Available online at https://asric.africa/agricultural-sciences
ASRIC Journal of Agricultural Sciences Vol.6(2)(2025) 29-39

# Spotlighting the Odogbolu Oil Palm Value Chain: A Pathway to Sustainable Intervention

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Received 01 July 2025; revised 30 July 2025; accepted 27 August 2025

## Abstract

Oil palm cultivation is a vital agricultural activity among the inhabitants of the Odogbolu Local Government Area in Ogun State. Despite the importance of this value chain in both industrial and rural development, actors involved are struggling to expand their operations due to several challenges. This necessitates this study, which explored the oil palm value chain through interviews with 50 actors and four key informants, revealing an intricate web of issues that all contribute to low productivity. Small and medium-sized producers are not adequately integrated into the value chain. While women are at the forefront of the trading and retail side of the business, this chain is characterised by unfair sharing of the consumer's payment, and urban retailers earn the highest value share. In this unregulated market, several actors easily exploit price differences and control information to their own benefit. To improve the situation with respect to these challenges, several key areas need revitalisation to strengthen connections between different parts and stages of the supply chain. With the support of effective collaboration across the stages of the value chain, an equitable share, a competitive value chain, and a sustainable oil palm industry can be created in Ogun State.

**Keywords:** Value chain, Value share, Value chain governance, Causal diagram

## Introduction

Oil palm cultivation is concentrated in the southern regions of Nigeria within the humid rainforests and savannah zones, which provide the ideal ecological conditions for its growth (Ekenta et al., 2017; Innocent et al., 2022). The central oil palm-producing states in Nigeria are Abia, Akwa Ibom, Anambra, Bayelsa, Cross River, Delta, Edo, Imo, Kogi, Ondo, Oyo, and Rivers (National Bureau of Statistics (NBS, 2019). It holds a cultural and ecological significance in these areas, valued not only as an essential commodity for local communities but also as a significant contributor to biodiversity (Okolo et al., 2019; Murphy et al., 2021).

This sector is sustained by more than seven million smallholders worldwide as the primary source of livelihood, and is not dominated by large-scale plantations (RSPO, 2022). It is essential in enhancing

the livelihoods of millions of smallholder farmers through expanding market access, ensuring more stable incomes, and stimulating rural infrastructure development (Pramudya et al., 2022). The sector is a major employer across various value chain activities, directly engaging approximately 6 million people and indirectly employing another 11 million people (Kadandale et al., 2019; Murphy et al., 2021).

It remains a primary ingredient in many cooking recipes, playing a crucial role globally in food security, particularly in African and Asian cuisines, with an estimated three billion people relying on it as a staple in their diet. It reflects both its cultural and nutritional importance (Frost & Sullivan, 2017; Murphy et al., 2021). Although it has become a central subject in international development debates beyond its cultural role, due to its dual character, which offers immense socio-economic benefits while raising ecological concerns (Qaim et al., 2020). Despite this, its demand is expected to rise significantly, with 93 to 156 million tonnes required by 2050, as the global population is projected to continue growing, according to industry forecasts (Frost & Sullivan, 2017; Murphy et al., 2021).

The production has increased globally over the past two decades, expanding from 42.6 million tonnes (Mt) in 2008 to 74.7 Mt in 2020, covering an area of 29 million hectares (FAOSTAT, 2022). In addition, 8.8 million tons of palm kernel oil were recorded during the same period (Statista, 2020). The economic importance of this sector has increased due to its rapid growth, with the market value surpassing USD 50 billion in 2021 and further expansion projected at an annual growth rate of at least 4%, indicating a potential reach of an estimated USD 65 billion by 2027 (Research & Markets, 2022).

Nigeria recorded 537,000 metric tons (MT) of palm oil production in 1964, and this figure increased to 971,000 MT by 2010. However, it remained relatively stable at around 970,000 MT by 2017 (USDA, 2017). Currently, Indonesia, Malaysia, and Guatemala lead the global market, exporting 25.5 million tonnes, 13.5 million tonnes, and 0.8 million tonnes, respectively, in 2021. The largest importers in the same year were India, China, and the European Union (EU), which purchased approximately 8.2 million tonnes, 6.4 million tonnes, and 6 million tonnes, respectively (FAOSTAT, 2022).

Palm oil valued at approximately $1.11 million in 2021 was exported from Nigeria to countries such as the United States, the United Kingdom, Canada, South Africa, and Spain, ranking it as the 78th largest exporter of the commodity worldwide (OEC, 2023). Despite this export presence, there has been insufficient domestic production to meet local demand, prompting significant imports from Malaysia, Indonesia, India, China, and Singapore, which supplied at least $568 million worth of palm oil to Nigeria, positioning the country as the 21st largest importer globally in the same year (OEC, 2023). The Central Bank of Nigeria (CBN) cited that Nigeria should have been earning approximately $20 billion annually from the production and processing of palm oil if it had sustained its high global market share of palm oil production. (PricewaterhouseCoopers (PwC), 2019).

The discovery of crude oil in 1958 and the Nigerian Civil War from 1967 to 1970 are the two major traceable causes of Nigeria's decline as a leading global palm oil producer. The emergence of the oil sector diverted national attention and investment away from the agricultural sector, and the civil war severely affected the eastern region, the historical heartland of oil palm cultivation, resulting in extensive destruction of plantations and processing mills (Akhaine, 2017). The resulting shortfall poses significant challenges for industries that rely on crude palm oil as a raw material for stable production and the associated value-added benefits within the sector (Chiejina, 2019).

The oil palm industry in Nigeria is characterised by a dearth of information on key statistics, highlighting the need to maintain a steady flow of information on various aspects of the industry, which must be updated regularly to plan for its effective growth and development (Abu et al., 2023). Additionally, there is a notable scarcity of comprehensive academic studies examining the oil palm industry in the lower southern region of Nigeria, particularly those employing a mixed-scale analytical approach (Merem, 2020).

In relation to this, there is a transition from a largely self-sufficient economy to one which now heavily relies on imports for palm oil, and the Nigerian economy is growing increasingly susceptible to economic disturbances in this sector. This situation necessitates an examination of the dynamics within Ogun State's oil palm value chain, particularly in Odogbolu. It is essential to understand the underlying

factors contributing to these challenges, as this will help focus on the primary barriers to the sector's development along the value chain.

## Methodology

### Area of Study Description

This study was conducted in the Odogbolu Local Government Area (LGA) of Ijebu, Ogun State, southwestern Nigeria. The region is situated at an approximate latitude of 6° 50′ N and longitude of 3° 46′ E, covering a total area of 541 km² of land. Farming is a significant occupation in the LGA, and the crops grown are diversified (NPC, 2006). The area is under the influence of a double rainfall peak, mainly in July and September. The soils in this area are generally well-drained, ranging from loamy to sandy, and the climate is highly suitable for oil palm production (Sanusi et al., 2022).

### Research Techniques

The study employed a purposive sampling method, collecting primary and secondary data from various sources. Data were generated by conducting interviews with 50 actors currently involved in the oil palm value chain and four key informants, selected based on their level of expertise and strategic knowledge. This method enabled the collection of both quantitative and qualitative data (See Table 1).

### Data Analysis

Qualitative data were thematically coded and analysed to reveal patterns and key dimensions of the oil palm value chain, including value chain mapping, governance system, information flow, chain of cause, and gender empowerment. These analyses provided a comprehensive introspection into the system's operation as well as its potential. In the traditional production segment, gross margins and value shares were computed using quantitative data. This made it possible to calculate the share of consumer price received by the actors in the value chain.

The findings would provide stakeholders and policymakers with indicators for focusing on sustainable interventions and strategic support to improve sustainability, resilience, and added value in the oil palm value chain in Odogbolu.

**Table 1** Respondent Information

| Actors | Male | Female |
|---|---|---|
| Farmers | 10 | - |
| Aggregators | 2 | 10 |
| Processors | 2 | 3 |
| Wholesalers | 3 | 17 |
| Retailer | - | 3 |
| **Total** | **17** | **33** |
| **Percentage** | **34** | **66** |

Source: Author

## Results

## Description of the Oil Palm Value Chain

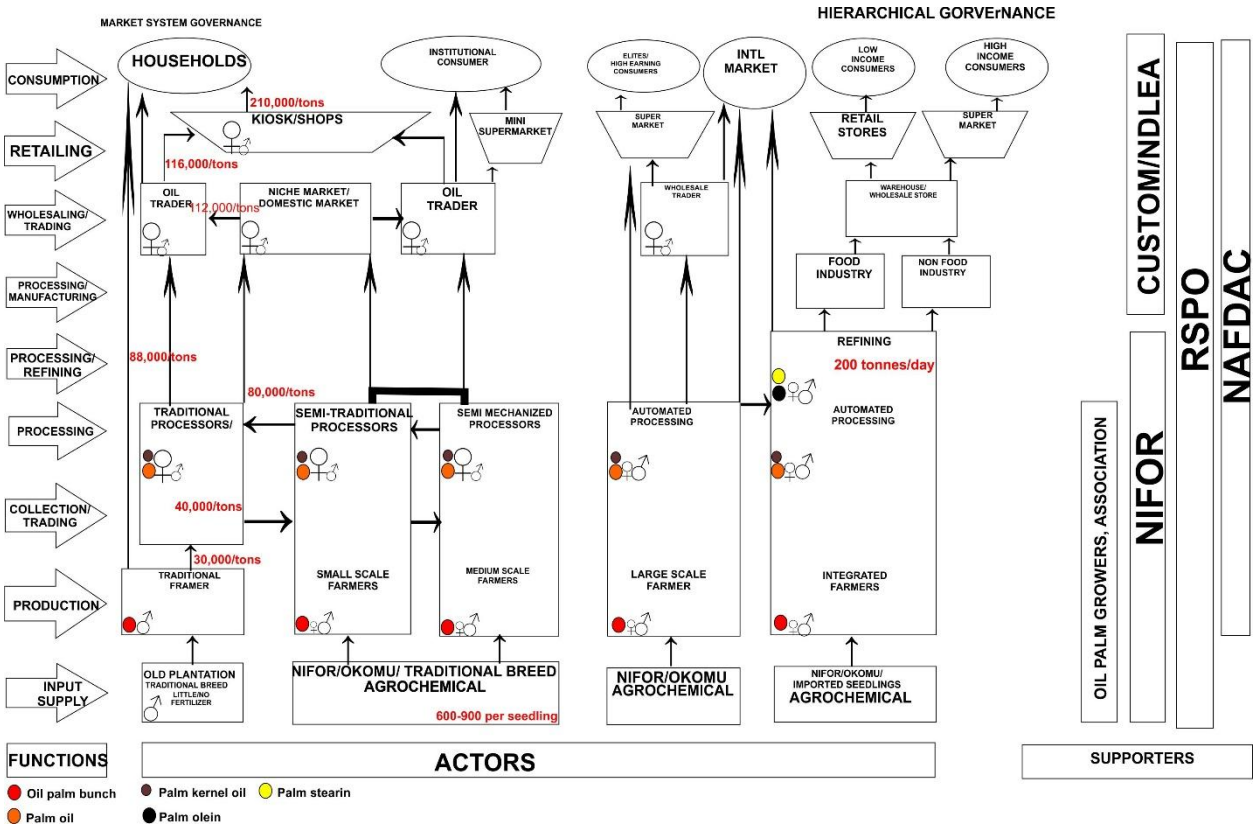


*Fig. 1: Oil Palm Value Chain Map*
Source: Author

Figure 1 illustrates that there is no connection between the initial three segments and the latter two segments, which can be attributed to technological disparities and advancements.

The oil palm value chain in Odogbolu Local Government Area presents a hierarchy, which involves informal, exploratory oil palm businesses and extends to large-scale oil palm businesses with international connections (See Figure 1). The cycle begins with the gathering of fresh fruit bunches (FFBs) from semi-wild groves, which are found on either community-owned or inherited land. These bunches are usually manually harvested by smallholder farmers, who may use them for consumption or sell them to aggregators and processors. In many cases, traditional household-level processing is still practised. If harvesting is hired out, the cost is between ₦60 and ₦100 per bunch. Usually, female processing workers are paid an average of ₦2,000 per day for processing work, and were observed to produce four 25-litre kegs of palm oil (equivalent to 100 litres) per ton of FFB processed.

The processed oil is transported to markets either by traders or the processor. In the latter scenario, women may manually carry kegs or employ operators of commercial motorcycles, known as "okada," at approximately ₦500 per trip. Unregulated pricing in the liberalised market has also created significant price differences for both goods and services across various communities. These differences, according to key informants, are attributed to variations in infrastructure, market access, and negotiation power.

The following part of the chain is constituted by farmers who grow oil palm as a subsistence food crop in mixed-cropping or mono-cropping systems. These growers may sell their FFBs to medium-scale processors or be involved in small-scale, cottage-based processing. Although they utilise their plantations very actively and can thus be characterised as active managers, they often lack access to modern agronomic inputs and techniques.

The third link consists of medium-sized farmers who employ more effective farming techniques to increase their yields. A few own semi-mechanised palm oil mills, some engage in fee-for-service palm oil extraction, and others have none of these activities. These middle-level producers, key informants suggested, are important bridging entities between smallholder farmers and industrial processors.

The value chain encompasses large-scale commercial farms that are either owned by private investors, the government, or cooperative groups, which raise funding from crowdfunding platforms or utilise personal funds for investment. Although the majority of these estates have crude palm oil mills, not all have refining plants for palm oil. Oils obtained at this stage are marketed to domestic elite consumers and exported to foreign countries, including the United States, the U.K., Canada, South Africa, and Spain.

A notable commercial farm is JB Farms, a single integrated oil palm agribusiness in Ogun State. "It spans 4,000 hectares in Ogun, 4,500 hectares in Rivers State, and 10,000 hectares in Ondo State. Spaced with a density of planting of 120–145 trees per hectare, each tree would produce 675 kg of oil in its productive life, with individual fresh fruit bunches of 25–30 kg", as reported by Ajibola Adebutu in an interview with Sarah Gold in 2023. According to key informants, the batch process refinery at JB Farms has a daily capacity of 200 tons. In 2019, a truckload (33,000 litres) of refined oil was reportedly sold by the farm to industrial buyers for ₦ 15,000,000. However, the products take a long time to be delivered due to high demand. The destination details of buyers have not been revealed, but trade literature confirms the global spread of Nigeria's palm oil exports.

Further downstream, palm oil is typically sold in 25-litre kegs to wholesalers who source it directly from processors or from open markets. Traders purchase from N18,000 to N26,000 per keg in wholesale, largely dependent on the season of the year. Retailers purchase at a rate of ₦28,000 to ₦30,000 per keg, while final consumers pay approximately ₦2,000 to ₦2,200 per litre. In the market, some wholesalers are also selling their products directly to consumers, making the supply chain an intricate web.

## Information and Transport across the Oil Palm Value Chain

Information flows and logistics in the oil palm value chain in Odogbolu exhibit considerable differences, ranging from organisation and market access to the capacity of stakeholders. The first segment (comprising wild-grove collectors and small-scale traditional conventional processors) tends to rely more on informal sources for decision-making. Farmers and processors themselves depend more on feedback from their urban-dwelling relatives about consumer trends and the price of palm oil. Price differences in the rural and urban markets are substantial and inconsistent within the country. These disparities are frequently exploited by opportunistic buyers, who purchase palm oil at rural prices significantly below their expectations while travelling or going about their business. Traders play a vital logistical role by overseeing the collection and transportation of palm oil from rural areas, ensuring quality and preventing adulteration during transit.

At the second and third tiers, which include food producers (subsistence) and medium-scale producers, stakeholders have more wiggle room to make choices. The palm oil obtained in these processes is considered to have better quality than the oil extracted from the first two segments. Processors and farmers are therefore becoming more involved in negotiations and operational decisions. However, traders still have an enormous impact on the final pricing by facilitating deals between production and market needs. In these segments, a slightly more structured information exchange process is in place; these farmers and processors demonstrate a greater awareness of the market and improved technical knowledge. In this circumstance, the transportation of produce is typically regulated by mutual agreements between processors and traders, and the latter may undertake logistics management in accordance with the terms of the agreement.

The value chain is more structured in the fourth and fifth segments, including significant holdings and commercial, linked farms. These systems have tight control over internal data and have sophisticated logistical infrastructures that are less dependent on external actors. Flows of information within these segments are limited and largely hidden from outsiders, including other industry participants in the extended value chain. Figures on production, pricing and shipment schedules are closely guarded.

Transport logistics are closely managed, often incorporating economies of scale and a well-structured supply chain to ensure timely delivery and quality assurance.

## Gender Relations in the Value Chain of Oil Palm

Women are key and irreplaceable actors in the oil palm value chain, particularly in aggregation, wholesaling, and retailing, in both traditional, small-scale, and medium-scale operations (see Table 1). It is not confined to mere transactional aspects, but also encompasses social and organisational components, which are essential for the sector's longevity and robustness.

At the aggregate level, women play a crucial role as intermediaries, organising the collection and transfer of products from palm oil producers to processors and markets. Moreover, they are in overall control of downstream parts of the value chain, in which they are heavily involved in the wholesale and retail businesses. This volume and character of involvement are indicative not only of the economic role that they play, but also of their organisational strength and political influence.

As one informant explained, " They trade, form commercial units and or society, not just for mere buying and selling. The groups help each other out and support each other during ceremonies, and if support is needed, they will stick together; that is natural to the Nigerian culture". These women's groups become informal institutions that facilitate social capital, mutual assistance, and bargaining against market volatilities.

## Value Chain Governance

The governance structure of the oil palm value chain in Odogbolu exhibits varied levels of coordination, control, and interdependence across its different segments, characterised by contrasting informal and formal marketing regimes.

The last two links of the chain are captive to a hierarchical governance mechanism. This is evident in the vertically integrated method that operates from plantation production to crude palm oil processing. In an interview with Ajibola Adebutu by Daniel Folley in 2023, "JB Farm receives approximately 300 metric tons of crude palm oil monthly from Okomu Farm. However, this quantity is still insufficient to meet the entire refinery's capacity". Okomu Farm is a key player in the national distribution of crude palm oil (supply side), as it both directs allocation and influences recipient organisations. Control over supply from the upstream standpoint serves to promote a quasi-hierarchical arrangement, wherein refineries remain subordinated to upstream supply decisions by lead firms such as Okomu.

The smallholder, subsistence, and medium-scale segments, on the other hand, are characterised by a market-based governance system. Weak institutional linkages, limited formal co-operation, and a lack of long-term contractual arrangements mark these sectors. Traders trade in their own accounts and opportunistically use short-term signals and volatile product quality. The key informant added that "since sourcing decisions are typically fluid, there is little focus on supply consistency or investment in production development. Relatively few participants within these segments have developed trust-based relationships throughout the entire value chain".

This divide fractures the value chain along a broader structural socio-spatial caste line in the sector, with informal and decentralised informality at the bottom, formal and vertical coordination at the top. Overcoming this divide with institutional support, enabling collaborative platforms and inclusive value chain participation, could significantly improve efficiency and equity, serving as a crucial instrument for building resilience in the palm oil sector.

## Market Institutions

Key informants' perspectives suggest that market institutions along the oil palm value chain are highly fragmented and context-specific. These organisations operate under local mandates and compete for attention. This approach does not align with the standard practices within the broader market context.

Membership in these institutions is not mandatory, although some pressure, both direct and indirect, is exerted on individuals to join. Nevertheless, actors can, of course, refuse to engage when they feel a misalignment with their interests. These institutions' power, however, is limited mainly to their immediate surroundings, and they lack legitimacy throughout the entire value chain. The public sector

can be informed about and aware of the functions and existence of market institutions, but there is little formal relationship or direct regulatory connection. This equal and opposite system has led to an anarchic constellation of informal institutions and a non-uniform approximation of the rule of law, as these informal systems have not been thoroughly examined for their decentralisation and variance.

## Gross Margin for the Traditional Segment

***Table 2**: Gross margin, added value and value share.*

| Actors | Cost Price/tons (₦) | Variable cost/tons (₦) | Revenue Cost/tons (₦) | Gross income /tons (₦) | Added/tons Value (₦) | Gross Margin % | Value Share % |
|---|---|---|---|---|---|---|---|
| **Farmer** | - | 6, 960 | 30 000 | 23, 040 | 30, 000 | 76.8 | 14.28 |
| **Aggregators** | 30, 000 | 7, 000 | 40 000 | 23, 000 | 10, 000 | 57.5 | 4.76 |
| **Processor** | 40, 000 | 30, 000 | 88 000 | 58, 000 | 48, 000 | 65.90 | 22.86 |
| **Wholesaler** | 88, 000 | 7, 500 | 116 000 | 108, 500 | 28, 000 | 93.53 | 13.33 |
| **Retailer** | 116, 000 | 4, 000 | 210 000 | 206, 000 | 94, 000 | 98.1 | 44.76 |
| **Consumer** | 210, 000 | - | - | - | - | - | - |

**Source:** Author

Gross income = Revenue – variable cost

Added value = Revenue of second actor – Revenue of first actor

Gross margin = Gross income/ Revenue × 100

Value share = Added value/ Consumer price × 100

The farmer, retailer and wholesaler received the highest gross margins along the value chain, 76.8%, 98.1%, and 93.53% respectively. In particular, farmers can harvest oil palm from wild groves without needing to actively cultivate or employ significant agro-inputs, other than the labour of a harvester or their own labour for the harvest. The retailers at the tail of the chain have evaded the hidden costs paid by other actors having earned the highest gross margin.

The aggregators, and processors occupy the middle of the value chain, with the later taking on a significant portion of the operating costs while also capturing some margins less than the initial three actors, 57.5% and 65.90%. Even more interestingly, some actors play two or more roles along the chain, creating a vertically integrated value chain and increasing their margins in the chain.

## Value Share Analysis

The value share analysis indicates the percentage of the final price paid by the consumer that each actor receives along the value chain. Retailers receive the largest share, which is 44.76% of the consumer's payment, followed by processors, who receive 22.86%, and farmers, who hold 14.28%. The percentage of the value allocated to the wholesaler is 13.33%. In contrast, the aggregator receives the least, 4.76% as shown in Table 2. The farmers operating in the traditional system expended little of the operating cost relying on the wild for fresh fruit bunches and the retailers cost have been shared by other actors in the chain reflecting in the value share.

Ninety-five per cent of the wholesalers stated that elevated transportation and other additional fees are significantly reducing their profits. These financial pressures not only undermine the profitability of wholesaling but also illustrate structural inefficiencies which are skewed against the mid-chain segment. Solutions to these logistical and cost issues would be key to promoting equity and sustainability along the value chain.

## Causal Diagram

Challenges associated with the oil palm industry are interconnected and contribute to the downward trajectory of oil palm output. In the causal diagram, these form a cascade of consequences, each amplifying the next, and that ultimately conspires to reduce total productivity for the entire value chain (See Figure 2).

***Fig. 2:*** *Causal diagram*
Source: Author

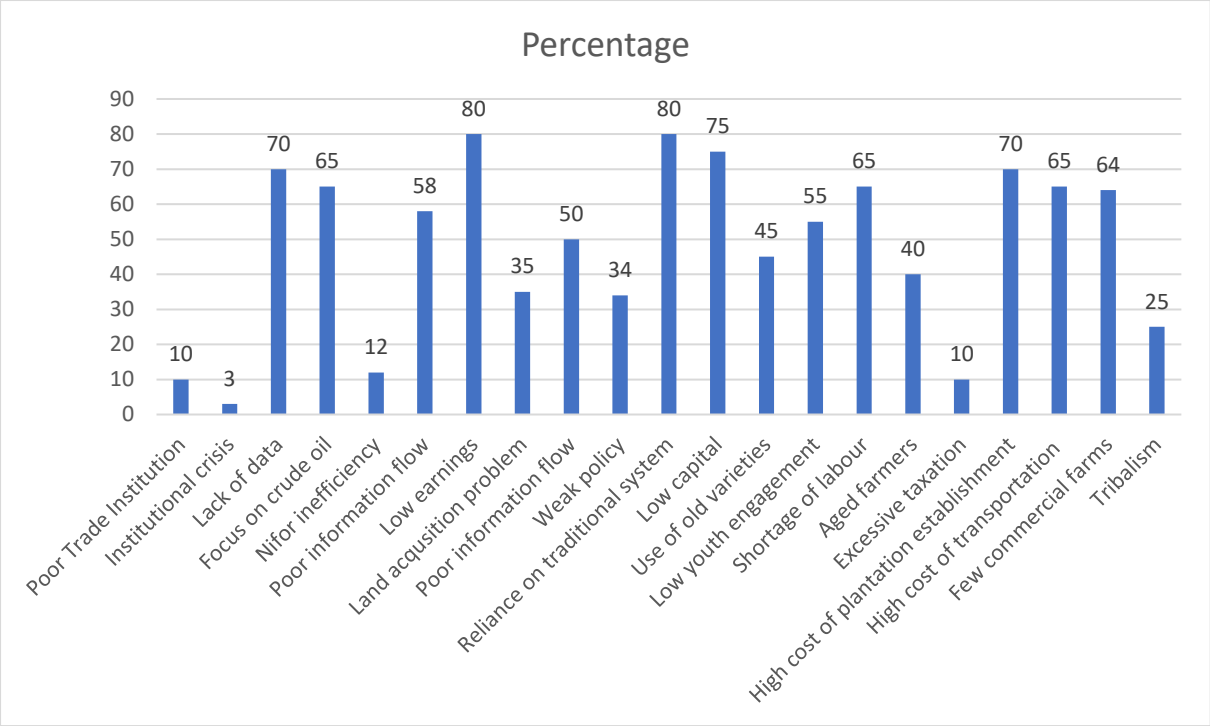


***Fig. 3:*** *Challenges declining oil palm productivity and percentage of responses*
**Source:** Author

The survey of oil palm actors identified several factors contributing to the declining productivity in the sector. Eighty per cent of the respondents reported that low income and dependence on traditional

farming were the major contributing factors. Seventy-five per cent indicated that falling numbers were due to low capital capacity, while 70% attributed it to improper record-keeping and the high cost of establishing plantations.

Other significant concerns included government prioritisation of the crude oil sector, high transportation costs, and labour shortages, all of which were highlighted by 65% of respondents. Furthermore, 64% of participants noted the scarcity of commercial oil palm farms as a critical issue (See Figure 3).

Other issues mentioned by respondents included the poor flow of information (58%), low youth participation in the sector (55%), indigenous oil palm varieties (45%), and the ageing farming population (40%). 35% and 34% of the respondents reported problems with land acquisition and restrictive land use policies, respectively. Other factors included tribalism (25%), inefficiency of the Nigerian Institute for Oil Palm Research (NIFOR), weak trade institutions, excessive taxation (10%), and institutional crises (3%).

**Discussion**

The study highlights the vital role of women in Odogbolu's oil palm value chain, where 63% of the participants interviewed are female, a trend also observed during the study. This finding is consistent with Sanusi et al. (2022), who reported that 81.1% of palm oil processors were women. Women, therefore, form the backbone of the sector, contributing not only economically but also socially, particularly in downstream activities such as aggregation, processing, wholesaling, and retailing. Their prominence in these segments underscores the need for gender-responsive policies and support mechanisms, which can enhance both productivity and inclusivity throughout the value chain.

The oil palm sector in the area of research is dominated by smallholder farmers who primarily rely on traditional, labour-intensive production methods and face various challenges. Asaleye et al. (2020) explained how essential it is for smallholder farmers to have access to financing, implement sustainable agricultural practices, and maximise their contributions to the value chain to improve farm performance in the current dynamic market conditions. This will ensure long-term sustainability by increasing productivity in Nigeria's palm oil sector and reducing the country's reliance on imported palm oil.

Odogbolu's palm oil market is marked by fragmentation, informality, and weak regulation. While formal and informal rural organisations exist and, in principle, have roles in governance and negotiations, they often lack the capacity and authority needed to protect member interests and coordinate the market effectively. This regulatory gap allows small traders and itinerant buyers to exploit price differences, often to the detriment of upstream participants, including smallholder farmers and processors. Loso (2025) notes that multi-stakeholder governance models, which engage the private sector, government, and local communities, can be effective in some regions; however, their success hinges on addressing power imbalances and building institutional trust. Decentralised governance may offer localised control, but it frequently lacks the administrative capacity to enforce sustainability standards, underscoring the importance of national-level coordination for achieving broader development outcomes.

Around 95% of wholesalers reported high hidden costs, primarily arising from transportation expenses and unpredictable events that are difficult to quantify but significantly erode profit margins. Cerviño et al. (2024) reported that bureaucratic hurdles created by multiple government agencies continue to weigh heavily on businesses, eroding profitability and hindering both growth and long-term sustainability.

Moreover, value share analysis reveals an uneven distribution of value share among the actors, with urban retailers capturing roughly 22.2% more than wholesalers. In relation to this, Rijk et al. (2021) noted that the oil palm sector is highly fragmented, comprising a mix of large and small companies that source palm oil for use in food, household, and personal care products worldwide. This results in variations in value share and profits acquired from the use of palm oil. Additionally, the distribution of value and profits at the farm level varies and depends on the type of plantation. UNDP China (2020) also emphasises that the fragmented and complex nature of the value chain diminishes the capacity of individual stakeholders to drive meaningful change. This highlights the urgent need for collaboration among all stakeholders to create coordinated incentives and foster a more sustainable and equitable palm oil value chain.

These results underscore the pressing need for policy reforms to enhance access to infrastructure, finance, and market information, as well as to increase the capacity of rural institutions and women. Attention must be paid to these structural gaps if the issues of fairness, robustness, and wealth generation within the oil palm value chain in Odogbolu and similar spaces are to be addressed.

## Conclusion

The oil palm sector in Odogbolu, Ogun State, is under pressure, and the various challenges have led to a decline in productivity, as pinpointed by the actors in the value chain. To revitalise the sector, precision is essential. Leveraging high-yielding seedlings at the grassroots level and replacing outdated processing techniques would improve quality, value addition and efficiency throughout the oil palm production and processing chains. These endeavours strengthen linkages between segments and involve more people.

Advancing vertical integration is essential, as it will result in more accurate data collection, increased transparency, and enable more efficient information flows, particularly at the lower levels of the chain. Suppose these measures are well thought out and effectively implemented. In that case, the resilience, competitiveness, and sustainability of Ogun State's oil palm production chain will be enhanced, benefiting both the nation and the global market.

## Acknowledgement

The authors are grateful to the community leaders, value chain participants, and all stakeholders for their permission and valuable support in conducting this study.

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