensure fairness for all actors in the supply chain.

Optimising the distribution chain is one of the main keys to improving the efficiency and effectiveness of palm oil marketing. An efficient distribution chain can reduce logistics costs, speed up delivery times, and ensure that products reach consumers with their quality intact. However, in practice, there are still many obstacles to overcome, such as inadequate infrastructure, complex regulations, and a lack of integration between actors along the supply chain. Improving the distribution system will not only benefit farmers, but also increase the competitiveness of palm oil products in the global market (Esfahani et al., 2025) .

Advances in information technology and digitalisation have also opened up new opportunities in the development of palm oil marketing channels. Digital platforms can be used to expand market access, increase price transparency, and facilitate direct transactions between farmers and buyers. In addition, technologies such as blockchain and traceability systems can help ensure product sustainability and authenticity, which are increasingly demanded by the international market. However, the use of this technology is still limited, especially among smallholders who have limited access and digital literacy (Haryanto, 2019) . Government policy also plays an important role in shaping the structure of palm oil marketing channels. Regulations on prices, exports, and farmer protection can affect market dynamics and profit distribution. However, the policies adopted often fail to fully address the structural issues faced by farmers, such as the dominance of middlemen and dependence on large factories (Sari et al., 2022) . Therefore, a more holistic and inclusive policy approach is needed, one that considers the interests of all actors in the supply chain.

Previous studies (Yuliana, 2019) indicate that various strategies have been attempted to improve palm oil marketing channels, such as strengthening farmer institutions, implementing partnership systems, and developing alternative markets. However, the results have been mixed, and no model has been consistently able to significantly increase farmers' share. This indicates the need for further research to identify the factors that influence the success of marketing channel development strategies and to formulate recommendations that are relevant to local conditions.

Research Methodology

This study utilised a *systematic literature review* method with a descriptive-qualitative approach to comprehensively examine various studies, reports, and scientific publications related to palm oil commodity marketing channel development strategies. Data collection was conducted through literature searches of academic databases such as Scopus, ScienceDirect, and Google Scholar, which discussed topics such as profit margins, farmers' share, and optimisation of the palm oil distribution chain (Eliyah & Aslan, 2025) . The literature selection procedure referred to the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) stages, including identification, screening, eligibility, and inclusion of relevant articles. Data analysis was conducted using thematic synthesis techniques to identify patterns, trends, and research gaps in the field of palm oil agribusiness marketing. The results of this synthesis were then used to formulate a conceptual model of an efficient and equitable marketing channel development strategy for all actors in the supply chain, especially farmers (Ferrari, 2020) .

Results and Discussion

Analysis of Profit Margins and Farmers' Share in the Marketing Channel

Profit margin analysis and farmer share are fundamental aspects in understanding the efficiency and fairness of the palm oil marketing system. Profit margin can be defined as the difference between the selling price of a product at the consumer level and the price received at the producer level, after deducting marketing costs. This concept is important because it reflects the distribution of added value among actors in the supply chain, from farmers, collectors, processing plants, to wholesalers and exporters. If the margin is too large at the downstream level, there are indications of market inefficiency that is detrimental to farmers as the main actors in production (Yuliana, 2019) .

In the Indonesian context, the palm oil market structure tends to be oligopsonistic at the upstream level, where only a few large buyers (palm oil mills or CPO companies) deal with many small sellers, namely farmers. This situation results in low bargaining power for farmers regarding the selling price of fresh fruit bunches (FFB). When FFB prices are determined unilaterally by companies or collectors, farmers

do not have adequate room for negotiation to obtain a fair margin. This situation reflects a structural imbalance between production capacity and control over the distribution of economic value(et al., 2023) .

The gap between prices at the farmer level and prices in the export market creates significant margin disparities. For example, the price of fresh fruit bunches at the farmer level often only covers 10–20 per cent of the international CPO price after conversion, even though farmers bear most of the production risk. Other factors that widen this gap are transportation costs, product quality uncertainty, and pricing practices based on factory yields, which are often not transparent. In the long term, this reduces farmers' motivation to increase productivity and adopt sustainable technologies (Shareef et al., 2015) .

Disproportionate profit margins also indicate inefficiencies in the supply chain system. The large number of middlemen in the distribution process increases transaction costs and lengthens the flow of goods from farmers to the final market. Each middleman adds a margin to the price of the product, but does not always provide significant added value. In agribusiness economic theory, this condition is categorised as *market inefficiency,* where distribution costs are not equivalent to the benefits received by primary producers (Shareef et al., 2015) . *The farmer's share* is an important indicator in assessing the proportion of added value received by farmers from the total final price in the market. This value is calculated by comparing the price at the farmer level to the price at the consumer or factory level as a percentage. The smaller *the farmer's share,* the greater the share of profits absorbed by market players at the intermediate and downstream levels. Empirical data shows that *the farmer's share* of palm oil in Indonesia still lags far behind other agribusiness commodities such as rubber or cocoa, which have stronger value chain integration (Sofyan, 2018) .

The low *share of farmers' income* is not only caused by the length of the marketing chain, but also by the weak economic institutions of farmers. Most smallholder oil palm farmers are not members of cooperatives or associations that have the capacity to sell collectively. As a result, their bargaining position with middlemen or processing companies is weak. On the other hand, small farmers also face difficulties in accessing information on prices, business capital, and efficient logistics facilities, so they cannot choose the most profitable distribution channels(Sembiring, 2020) .

Several studies show that farmers who are involved in formal partnerships or are members of cooperatives have a higher *farmer's share*. The partnership mechanism allows farmers to obtain price guarantees, direct market access to factories, and reduced distribution costs through joint logistics schemes. In addition, cooperatives can act as harvest aggregators, ensuring stable supply volumes and improving product quality in line with industry standards (Daryanto et al., 2021) . With a shorter marketing structure, profit margins become more evenly distributed, although professional institutional governance is required to maintain the sustainability of this model. In

addition to institutional aspects, spatial factors also affect marketing margins and farmers' shares. The location of plantations far from palm oil mills causes transportation costs to increase, while the selling price at the farmer level does not experience a commensurate adjustment(Schoneveld, 2022) . In some remote areas of Kalimantan or Sumatra, logistics costs can even reach 20–30 per cent of the total transaction value. This geographical imbalance leaves farmers in remote areas increasingly behind in obtaining a proportional share of profits compared to areas with better distribution infrastructure(Baroh & et al., 2021) .

Information asymmetry is another issue that deepens margin inequality. Farmers are often unaware of daily developments in CPO market prices or international reference prices , while traders and mills have access to faster market data. This information gap is exploited by market players in dominant positions to set purchase prices at the farmer level. In the framework of information economics theory, this condition is referred to as *information asymmetry,* which has the potential to reduce market efficiency and cause unequal distribution of producer surplus(Baroh, 2022) .

Empirical analysis shows that increased price transparency can significantly increase *farmers' share*. Digital technology-based innovations such as online pricing platforms, agricultural information systems, and blockchain-based applications have been implemented in several regions to reduce information asymmetry. These systems enable farmers to monitor selling prices in real time and negotiate more fairly with buyers. Thus, digital integration in palm oil marketing has the potential to be a key strategy for closing the margin gap and increasing farmers' incomes(Khasanah, 2023) . However, these efforts are often hampered by low digital literacy among farmers and a lack of institutional support for technology implementation. Therefore, policy interventions that promote digital education, agribusiness entrepreneurship training, and fiscal incentives for the implementation of modern marketing systems are urgently needed. The government plays a crucial role in providing adequate information infrastructure and distribution facilities to achieve market efficiency without compromising the welfare of smallholder farmers (Rahayu et al., 2020) .

In addition to price transparency, distribution cost efficiency also contributes significantly to improving profit margins. The use of logistics technologies such as *hub and spoke* systems, combining volumes between farmers in a single distribution chain, and adopting low-energy transportation can significantly reduce operational costs. With lower costs, margins at the farmer level increase without having to raise selling prices in the final market. This model supports a sustainable economic approach by minimising social and environmental costs in the palm oil value chain ((et al., 2017) .

Criticism of marketing systems that are solely efficiency-oriented also needs to be taken into account, as efficiency does not always correlate with distributive justice. In some cases, high efficiency actually strengthens the position of large companies that have greater technological capabilities and capital. Therefore, strategies to increase

farmers' margins must include institutional reforms that enable equitable access, not just a reduction in distribution costs. An approach based on equitable value addition can be realised through transparent partnership contracts, inclusive financial access, and support for minimum price policies (A .

This theoretical and empirical analysis shows that increasing palm oil farmers' profit margins cannot be done partially, but requires comprehensive reform of market structures, institutions, and information systems. The development of a collaborative marketing model that balances efficiency and fairness is key to the successful distribution of added value in the palm oil sector. When farmers receive a more proportional share of the value chain, the multiplier effect on the local economy will increase, promoting inclusive and sustainable rural development.

Palm Oil Distribution Chain Optimisation Strategy

The palm oil distribution chain is an integral part of the agribusiness system that determines the efficiency, competitiveness, and sustainability of this sector. The effectiveness of distribution has a direct impact on economic performance, profit margins, and farmer welfare. Optimising the distribution chain focuses not only on delivery speed and costs, but also on integration between actors, information transparency, and environmental and social sustainability. In the context of Indonesia as the world's largest palm oil producer, improving distribution is one of the key factors in increasing national added value amid global demands for efficiency and sustainability (A .

The palm oil distribution chain is complex because it involves many stages, from the collection of fresh fruit bunches (FFB) and processing into CPO, to transportation to ports, export and distribution to downstream industries. Each stage has its own logistical requirements, including storage, packaging, transportation and quality control. This complexity creates both opportunities and challenges: the longer the distribution chain, the greater the potential for cost inefficiencies and losses due to delays or information imbalances between actors (Alham, 2020b) .

One of the fundamental factors in optimising the distribution chain is the integration of the logistics system. The use of multimodal transport infrastructure, such as optimising land, river and sea routes, can reduce logistics costs, which have been the largest cost component in palm oil marketing. Improving road access to factories and ports, upgrading storage warehouse systems, and building integrated logistics *hub* facilities are practical approaches to speeding up distribution and reducing operational costs (Putra & Prasetyo, 2021) .

Digital innovation plays an important role in creating an efficient and adaptive distribution chain. Digital transformation through *Supply Chain Management* Systems, *Enterprise Resource Planning* (ERP), and the Internet of Things (IoT) enables real-time monitoring of product flows. This technology provides quick information on stock,

market demand, prices, and logistics conditions, thereby improving the accuracy of decision-making (Alham, 2020a) . This system also supports transparency in transactions between farmers, traders, and companies, which ultimately reduces unfair pricing practices. In addition to digitalisation, the application of *blockchain* systems in palm oil distribution is beginning to gain global attention. Blockchain creates an immutable record of transactions, ensuring the authenticity and traceability of each product from upstream to downstream. This is crucial in responding to consumer and international market demands for product origin (sustainable sourcing). With this system, sustainable palm oil certification (such as RSPO or ISPO) can be verified more transparently and efficiently, while enhancing the credibility of Indonesian palm oil products in the global market (Aminuddin et al., 2024) .

In addition to technological aspects, distribution chain optimisation also requires changes in institutional governance. Multi-stakeholder collaboration between farmers, cooperatives, industry, logistics, and local government must be developed in the form of *value chain partnerships*. This collaborative model enables better coordination in raw material collection, delivery scheduling, and profit margin sharing. With this coordination, the risks of excess stock or distribution delays can be minimised, while logistics costs can be shared more efficiently (Ajina, 2019) .

The issue of efficiency is also closely related to demand-oriented supply chain management. The *Demand-Driven Supply Chain* model emphasises the importance of adjusting palm oil supply to the needs of downstream industries such as food, energy and cosmetics. A demand-based approach can reduce unnecessary stockpiling and lower storage costs. However, implementing this model requires an integrated information system between farmers, factories, and industrial consumers so that production and delivery can be effectively synchronised. Farmer institutions play a key role in optimisation strategies, especially at the upstream level (Dlodlo & Dhurup, 2013) . Strengthening farmer cooperatives and joint business groups can increase farmers' bargaining power in the distribution process. Cooperatives that have a transport fleet, storage warehouses, and direct marketing access to factories will be able to reduce dependence on middlemen. In addition, cooperatives can act as data and logistics hubs that help farmers adjust their harvest times to the delivery schedules of processing industries, thereby increasing the efficiency of the distribution chain (B .

From a policy perspective, the government needs to provide a regulatory framework that encourages integration between upstream and downstream players through agribusiness logistics policies. Regulations related to TBS quality standardisation, price transparency, and incentive policies for digital distribution innovation must be optimised. The government can also facilitate *public-private partnerships* in the development of logistics infrastructure in palm oil production centres, especially outside Java, where transportation barriers remain a major obstacle in the distribution of harvests (Wibowo, 2024) .

Distribution optimisation strategies cannot be separated from sustainability goals. Global pressure for sustainable palm oil practices demands distribution systems that are more environmentally friendly and energy efficient. The use of low-carbon modes of transport, reduction of losses during transportation, and utilisation of renewable energy sources in logistics facilities are important parts of a sustainable distribution strategy. Thus, improving distribution efficiency not only supports profitability but also strengthens the environmental credibility of Indonesia's palm oil industry (Esfahani, 2024) . In addition, the application of the *Circular Supply Chain* concept is increasingly relevant in the context of the palm oil industry. This concept promotes the recycling of distribution and processing waste, such as using palm oil residues for biofuel energy or utilising solid waste for feed and fertiliser. This integration reduces environmental costs while adding new economic value for supply chain actors(Hadiguna, 2017) . As the entire distribution chain moves towards circularity, the resilience of the palm oil industry will increase amid global economic and ecological demands.

The financing aspect of distribution also needs to be considered, as many small businesses struggle to obtain capital to repair vehicles, warehouses, or cooling systems. Financial institutions and local governments can provide low-interest microfinance schemes for both farmers and cooperatives. Support for access to capital enables small businesses to actively participate in modern distribution networks and obtain a fairer share of profits. *Risk-based lending* using digital supply chain data can be an efficient and measurable innovative financial instrument ((Woittiez & et al., 2017) .

On a national scale, the development of a centralised palm oil logistics system that is adaptive to global market changes is urgently needed. A national logistics system that efficiently connects production centres with major export ports will accelerate the export process and reduce port costs. The integration of trade policy and logistics infrastructure is a strategic step to ensure smooth distribution from upstream to downstream without excessive administrative barriers (Darmawan, 2020) .

From a managerial perspective, the *Lean Supply Chain* approach can be applied to identify and eliminate non-productive activities in the distribution chain. This principle focuses on reducing waste of time, costs, and resources to achieve maximum efficiency. In practice, the *lean* approach can be applied through optimal distribution route planning, transport load consolidation, and an integrated monitoring system to ensure that each stage of distribution generates real value for all actors involved.(Ismiasih, 2019) .

In conclusion, optimising the palm oil distribution chain is not merely a technical issue, but encompasses the integration of technological, economic, institutional and sustainability dimensions. The success of the optimisation strategy is largely determined by the ability of all stakeholders to work collaboratively and transparently in creating an efficient, inclusive, and environmentally friendly distribution system. Thus, distribution

reform will not only increase domestic added value and Indonesia's position in the global market, but also strengthen the welfare of farmers and maintain the long-term sustainability of the palm oil sector.

Conclusion

The strategy for developing palm oil commodity marketing channels must be directed towards creating a fair, efficient and sustainable distribution system. Unequal profit margins and low farmer shares illustrate the distortion of added value along the supply chain. Therefore, strategies that emphasise integration between farmers, cooperatives and the processing industry are a top priority. These efforts need to be combined with increasing the institutional capacity of farmers, price transparency, and strengthening access to information and markets so that the bargaining position of producers at the upstream level can be significantly improved.

Optimisation of the palm oil distribution chain can be achieved through the implementation of technology-based and collaborative institutional approaches. The use of digitalisation through supply chain information systems, blockchain, and online marketing platforms has proven to be effective in cutting out intermediaries, reducing logistics costs, and increasing transaction efficiency. At the same time, multi-stakeholder collaboration between the government, the private sector, financial institutions, and farmers is necessary to achieve comprehensive economic integration. This synergy must also take into account environmental and social sustainability aspects so that the distribution system is not only economically effective but also ecologically responsible.

Thus, developing palm oil marketing channels based on efficiency, fairness and sustainability is key to improving national competitiveness and the welfare of farmers. This literature review emphasises the importance of structural reform in the palm oil trade, ranging from strengthening farmers' economic institutions to establishing an integrated value chain that is accountable and transparent. The implementation of this strategy is expected to produce a marketing system that is adaptive to global dynamics while strengthening the foundations of Indonesia's palm oil agribusiness in the long term.

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