

Socio-economic Status Scale for Rural Women Farmers in Southwest Nigeria: Development and Validation Study

Oluwafunmilola Olawunmi Makinde

oluwafunmilola.makinde@fuadsi.edu.ng

Federal University of Agriculture and Development Studies

Israel Ogunlade

University of Ilorin

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Abstract

Background

This study developed and validated a socio-economic status (SES) scale specifically designed for rural women farmers in Southwest Nigeria to provide a culturally relevant tool for assessing resource disparities. Grounded in Human Capital Theory and Feminist Economics, the research aimed to identify valid SES indicators, classify respondents, capture unpaid labour contributions, and inform gender-responsive agricultural policy.

Methods

Data were obtained from 330 respondents selected through a four-stage sampling process across Ondo, Ogun, and Oyo States using an interview schedule. From an initial pool of 200 SES-related items, item analysis (point biserial correlation and t-tests) produced 67 valid indicators spanning domains such as material assets, social participation, and access to productive resources.

Results

Construct validity, tested via the known-group technique, showed significantly higher SES scores among married women compared to solo women ($t = 19.8$, $p = 0.001$). Overall, 75.5% of respondents were classified within low or middle SES tiers, reflecting persistent socio-economic disadvantage. Time-use findings further revealed an average of seven hours of unpaid agricultural labour daily among respondents. Everyday household items such as cutlasses, buckets, and spoons emerged as statistically significant SES markers, underscoring their dual role as productive tools and livelihood enablers. The validated 67-item scale captured both material assets and social participation, bridging conventional measures with context-specific realities. The skewed SES distribution highlighted structural inequalities in access to education, credit, and institutional support, with solo women particularly disadvantaged. These results demonstrate that unpaid labour and household production are integral to rural livelihoods and must be recognised in socio-economic assessments.

Conclusions

The validated SES scale provides empirical evidence for integrating socio-economic data into agricultural planning, recognizing unpaid labour in economic policy, and promoting equitable resource distribution strategies that prioritize marginalized rural women. Its relevance lies in bridging feminist economic theory with practical agricultural development, making invisible contributions visible and offering a diagnostic tool for policymakers and extension agents.

Background

Across sub-Saharan Africa, women constitute the backbone of agricultural production, contributing over 60% of the labour involved in food production, processing, and marketing. In Nigeria, women account for approximately 70% of the agrarian workforce and contribute up to 70% of national food production (2). Despite this central role, the socio-economic realities of rural women farmers remain inadequately represented in development discourse and policy formulation. Access to productive resources such as land, credit, extension services, and agricultural inputs is persistently constrained for women, with direct consequences for agricultural productivity, household welfare, and broader economic development (22,33).

Beyond these material constraints, a substantial proportion of women's agricultural contributions occur within informal and unpaid domains that are systematically excluded from conventional economic accounting. Activities such as weeding, harvesting, food processing, water and fuelwood collection, and household food management are essential to rural economies, yet they remain largely invisible in official statistics. This invisibility reinforces structural gender inequalities and undermines the effectiveness of agricultural and rural development policies.

Empirical evidence across Africa confirms that women's high levels of participation in agriculture do not automatically translate into improved socio-economic outcomes. Osabohien et al. (26) show that women's agricultural participation yields limited transformational growth when not accompanied by equitable access to education, land, and financial resources. Similarly, Apeh et al. (6) document how women farmers in southeastern Nigeria face compounded disadvantages arising from illiteracy, restricted access to credit, and weak institutional support. Buehren (12) highlights how discriminatory social norms and constrained decision-making autonomy continue to limit women's economic prospects within agricultural systems.

These challenges are best understood within a broader theoretical context. Human Capital Theory (29) emphasizes how investments in education, skills acquisition, and health enhance productivity and income generation, while persistent low socio-economic status among rural women reflects systematic underinvestment in their potential. Feminist Economics (19) foregrounds the invisibility of unpaid agricultural and care labour in conventional economic assessments, a critical gap this study addresses through the incorporation of time-use and unpaid labour indicators. Sen's Capability Approach extends the analysis by conceptualizing socio-economic status as a function of substantive freedoms and opportunities to convert resources into valued ways of living. Together, these frameworks provide a multidimensional and gender-sensitive foundation for developing a contextually relevant SES measurement tool.

Despite growing recognition of gender disparities in agriculture, existing socio-economic status (SES) measures remain ill-suited to capturing the realities of rural women farmers in developing contexts. Many indices were designed for urban or Western populations and privilege income, formal employment, and property ownership while overlooking unpaid agricultural labour, caregiving responsibilities, and social capital. This methodological bias limits the ability of policymakers to design equitable and targeted agricultural interventions. Koolwal (24) argues for SES metrics that reflect the multidimensional roles women play in agricultural systems. Amitha et al. (5) identify relevant SES indicators such as land ownership, livestock holdings, indebtedness, and community

engagement, though these instruments often lack cultural specificity and empirical validation in African settings. Keiko and Charis (23) conceptualize SES as a composite of material assets and social positioning, while Eromedoghene and Ovwigho (17) and Busari (13) emphasize the importance of regional variation and gender sensitivity in SES modelling. Therefore, this study develops and validates a socio-economic status scale that is culturally grounded, gender-responsive, and empirically tested among rural women farmers in Southwest Nigeria. By incorporating indicators of unpaid labour, asset ownership, education, social participation, and access to productive resources, the study aims to provide a localized, policy-relevant SES instrument capable of informing gender-responsive agricultural policies and equitable resource allocation.

Methods

Aim, design, and setting

The aim of this study was to develop and validate a culturally grounded socio-economic status (SES) scale for rural women farmers in Southwest Nigeria. A survey research design was employed, using an interview schedule based on SES indicators. The study was conducted across Ondo, Ogun, and Oyo States, located between latitude 7°N-10°N and longitude 3°E-6°E. Lagos State was excluded due to its predominantly urban character.

Participants and materials

The study population comprised rural women farmers. The socio-economic status scale questionnaire used in this study was specifically developed for the present study and validated among rural women farmers in Southwest Nigeria. The English-language version of the survey instrument has been provided (See Supplementary Table S 1). A four-stage sampling procedure was adopted to ensure representativeness. First, Ogun and Oyo States were purposively selected from the five Southwestern states. Second, 25% of Local Government Areas (LGAs) from each senatorial district were proportionately chosen, totaling 11 LGAs. Third, 2% of farming communities were randomly selected from each LGA, amounting to 33 communities. Finally, 20% of respondents were proportionately drawn from a sample frame of 1,650 women farmers, yielding 330 respondents.

Processes and measures

Item generation began with 200 SES indicators, which were collated and pretested to remove redundancies, resulting in 174 items. Guided by Human Capital Theory, Feminist Economics, and the Capability Approach, the indicators reflected asset possession, time use, decision-making, and unpaid labour. Items were categorized under material possessions, cultural possessions, economic activities, social participation, and access to productive resources. Scoring followed established procedures: dichotomous items were scored 0/1, while quantitative items ranged from 0–6 or higher. Total scores were computed to establish criterion scores.

Statistical analysis

Item validity was assessed using point biserial correlation for dichotomous items and independent sample t-tests for quantitative items as indicated in Table 1. Items with discrimination coefficients below 0.40 or non-significant t-values (critical t = 2.60, df = 179, p = 0.01) were excluded. Of the 174 items, 67 met the criteria and were retained. The dual use of point biserial correlation and t-tests strengthened construct validity and reliability, ensuring that indicators captured both material wealth and functional access. This analytical approach aligns with Sen’s Capability Approach, which distinguishes ownership from the ability to convert assets into well-being, and with Feminist Economics, which emphasizes the inclusion of unpaid and care-related labour in economic measurement.

Table 1
Summary of SES Item Validation

Category of SES Indicators	Items Generated	Items Retained	Validation Method	Decision Rule
Material possessions	45	18	rpbis / t-test	rpbis ≥ 0.40; t ≥ 2.60
Cultural possessions	30	12	rpbis / t-test	rpbis ≥ 0.40; t ≥ 2.60
Economic activities	40	15	rpbis / t-test	rpbis ≥ 0.40; t ≥ 2.60
Social participation	29	12	rpbis / t-test	rpbis ≥ 0.40; t ≥ 2.60
Access to resources	30	10	rpbis / t-test	rpbis ≥ 0.40; t ≥ 2.60
Total	174	67		

Results

The validated SES scale identified 67 contextually relevant indicators (See Supplementary Table S2 for the full SES scale), including everyday household items such as cutlasses (t = 20.30), spoons (t = 19.05), plastic buckets (t = 11.93), and umbrellas (t = 13.41), which emerged as statistically significant markers of socio-economic status. These items reflect both productive tools and livelihood enablers.

Construct validity was confirmed using the known-group technique. An independent sample t-test revealed significant differences in SES scores between married women (M = 262.70) and solo women (M = 250.22) (t = 19.8, p = 0.001), demonstrating the scale’s ability to discriminate along meaningful socio-

economic gradients (Table 2).

Table 2 Construct Validity of the Scale							
	Marital status	N	Mean	t	df	Sig.	Std. Error
SEScore	Single	85	250.2235	19.8	318	0.001	3.37080
	Married	245	262.7020				1.43882

As shown in Table 3, percentile ranking of SES scores (185–362) categorized respondents into low (37.9%), middle (37.6%), and high (24.5%) SES tiers. The majority of rural women farmers fell within the low and middle tiers, indicating widespread disparities in access to education, assets, and institutional support.

Table 3 Socio-Economic Status of Rural Women Farmers in Southwest, Nigeria					
Value	Scale range	Socioeconomic classes	Frequency	Percentage	
1	185–249	Low	125	37.9	Limited education, few or no asset, no access to formal support systems
2	250–289	Middle	124	37.6	Moderate education, some asset ownership, intermittent access to input
3	290–362	High	81	24.5	Well educated, land owners, active in cooperative or input programmes
			330	100.0	

Result of the Time-use analysis from Fig. 1, revealed that rural women spend an average of 7 hours daily on unpaid agricultural and care labour, including weeding, harvesting, childcare, and fuelwood collection. This labour remains invisible in conventional SES measures but contributes significantly to household welfare.

Discussion

This study demonstrates that conventional income- and asset-based SES frameworks are insufficient for capturing the lived realities of rural women farmers. By validating everyday household items and unpaid labour as SES indicators, the findings provide empirical support for feminist economic critiques that women’s contributions are systematically undervalued (19). This methodological innovation operationalises theoretical claims into measurable indicators, offering a culturally grounded and gender-responsive SES tool that can inform agricultural policy and practice.

The construct validity results highlight the mediating role of marital status, consistent with Human Capital Theory (29) and Sen’s Capability Approach (Sen, 1999). Married women benefit from pooled labour, cooperative membership, and access to resources, while solo women face structural barriers. These findings reinforce prior Nigerian studies (6, 23, 24) and extend them by quantifying disparities between married and solo women. Importantly, SES differences are shown to be structural, shaped by institutional norms and social arrangements rather than individual effort.

The SES distribution illustrates systemic inequalities: nearly three-quarters of respondents fall within low and middle tiers, reflecting limited education, minimal asset ownership, and restricted institutional support. These results align with earlier work (13, 17) but add nuance by integrating unpaid labour and social participation into SES measurement. The dominance of low and middle tiers highlights vulnerabilities including time poverty, exclusion from cooperatives, and exposure to gender-based violence (30). Conversely, women in the high SES tier benefit from cooperative inclusion and empowerment initiatives, underscoring the role of social capital and institutional access in shaping outcomes (23, 25).

Time-use analysis provides additional insight into the economic significance of unpaid labour. Women’s average of 7 hours daily in unpaid agricultural and care work, when valued at local wage rates, represents a substantial hidden contribution to household and community welfare. Yet this labour remains excluded from national accounts, restricting women’s capabilities and reinforcing gendered poverty. These findings corroborate global evidence (14, 9, 20) and highlight the need to redefine productivity to include both market and non-market contributions. Under Human Capital Theory, time is a productive asset, and every hour invested in unpaid farm work builds skills and sustains household food security. From the perspective of Feminist Economics, the invisibility of this labour in conventional SES measures perpetuates structural inequality (19).

The policy implications of this study are clear and multi-level. First, socio-economic status (SES) indicators should be integrated into agricultural planning to identify and prioritize support for women in the lowest tiers. Second, unpaid labour must be recognized in national agricultural statistics, with compensation or support mechanisms designed accordingly (18). Third, access to credit, extension services, and training should be expanded through women-targeted programs and inclusive cooperative models (23). Finally, institutionalizing gender audits and participatory policy design would ensure that women’s voices shape agricultural development (4).

These recommendations align with Nigeria’s National Gender Policy in Agriculture (2021) and continental frameworks such as the Gender-Mainstreaming Action Plan (4). By providing empirically validated SES data, this study contributes to evidence-based targeting of interventions and supports the recognition of women’s invisible labour in agricultural economies.

Limitations include reliance on self-reported data, which may introduce recall bias, and the exclusion of Lagos State, which limits generalizability to more urbanized contexts. Additionally, the cross-sectional design does not capture seasonal variations in income and labour. Future research should test the SES scale in other regions, incorporate longitudinal data, and explore intersections with climate resilience, migration, and digital inclusion.

Conclusions

This study developed and validated a culturally grounded socio-economic status (SES) scale for rural women farmers in Southwest Nigeria. The 67-item instrument demonstrated strong construct validity, distinguishing between married and solo women farmers ($t = 19.8$, $p = 0.001$). The SES distribution showed that 75.5% of respondents fell within the low and middle tiers, underscoring persistent structural inequalities in access to land, credit, education, and agricultural support services.

By incorporating unpaid labour and social participation as measurable indicators, the study bridges Feminist Economics with practical agricultural development, making invisible contributions visible within socio-economic assessments. The validated scale provides a diagnostic tool for policymakers and extension agents to identify women at risk of marginalization and design targeted interventions. Its relevance lies in offering a framework for embedding gender-responsive analysis into agricultural planning, ensuring that women's unpaid labour and social participation are recognized as central to household welfare and rural food security.

Declarations

Ethical approval

Ethical approval for this study was obtained through the approved doctoral research protocol of the Postgraduate School, University of Ilorin, Ilorin, Nigeria (Reference No.: UIL/PGS/42; approved on 11 April 2023). All procedures involving human participants were conducted in accordance with relevant institutional guidelines and regulations and in line with the Declaration of Helsinki. Furthermore, Written informed consent was obtained from all participants prior to data collection. A one-page informed consent document explaining the purpose of the study, confidentiality, voluntary participation, and respondents' rights was attached to the questionnaire and signed by participants before participation in the survey. Participation was voluntary, and the confidentiality and anonymity of respondents were maintained throughout the study.

Consent for publication

Not applicable

Competing interests

The authors declare that they have no competing interests

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Author Contribution

M O.O. conceived the study, developed the research design, collected and analysed the data, and drafted the manuscript. OI supervised the work, provided guidance throughout the research process, and reviewed the manuscript. Both authors read and approved the final manuscript.

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Data Availability

The datasets generated and analysed during the current study are available from the corresponding author on reasonable request.

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Figures

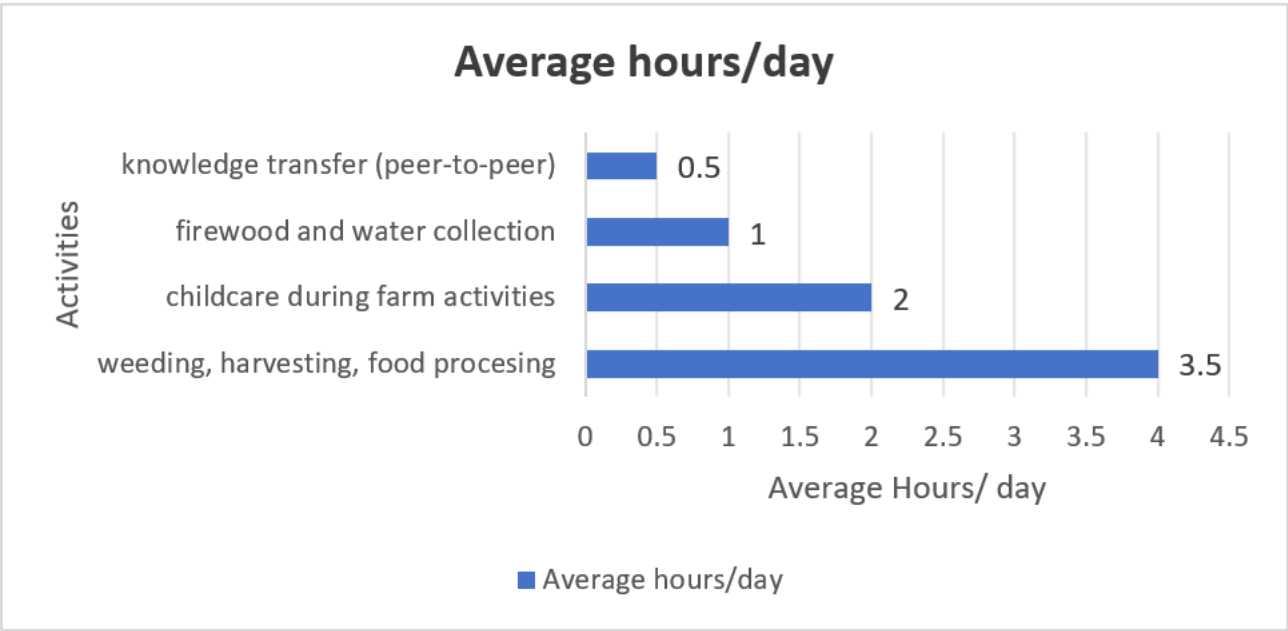


Figure 1
Unpaid Agricultural Labor by Rural Women Farmers

Supplementary Files

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