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Factors Influencing Processors' Socio-Economic Status along the Oil Palm Value Chain in Osun State, Nigeria.

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ABSTRACT

Over time, Nigerian entrepreneurs have found success with their oil palm fruit ventures. As a result, the study explicitly identified variables affecting the socioeconomic status (SES) of participants engaged in entrepreneurial activities along the oil palm fruit value chain in Osun State, Nigeria. A structured interview schedule was employed to gather quantitative data, and a total of 180 respondents were selected for the study using a multi-stage sampling procedure. To evaluate the data, percentages and frequencies were used, and correlation was used to draw inferences. Additionally, factors affecting the socioeconomic status (SES) of processors in entrepreneurial activities along the oil palm fruit value chain were identified using factor analysis. Six key factors: Family characteristics factor (24.110%), exposure factor (18.848%), fund sourcing factors (11.848%), invested capital factor (11.277%), community residence factor (9.720%), and community cultural factor (7.525%) emerged from factor analysis influencing processors' socio-economic characteristics in the oil palm values chain entrepreneurial activities. Further results show that a positive and significant relationship existed between SES and selected personal characteristics; marital status (χ^2 =77.86) and year of formal education (r = 0.732) for processors, at p ≤ 0.01. It was concluded from the study that various factors influenced the SES of the processors along the oil palm value chain enterprises.

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INTRODUCTION

Both rich and developing economies have recently become interested in the economic crop known as oil palm (Elaeis guineensis) (Filusi *et al.,* 2022b). Compared to other tropical or temperate oil crops, oil palm generates around five times as much oil from a given area. The fruit and seed can be used to extract oil, and the major palm oil-producing nations of the world generate roughly 3.5 tonnes of palm oil per hectare per year. According to the Food and Agriculture Organization (2016), more than 100 countries utilize palm oil, which is also a significant domestic and industrial raw material. It can be processed to create a refined vegetable oil that can be purchased at supermarkets, or it can be used in its unprocessed state as an ingredient of traditional meals, particularly in African communities. The main oil palm belt extends over the southern latitudes of Cameroon, Côte d'Ivoire, Ghana, Liberia, Nigeria, Sierra Leone, Togo, the equatorial region of Angola, and the Congo. It is thought to have come from Africa. In the early 20th century, West Africa alone exported 157 000 tonnes of palm oil, with about 75% coming from Nigeria (Nair 2020). Throughout the first part of the 20th century, Nigeria and Zaire held the top spots in the production and shipment of palm oil worldwide. But by 1966, the combined production of palm oil in Malaysia and Indonesia had overtaken that in Africa (Filusi *et al.,* 2022a). Nigeria produced 43% of the world's palm oil in the early and middle 1960s, with an average production of 1.5 million tonnes (FAO, 2016). Only 7% of the total global oil palm production, which reached 14.1 million tonnes three decades later (Ansa *et al.,* 2026), came from Nigeria. In terms of global palm oil production, Nigeria is now ranked sixth. The Nigerian government worked to reclaim the lost glory of agricultural production through the Agricultural Transformation. By concentrating on value chain operations in oil palm agriculture, this goal will be accomplished. Value chain refers to the entire spectrum of value-adding operations, such as the acquisition of raw materials and other inputs, that are necessary to move a good or service through the various stages of production (Owie and Ogbuehi, 2022). It involves a group of entrepreneurs who work together in a chain to produce, transform, and deliver goods and services to final consumers using a set of coordinated actions (Adesiji *et al.,* 2016). Food and financial security depend on value addition (Hiralal, 2015), so attention must be shifted from traditional extractive activities to creative post-harvest activities like marketing, storage, and the conversion of agricultural products into consumables by farmers. Agricultural producers will be able to make more money by implementing value addition strategies (Olowe, 2021), which will improve their socioeconomic standing (Abraham and Jankowska, 2025). Entrepreneurship is a socio-economic phenomenon and the main driver of economic growth since it brings change, innovation, and the production of services (Filusi, 2025). According to Olomu *et al.* (2020), entrepreneurship is one way to address several pressing issues in rural areas, including unemployment, low income, a lack of economic diversity, and low social standing. It also has a positive effect on a variety of other aspects of village life. Akinrinde *et al.* (2025) pointed out that entrepreneurship serves as a means of enhancing people's lives, as well as the lives of their families, communities, and the environment. In a study conducted in Indonesia, in areas where oil palm was the main source of income, Budidarsono, Biodiin *et al.* (2021) showed significantly reduced rates of malnutrition as well as a tendency to perform well on measures of physical, financial, and human capital. The World Bank and United Nations have acknowledged the role that oil palm has played in eradicating poverty in Malaysia and other regions of the world (Ridzuan *et al.,* 2024).

MATERIAL AND METHODS

The study was carried out in Osun State, in the South-West geopolitical zone of Nigeria. The state lies within the longitude 2.75 and 6.75 Greenwich Meridian and latitude 7 and 9 north of the equator. It covers a total land area of about 14, 875 km^2. It is bounded in the east by Ondo and Ekiti States; in the west by Oyo State; in the south by Ogun State, and in the north by Kwara State. The state has thirty Local Government Areas (LGAs). Osun is an agricultural state where the climate is favorable for the growth of various tree and arable crops, including oil palm. A multi-stage sampling method was used to choose the respondents. At the first stage, oil-palm fruit processors were purposively selected because they were the target audience for the study. At the second stage, three LGAs were purposively selected from each of the three senatorial districts based on the relative abundance of oil palm production to give a total of nine LGAs, namely Obokun, Ife North, and Ife South LGAs from Osun East; Ejigbo, Ayedaade, and Iwo LGAs from Osun West; and Orolu, Ila, and Odo-Otin LGAs from Osun Central. At the third stage, four communities that are actively involved in oil palm production were selected in each of the nine LGAs, making a total of thirty-six (36) communities. At the fourth stage, five (5) oil palm processors were selected through the snowball sampling technique, resulting to 180 oil palm processors for the study. The snowball sampling technique was used to identify the processors due to a lack of a definite number of respondents in the study area. A validated interview schedule was used to collect quantitative data, which was then condensed using percentages, means, and standard deviation. Additionally, characteristics affecting the socioeconomic status (SES) of participants in entrepreneurial activities along the oil palm fruit value chain were identified using factor analysis.

RESULTS AND DISCUSSION

Personal Characteristics of the Respondents

Results in Table 1 shows that the mean years spent in formal education of the respondents was 5±2 years, majority (66.6%) of the respondents were female, majority (71.0%) were married, mean household size was 6±2 persons, majority (85.0%) were Yoruba ethnic group, while more than half (55.1%) were practicing monogamy, and 46.9% indicated no formal education. These findings revealed that the majority of the oil-palm processors were females, Yoruba, and married.

Table 1: Socio-Economic Characteristics of the Processors

Personal Characteristics	Freq	%	Mean
Gender			
Female	119	66.3	
Male	61	33.7	
Marital status			
Single	12	6.6	
Married	128	71.0	
Widowed	22	12.4	
Separated	18	10.0	
Marriage type			
Monogamy	99	55.1	
Polygamy	81	44.9	
Ethnicity			
Yoruba	153	85.0	
Igbo	27	15.0	
Educational status			
No formal education	84	46.9	
Primary	33	18.1	
Secondary	54	30.0	
OND/NCE/Tech	9	5.0	
B.Sc. graduate	0	0	
Years spent in formal education			
<6	83	46.6	
6-11	60	33.4	
12+	37	20.0	5 ± 2
Household size			
1-5	54	30.0	
6-9	111	61.7	
>10	15	8.3	6 ± 2

Source: Field survey, 2025

Identification of Processing Activities by the Processors

Results in Figure 1 show that 75.0% of the processors were involved in threshing, 66.7% in fruit picking, 70.0% in boiling, none were involved in digestion, 75.6% in clarification, 76.5% in drying, 73.3% in palm nuts picking, 72.6% in briquette making, while very few (26.7%) were involved in palm nuts cracking among the processors.

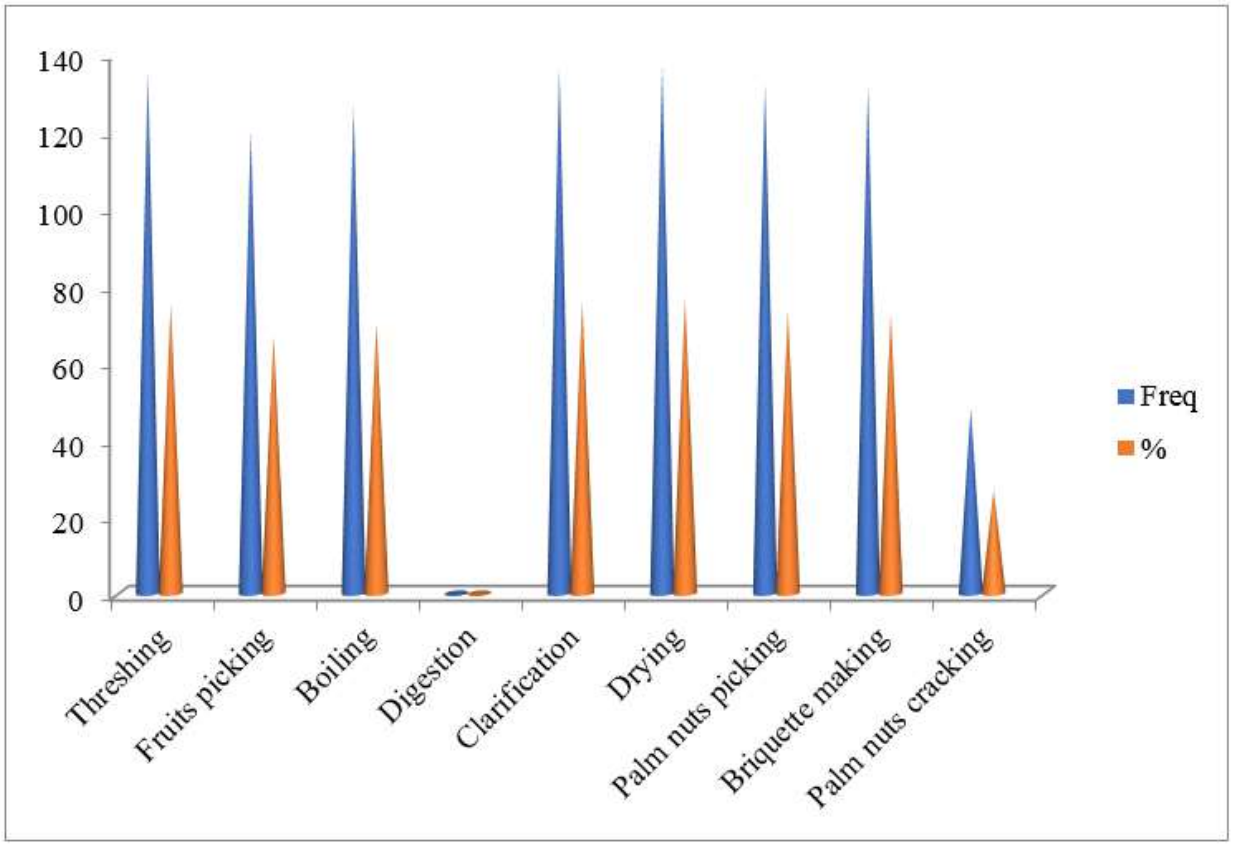

Fig. 1: Distribution of respondents by oil palm fruit processing activities
Source: Field survey, 2025.

Factors Influencing the Socio-Economic Status (SES) of Processors in Entrepreneurial Activities along the Oil Palm Fruit Value Chain

Rules of decision

The factors retained were named based on the following criteria, as employed by Filusi and Ayinde (2019).

1. The researcher's subjective interpretation of experiences from the literature.
2. Picking synonyms of the highest loaded variable on each factor.
3. Retaining the name based on the similarity of the features of the variables contributing to each factor.
4. Joint explanation or interpretation of the meaning of the positive and highly loaded variables on each factor.

Factors Influencing the Socio-Economic Status of Processors

Principal component analysis can be used to arrange variables that influence a cause-and-effect connection using a varimax rotation matrix. Constant loading was defined as constant loading less than 0.30, with 0.30 serving as the cut-off point. Factors with eigenvalues greater than one (1) were kept in the study because Kaiser's criterion was used to decide which factors to keep, and the rotation pattern of the different components with measurements that are significantly weighted on each other individually (Filusi et al., 2026). Results in Table 2 show the results of varimax factor rotation pattern with the measures that were highly loaded on each of the six factors extracted. Six loadings produced eigenvalues larger than one. According to Table 3, the factors that were loaded explained 83.4 percent of the variance overall, while unknown factors accounted for the remaining 16.6 percent. The following chart illustrates how each highly influential element affected the socioeconomic standing of processors participating in entrepreneurial activities along the oil palm fruit value chain: Factor 1 –family characteristics 24.1percent contribution, followed by Factor 2 – exposure factor (18.8%), Factor 3 – fund sourcing (11.8%), Factor 4 –invested capital (11.2%), Factor 5 – community residency (9.7%) and Factor 6- community cultural (7.5%).

Table 2: Result of Varimax Rotated Component Matrix Showing Extracted Factors Influencing the SES of Processors

Contributing variables	1	2	3	4	5	6
Family institution variables	0.863*					
Community attitude	-0.767					
Entrepreneurial activities Number of children	0.705*		0.458*			0.413*
Age	0.610	0.337				-0.338
Family institution variables		-0.408				
Years spent in formal education		-0.840				0.352*
Cosmopolitan reasons for travelling		0.751*			0.378*	
Sources of funds		0.747*	0.889*			
Reason for involvement			0.861*			
Initial capital investment						
Length of time of residence in the community			-0.339	0.809*	0.858*	
Value addition practices			0.321			
Community culture	0.461				-0.623	0.945*

*Loaded variables above 0.3
Source: Field survey, 2025

Table 3: Results of Principal Component Analysis Showing the Initial Eigenvalue for Factors Influencing Processors' SES

SN	Factors	Eigen value	% variance	% cumulative
1	Family characteristics factor	3.7375	24.110	24.110
2	Exposure factor	2.644	18.884	42.994
3	Fund sourcing factor	1.659	11.848	54.842
4	Invested capital factor	1.579	11.277	66.119
5	Community residency factor	1.361	9.720	75.839
6	Community cultural factor	1.053	7.525	83.364
7-14	Other factors (not identified)	<1.000	16.636	100.00

Source: Field survey, 2025

Results of Principal Components Analysis showing the Variables contributing to Factors influencing Processors' SES

Factor 1: Family Characteristics

Five measurements of loading that were all positively loaded served to define this factor. Family institution factors (L=0.863), community attitude (L=0.767), entrepreneurial activities (L=0.705), kid count (L=0.610), and value-adding behaviors (L=0.461) were the ones mentioned. On the basis of criterion 3, the factor was given a name. A high percentage (24.11%) of the variability in the processors' SES was explained by the factor. This means that the SES of the processors is significantly influenced by family size, composition, and income.

Factor 2: Exposure

Five positively loaded measurements were used to identify this factor. Age (L=0.840), cosmopoliteness (L=0.747), years of formal education (L=0.751), entrepreneurial activities (L=0.337), the number of children (L=0.408), and the number of years of formal education (L=0.751) were the variables. The second criterion was used to name the factor. These factors typically influence the processors' level of exposure and level of enlightenment. As a result, it may be determined that the level of exposure or education of processors affects their SES in value chain entrepreneurial activities. It was shown that this exposure factor accounted for 18.88% of the variance in the processors' SES.

Factor 3: Fund-sourcing

Four positively loaded measurements were used to identify this factor. These were the funding sources (L=0.889), the rationale for getting involved (L=0.861), the number of kids (L=0.458), and the value-adding activities (L=0.321). The second criterion was used to name the factor. The fund sourcing element was suggested as the cause of the 11.85% variances in processor SES. The SES of the processors is impacted by the source of funding for the business.

Factor 4: Capital investment

The initial capital invested (L=0.808), one of the heavily loaded variables that gave rise to the fourth component's

name, capital investment factor. This factor, which accounts for 11.28 percent of changes in processor SES, suggests that invested capital affects processor SES, i.e., the higher the invested capital, the higher the processor SES.

Factor 5: Community residency

The fifth factor, named the residency factor, and the highly loaded variables that informed the name are length of time resident in the community (L=0.858), reasons for travelling (L=0.378), and value addition practices (L= -0.623). This factor is noted to account for explaining 9.72 % of the variation in processors' SES. This implies that the more a processor stays in a community, the more popular and established in his/her business.

Factor 6: Community cultural factor

The sixth factor, named the cultural factor, and the highly loaded variables that informed the name are community culture (L=0.945), entrepreneurial activities (L=0.413), years spent in formal education (L=0.352), and number of children (L= -0.338). This factor is noted to account for 7.53 percent of variations in processors' SES. Implication for this is that the community where the processors reside favours their involvement in oil palm entrepreneurial activities, which further translates to a high SES.

Table 4: Results of principal component analysis showing the variables contributing to factors influencing processors' SES

SN	Factors and contributing variables	L	L^2	λ
1	**Family characteristics factor**			
	Family institution variables	0.863	0.744769	
	Community attitude	-0.767	0.588289	
	Entrepreneurial activities	0.705	0.497025	
	Number of children	0.610	0.3721	
	Value addition practices	0.461	0.212521	**2.800**
2	**Exposure factor**			
	Cosmopolitan reasons for travelling	0.747	0.558009	
	Years spent in formal education	0.751	0.564001	
	Entrepreneurial activities	0.337	0.113569	
	Number of children	-0.408	0.166464	
	Age	-0.840	0.7056	**2.392**
3	**Fund sourcing factor**			
	Sources of funds	0.889	0.790321	
	Reason for involvement	0.861	0.741321	
	Number of children	0.458	0.209164	
	Value addition practices	0.458	0.209164	**1.756**
4	**Invested capital factor**			
	Initial capital investment	0.808	0.652864	**0.652**
5	**Community residency factor**			
	Length of time of residence in the community	0.858	0.736164	
	Cosmopolitan reasons for travelling	0.378	0.142884	
	Value addition practices	-0.623	0.388129	**1.267**
6	**Community cultural factor**			
	Community culture	0.945	0.893025	
	Entrepreneurial activities	0.413	0.170569	
	Years spent in formal education	0.352	0.123904	
	Number of children	-0.338	0.114244	**1.301**

L = Loading for factors,
L^2= Square of loading factors
λ = Latent root for the factor (summation of the square of loading)
Source: Field Survey, 2025

Results of Correlation Analysis of Processors' Personal Characteristics with their Socio-Economic Status

Processors

The result of the correlation analysis of the actors' personal characteristics is shown in Table 5. It was revealed that processors' SES had a significant and positive relationship with their years of formal education (r = 0.732), cosmopoliteness (r = 0.572), and source of fund used for oil palm entrepreneurial activities (r=0.257) at P ≤ 0.01, and initial capital invested (r=0.191) and reason for involvement in oil palm activities (r=0.221) at P ≤ 0.05. Also, an inverse relationship existed between SES and age (r=-0.413), number of children (r=-0.223), and length of community residency (r=-0.231), all at P ≤ 0.01. It is revealed from this output that education, degree of external orientation, source of funds and initial capital invested positively impact on processors' SES. This implies that the greater the number of years of processors' formal education or the extent of external orientation, the higher their SES. In the same way, the higher the capital invested in the business, the greater the SES of the processors. Processors who were well exposed through education and travelling, and who invested more in their entrepreneurial activities, had more profit and consequently, higher SES than the processors who did not. The inverse relationship showed that the higher the age and number of children, the lower the SES. This conforms to Filusi et *al.* (2022), who reported that the income of the palm oil processors dwindled with age. It can be inferred that older processors can no longer give maximum strength to processing and therefore cannot generate maximum income. Furthermore, processors with large families have more financial responsibilities, which drain their income.

Table 5: Results of Correlation Analysis of Processors' Personal Characteristics with their Socio-Economic Status (SES)

Processors Characteristics	r	r^2	p-value
Age	-0.413**	0.171	0.000
No of children	-0.223**	0.050	0.003
Length of residency	-0.231**	0.053	0.002
Respondents' years spent in formal education	0.732**	0.534	0.000
Cosmopoliteness	0.572**	0.327	0.000
Initial capital	0.191*	0.036	0.010
Duration of oil palm activities	-0.082	0.007	0.273
Source of fund	0.257**	0.066	0.000
Reason for involvement	-0.221**	0.049	0.003
Financial allocation pattern	-0.130	0.002	0.081

*Significant at 0.05
**Significant at 0.01
r = Correlation coefficient

CONCLUSION

The study focused on the socio-economic status (SES) of processors in the oil-palm value chain who are involved in entrepreneurship activities in Osun State, Nigeria. The study showed that the socio-economic status of processors is influenced by a variety of factors, including personal, financial, social, and environmental. Family characteristics, exposure, fund sourcing, invested capital, community residence, and community cultural factors were identified as six major factors affecting processors' SES through factor analysis. Of these, the greatest proportion of variance for the socio-economic status of processors was due to family characteristics and exposure factors. It also confirmed that certain personal traits were significantly related to the socio-economic status of processors. Specifically, marital status was significantly associated with SES, and years of formal education were strongly positively associated with SES. This means that more highly educated processors are likely to have better socio-economic outcomes as a result of better managerial capacity, better access to information, and better decision-making skills. In conclusion, the study findings reveal that the socio-economic status of processors in the value chain of oil palm is a multi-dimensional phenomenon that is determined by the interplay of demographic, educational, financial, and community factors.

Recommendations

1. Government departments, extension organizations, and non-governmental organizations should conduct regular training and adult education programmes for the oil-palm processors to strengthen their technical, managerial, and entrepreneurial skills to improve their socio-economic status.
2. Extension services, market information, processing innovations, and business development opportunities should be made readily available to processors through regular sensitization and training programmes to ensure that exposure factors have a significant influence on SES.
3. Investment promotion policies should be put in place to support investment in modern technologies for oil-palm processing to improve efficiency, minimize post-harvest losses, and increase the income-generating potential of processors.
4. Improvement of the infrastructure should be undertaken for the entire community, including roads, electricity, water supply, processing centres, etc., for an enabling environment to support the activities of the value chain and improve the welfare of the processors.
5. Cooperative societies should be encouraged and active by the processors themselves for the facilities of credit, inputs, training, and better market linkages.
6. Enable community leaders and stakeholders to establish a conducive cultural and social atmosphere to foster entrepreneurial activity and engagement in oil-palm processing activities, especially among vulnerable groups.
7. Government programmes for enhancing well-being, social protection, and family assistance must be incorporated into rural development programmes to boost the livelihoods of oil palm processors, as family characteristics have a significant influence on SES.

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