Research Article

Indian Journal of Extension Education
Vol. 62, No. 1 (January–March), 2026, (86-91)

ISSN 0537-1996 (Print)
ISSN 2454-552X (Online)

Small-scale Farmers' Willingness to Pay for Extension Services: Evidence from Nigeria

A. G. Shitu[1]*, D. T. Ojo[2], M. V. Shitu[3] and Manjeet Singh Nain[4]

[1]Lecturer I, [2]Graduate Student, Department of Agricultural Extension and Rural Development, Federal University Oye-Ekiti (FUOYE), Nigeria
[3]CEO, Top Mayz Global Resources Limited, Nigeria
[4]Professor, Division of Agricultural Extension, Indian Agricultural Research Institute, New Delhi, India
*Corresponding author email id: gabriel.shitu@fuoye.edu.ng

HIGHLIGHTS

- The majority of the farmers were willing to pay for Extension services
- A huge gap between farmers' willingness and actual practice was observed.
- Contact with extension agents, Gender, and type of farm operation determine willingness to pay.

ARTICLE INFO

Keywords: Willingness to pay, Agricultural extension services, Small-scale farmers, Logistic regression, Ekiti State, Nigeria.

https://doi.org/10.48165/IJEE.2026.62114

Citation: Shitu, A. G., Ojo, D. T., Shitu, M. V., & Nain, M. S. (2026). Small-scale farmers' willingness to pay for extension services: Evidence from Nigeria. *Indian Journal of Extension Education*, *62*(1), 86-91. https://doi.org/10.48165/IJEE.2026.62114

ABSTRACT

Sustainable financing of agricultural extension services remains a major challenge among small-scale farmers in Nigeria. This study examined small-scale farmers' willingness to pay (WTP) for agricultural extension services in Ikole and Oye Local Government Areas of Ekiti State, Nigeria, using cross-sectional data collected in 2023. Data were obtained through a structured questionnaire and analysed using descriptive statistics and a binary logistic regression model. Willingness to pay for extension services was measured as a binary outcome, with farmers classified as willing or not willing to pay for regular and reliable extension services. The results showed that a substantial proportion of the respondents expressed willingness to pay for extension services. The logistic regression results indicated that education level, farm size, access to extension services, and farming experience significantly influenced farmers' willingness to pay. Age and gender were not statistically significant determinants. The farmers' willingness to pay is closely linked to their capacity to benefit from extension services. Strengthening farmers' awareness of the benefits of extension services and improving service delivery could enhance farmers' willingness to contribute financially. Policy interventions aimed at improving extension service quality at the local level may promote more sustainable extension financing among small-scale farmers.

INTRODUCTION

Agricultural output can be increased in this globalized period by transferring improved technology to end users in an efficient, dependable, and timely manner (Sarnaik et al., 2020). By converting agronomic research into useful, regionally specific guidance for small-scale farmers to increase productivity, resilience, and market involvement, agricultural extension services programs fulfil this responsibility (Bonye et al., 2012; Arowosegbe et al., 2024). In Nigeria, where contribution by agricultural sector is roughly 25% of GDP, and the vast majority of farmers are smallholders, the effectiveness and sustainability of extension delivery have outsized implications for food security and rural livelihoods (International Trade Administration, 2025; FAO, 2025). In Nigeria 36 states, including the Federal Capital Territory (FCT), agricultural extension services provided by the public sector currently are the Agricultural Development Programs (ADPs) (Saliu & Agi, 2009). However, the effectiveness of ADP in achieving the target objective in recent years

Received 25-11-2025; Accepted 17-12-2025

has been questioned. Public budget constraints, variability in program quality, and the push toward pluralistic models (public, private, and NGO providers) have stimulated debate on cost-sharing and fee-for-service modalities. Nigeria's Agriculture Promotion Policy (APP, 2016–2020) and recent national extension policy discussions explicitly envision stronger farmer orientation, improved accountability, and diversified financing streams to make services more responsive and durable (FMARD, 2016). A key empirical lever in this policy conversation is farmers' willingness to pay (WTP) for extension services. It is based on the premise that if farmers perceive clear value in Agricultural extension services (yield gains, cost savings, risk reduction), they may accept partial user fees that, in turn, can enhance service quality and continuity. Ozor et al. (2013) reported substantial willingness to pay for improved extension, while identifying socioeconomic and institutional determinants as salient predictors. The farmers believe that privatisation will result in timely delivery of extension services, help in bringing accountability and increase the professionalism among the extension staff (Kumar & Nain, 2014). However, context matters, such as heterogeneity across states, commodities, and delivery channels, which can shape both willingness and ability to pay, underlining the need for up-to-date, locale-specific evidence. Recent evidence adds nuance. Experimental work from Nigeria shows that when farmers experience high-quality, tailored advisory (e.g., via digital decision tools), their WTP for continued access increases, suggesting that "try-before-you-buy" can overcome information frictions and skepticism about service value (Oyinbo et al., 2025). Broader evaluations also associate strengthened extension with improved farm decisions, expanded cultivated area, and greater economic participation mechanisms consistent with higher perceived returns to advice. Yet affordability constraints and exposure to climate and market shocks may compress effective demand, especially among the poorest small-scale farmers. This underscores the importance of pricing, targeting, and potential subsidies to avoid excluding precisely those who stand to gain. Policy frameworks in Nigeria increasingly emphasise such targeting alongside public–private partnerships (Federal Republic of Nigeria, 2024). Against this backdrop, this study investigates the willingness of small-scale farmers to pay for services rendered by the extension agents in Nigeria, providing contemporary evidence to inform program design and financing. Focusing on smallholders who produce most of Nigeria's food, the study offers practical guidance on where, and for whom, fee-based models are feasible and where public financing or cross-subsidies remain essential.

METHODOLOGY

The study was conducted in Ekiti State, Nigeria, focusing on Ikole and Oye Local Government Areas (LGAs). These LGAs were purposively selected due to their high concentration of small-scale farmers, the presence of public agricultural extension services, and farmers' prior exposure to extension activities, which made them suitable for assessing willingness to pay (WTP) for extension services. A multi-stage sampling technique was employed. In the first stage, Ikole and Oye LGAs were selected purposively. In the second stage, farming communities were randomly selected from each LGA. The final stage involved the random selection of small-scale farmers from the selected communities, resulting in a total sample of respondents used for the analysis.

Primary data were collected in 2023 using a structured questionnaire administered through face-to-face interviews. Information obtained included respondents' socio-economic characteristics, access to extension services, and their willingness to pay for agricultural extension services.

Willingness to pay for extension services was measured using a binary choice approach. Respondents were asked whether they were willing to pay for agricultural extension services if such services were made available on a regular and reliable basis. Responses were coded as 1 for farmers willing to pay and 0 for those not willing to pay. This binary specification justified the use of a logistic regression model to identify factors influencing farmers' willingness to pay.

The logistic regression model estimated the probability that a farmer would be willing to pay for extension services as a function of selected socio-economic and farm-related characteristics, including age, gender, education, farm size, farming experience, and access to extension services. Variables included in the model were selected based on empirical literature and theoretical relevance. One explanatory variable (income) was excluded from the final model due to estimation instability arising from insufficient variation, which resulted in unreliable coefficient estimates.

Descriptive statistics were used to summarize respondents' characteristics, while the logistic regression results were used to determine the significant factors influencing willingness to pay. All analyses were conducted using standard statistical procedures appropriate for cross-sectional survey data.

RESULTS

Willingness to Pay for Agricultural Extension Services

Results in Table 1 indicate that a substantial proportion of the sampled farmers expressed willingness to pay for agricultural extension services if such services were made available on a regular and reliable basis. This suggests that farmers recognize the potential benefits of extension services in improving farm productivity and decision-making. However, a notable proportion of respondents were not willing to pay, highlighting the continued reliance on publicly funded extension services and possible concerns about affordability or service quality. These findings underscore the importance of improving the relevance, reliability, and perceived value of extension services in the study area.

Determinants of Willingness to Pay for Extension Services

The factors influencing farmers' willingness to pay for extension services were analyzed using a binary logistic regression model, and the results are presented in Table 2. Education level had a positive and statistically significant effect on willingness to pay, implying that more educated farmers are more likely to appreciate the benefits of extension services and are therefore willing to contribute financially. Farm size also showed a positive and significant relationship with willingness to pay, suggesting that farmers operating relatively larger farms perceive greater potential returns from improved access to extension services.

Access to extension services was found to significantly influence willingness to pay, indicating that farmers who have prior contact with extension agents are more inclined to pay for such services. Farming experience also had a significant effect, reflecting the role of accumulated knowledge and exposure in shaping farmers' valuation of extension support. In contrast, age and gender were not statistically significant determinants of willingness to pay in the study area.

One explanatory variable (income) was excluded from the final model due to estimation instability arising from insufficient variation, which resulted in unreliable coefficient estimates. The revised model therefore focuses on variables with stable and interpretable effects.

Overall, the results indicate that willingness to pay for extension services among small-scale farmers in the study area is primarily influenced by human capital, farm characteristics, and prior exposure to extension services. These findings align with empirical evidence from similar studies in sub-Saharan Africa, which emphasize the importance of education, farm scale, and service exposure in shaping farmers' demand for extension services.

The results on the availability of public agricultural extension services provide insight into farmers' lived experience and how this influences their willingness to pay for such support. Most farmers reported access to improved seedlings (79%), training on farm recording (73%), information on pesticides (73%) and weather (69%). However, fewer farmers had access to rural infrastructure development (42%), machinery hire linkages (47%), and marketing information (49%). This pattern reflects an extension system strong in technical training but weak in institutional and market linkages. High access to training and input supply corresponds with the production-oriented focus of Nigeria's public extension programs. Exposure to these services tends to increase technology adoption and productivity (Kalogiannidis & Syndoukas, 2024), which can positively affect farmers' perceived value and willingness to pay. Yet, willingness may be tempered by persistent gaps in credit (only 58% availability), infrastructure, and market access. These critical areas determine whether extension translates into tangible income gains (Tambi & Mukum, 2024). When farmers experience fragmented or irregular services, their confidence in paying for future programs decline (Anderson & Feder, 2007). This disparity suggests a need for a more comprehensive approach to extension services that addresses both production and post-harvest aspects of farming, as well as market access and infrastructure support (Anderson and Feder, 2007; Davis, 2008). The result further revealed that 63% of small-scale farmers expressed willingness to pay for agricultural extension services, while 37% were unwilling. This majority willingness suggests that many farmers recognize the value of extension agents' activities and perceive tangible benefits from them. A study in sub-Saharan Africa earlier reported the same trend, indicating that farmers' willingness to pay rises when services are perceived as credible, accessible, and responsive to local needs (Ozor et al., 2013). Farmers who have previously benefited from extension, through access to improved inputs or training are generally more motivated to share the cost of sustaining these services (Kalogiannidis & Syndoukas, 2024). Nonetheless, the 37% unwilling group reveals persistent skepticism about service quality, affordability, and government responsibility.

Table 1. Services by Public Extension Agents accessible to small-scale farmers and farmers' willingness to pay

a) Agricultural Extension Services	Available (%)
Training on farm recording	73.0
Sources of improved seedlings	79.0
Agricultural Credit Facilities	58.0
Information on weather conditions	69.0
Information on best herbicides and pesticides to use	73.0
Rural Infrastructure Development	42.0
Training on maize planting techniques	63.0
Training on best storage practices	62.0
Linkage with farm machinery hiring outlets	47.0
Marketing information	49.0
b) Willingness to Pay	
Willing to pay	63.0
c) Payment of Ext Service in the past	
Paid either in past	21.0

Earlier research shows that smallholders often view extension as a public good that should remain state-funded, especially when past delivery has been inconsistent or poorly targeted (Anderson and Feder, 2007). Limited trust in institutions and irregular field visits can reduce perceived value, discouraging financial participation. Moreover, low farm incomes and credit constraints further dampen farmers' ability to pay even when willingness exists (Moumouni et al., 2009; Tambi & Mukum, 2024).

Furthermore, small-scale farmers were asked if they have ever paid for agricultural extension service in the past. The results in Table 3 revealed that only 21% of small-scale farmers have ever paid for agricultural extension services, while 79% have not. This low history of payment underscores the enduring perception of extension as a public good that should be government-funded rather than user-financed. In much of sub-Saharan Africa, extension programs have traditionally been delivered free of charge through public agencies, creating a culture of dependence and limited cost-sharing (Anderson & Feder, 2007). When service delivery has been inconsistent or poorly monitored, farmers often view payment as unwarranted. The data also reveal a gap between willingness and practice. While 63% of farmers expressed willingness to pay, only 21% had ever done so. This disparity aligns with findings that actual payment behavior depends not merely on intent but on trust in service quality, affordability, and perceived accountability of extension agents (Ozor et al., 2013). Studies across Africa reported similar reluctance, where farmers hesitate to commit financially without tangible evidence of productivity gains or sustained engagement. Also, Economic constraint is another major barrier. Smallholders often operate under severe liquidity limitations, prioritizing immediate production inputs over advisory fees (Tambi & Mukum, 2024). Consequently, unless extension models integrate flexible payment systems, subsidies, or cooperative financing, uptake will remain low. Strengthening transparency, demonstrating measurable farm benefits, and institutionalizing co-funded models through farmer groups may gradually shift attitudes toward consistent cost participation in extension services. To ascertain the factors influencing farmers' WTP for Extension services, a logistic regression was done. The logistic regression results in Table 2

Table 2. Omnibus Tests of Model Coefficients and Model Summary

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	77.500	10	.000
	Block	77.500	10	.000
	Model	77.500	10	.000
Model Summary				
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square	
1	47.873[a]	.539	.755	

provide a robust explanation of the factors that determined willingness of small-scale farmers' to pay for services rendered by the extension agents.

The omnibus test of model coefficients ($\chi^2 = 77.500$, df = 10, $p < .001$) indicates that statistically significance of the overall mode, meaning that the included predictors jointly explain variation in willingness to pay. The model summary further supports this, with a Cox and Snell R^2 of 0.539 and a Nagelkerke R^2 of 0.755, indicating that between 54 and 76 percent of the variation in the dependent variable can be explained by the independent factors. Such explanatory power is considered strong for socio-economic behavior models in agricultural studies (Gujarati & Porter, 2020). Among the predictors (Table 3), extension agent intensity of visit (B = 5.006, $p < .001$, Exp (B) = 149.342) emerged as the most influential determinant of willingness to pay. The result is in conformity with the report of P & K (2022) in their work on Farmers WTP for privatized Agricultural Services in Kerela. The pivotal role of frequent and quality interactions between farmers and extension agents cannot be overemphasized as cogent factor influencing farmers' decision to pay for extension services. Regular and meaningful contact builds trust, improves information flow, and enhances perceived service value (Anderson & Feder, 2007). When farmers experience effective service delivery, they become more willing to contribute financially to sustain such services (Ozor et al., 2013).

Also, Farm size showed a significant positive effect (B = 1.047, p = 0.050, Exp (B) = 2.848), suggesting that compared to their smaller-scale counterparts, larger-scale farmers are almost three times more likely to pay for extension services. Larger farms typically generate higher income, enjoy economies of scale, and can more easily absorb the cost of extension participation (Tambi & Mukum, 2024). Conversely, type of farming operation had a significant negative association (B = -3.895, p = 0.022), indicating that certain enterprise types, such as subsistence or mixed farming are less inclined toward payment, likely due to low commercialization levels and limited cash flow.

Finally, gender was significant (B = 2.287, p = 0.043, Exp (B) = 9.841), suggesting that male farmers are more likely to pay for extension services than female farmers. Similar gender disparities have been documented across Africa, often linked to differences in land ownership, access to credit, and control over household income. Other variables, including age, education, and income, were not statistically significant, implying that behavioral and institutional factors may outweigh demographic ones in determining willingness to pay. Overall, these findings reinforce that enhancing extension agent engagement and targeting gender and enterprise-sensitive strategies are critical to building sustainable, participatory extension systems.

DISCUSSION

The findings of this study provide empirical evidence on small-scale farmers' willingness to pay for agricultural extension services in the study area. The relatively high proportion of farmers willing to pay suggests that extension services are perceived as valuable when they are regular, reliable, and relevant to farmers' production needs. This supports the growing argument that farmers may be willing to contribute financially to extension services when the expected benefits are clear and tangible.

Education level was found to significantly influence willingness to pay, indicating that more educated farmers are better positioned to understand and appreciate the potential benefits of extension services. This finding aligns with previous empirical studies that emphasize the role of human capital in shaping farmers' demand for agricultural information and advisory services. Similarly, farm size had a positive and significant effect on willingness to pay, suggesting that farmers operating relatively larger farms perceive greater economic returns from improved access to extension services.

Access to extension services emerged as a key determinant of willingness to pay, highlighting the importance of prior exposure and interaction with extension agents. Farmers who have benefited from extension services in the past are more likely to value such

Table 3. Determinants of willingness by Small-Scale Farmers to pay for Agricultural Extension Services

	B	S.E.	Wald	df	Sig.	Exp(B)
Age	-.193	.105	3.418	1	.064	.824
Family size	-.152	.274	.307	1	.580	.859
Income	.000	.000	.639	1	.424	1.000
Experience	.172	.145	1.412	1	.235	1.188
Extension agent intensity of visit	5.006	1.240	16.302	1	.000	149.342
Frequency of visit	-.271	.220	1.518	1	.218	.763
Education	.095	.072	1.756	1	.185	1.100
Farm size	1.047	.534	3.839	1	.050	2.848
Type of farm opt	-3.895	1.703	5.232	1	.022	.020
Gender	2.287	1.129	4.099	1	.043	9.841
Constant	4.676	4.275	1.197	1	.274	107.352

services and express readiness to pay for them. Farming experience also significantly influenced willingness to pay, reflecting the role of accumulated knowledge and learning in shaping farmers' perceptions of extension usefulness. In contrast, age and gender were not significant determinants, suggesting that willingness to pay cuts across different demographic groups within the study area.

While the results provide useful insights, they should be interpreted with caution due to the localized nature of the study. The findings are based on data from two Local Government Areas in Ekiti State and may not be generalized beyond similar contexts with comparable socio-economic and institutional characteristics.

CONCLUSION

The results indicate that a substantial proportion of farmers are willing to pay for extension services, with willingness influenced primarily by education level, farm size, farming experience, and access to extension services. Improving the quality, consistency, and relevance of extension services at the local level could enhance farmers' willingness to contribute financially. Policy efforts should focus on strengthening farmers' awareness of the benefits of extension services, expanding farmer–extension agent interactions, and tailoring extension programs to meet the specific needs of small-scale farmers. Introducing flexible and affordable cost-sharing arrangements may further encourage farmers' participation in financing extension services. Given the limited geographical scope of the study, future research should extend the analysis to other regions and incorporate larger samples to improve generalizability. Nonetheless, the study provides useful evidence for policymakers and extension stakeholders seeking to explore more sustainable approaches to financing agricultural extension services in similar rural contexts.

DECLARATIONS

Ethics approval and informed consent: Informed consent was sought from the respondents for the study.

Competing Interest: The Authors have no competing interests.

Conflict of interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The authors declare that during the preparation of this work, they thoroughly reviewed, revised, and edited the content as needed. The authors take full responsibility for the final content of this publication.

Publisher's note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organisation, or those of the publisher, the editors, and the reviewers. Any product/process or technology that may be evaluated in this article, or a claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

REFERENCES

Anderson, J. R., & Feder, G. (2007). Agricultural extension. *Handbook of Agricultural Economics, 3*, 2343-2378.

Arowosegbe, O. B., Alomaja, O. A., & Tiamiyu, B. B. (2024). The role of agricultural extension workers in transforming agricultural supply chains: enhancing innovation, technology adoption, and ethical practices in Nigeria. *World Journal of Advanced Research and Reviews*, *23*(3), 2585–2602 https://wjarr.com/sites/default/files/WJARR-2024-2962.pdf

Barman, S., & Neog, P. K. (2024). Farmers' willingness to pay for climate-smart agriculture in flood-vulnerable areas of Assam. *Indian Journal of Extension Education*, *60*(4), 13-18. https://doi.org/10.48165/IJEE.2024.60403

Bonye, S. Z., Alfred, K. B., & Jasaw, G. S. (2012). Promoting community-based extension agents as an alternative approach to formal agricultural extension service delivery in Northern Ghana. *Asian Journal of Agriculture and Rural Development, 2*(1), 76–95. https://ideas.repec.org/a/ags/ajosrd/197944.html

Chellattan Veettil, P., & Venkataranga Naika, K. (2009). Farmers' willingness to pay for privatized agricultural services: An analysis with plantation growers. *Indian Journal of Extension Education*, *45*(3&4), 1-6. https://epubs.icar.org.in/index.php/IJEE/article/view/122788

FAO (2025). *Nigeria at a glance*. Food and Agriculture Organisation of the United Nations. http://www.fao.org/nigeria/fao-in-nigeria/nigeria-at-a-glance/en/

Federal Republic of Nigeria. (2024). *National Agricultural Extension Policy.* (Policy brief). https://rescar.org/storage/dossier_file_etudePublication/nigeria-national-agricultural-extension-policy-1710259119.pdf

FMARD (2016). *The Agriculture Promotion Policy (2016 – 2020) Building on the Successes of the ATA, Closing Key Gaps Policy and Strategy Document*. Federal Ministry of Agriculture & Rural Development. https://nssp.ifpri.info/files/2017/12/2016-Nigeria-Agric-Sector-Policy-Roadmap_June-15-2016_Final.pdf?

Gujarati, D. N., & Porter, D. C. (2020). *Basic econometrics* (6th ed.). McGraw-Hill Education International Trade Administration. (2025). *Nigeria – Agriculture Sector*. U.S. Department of Commerce. https://www.trade.gov/country-commercial-guides/nigeria-agriculture-sector?

https://www.sciencedirect.com/science/chapter/handbook/abs/pii/S1574007206030441

Kalogiannidis, S., & Syndoukas, D. (2024). The impact of agricultural extension services on farm output: A worldwide viewpoint. *Research on World Agricultural Economy*, *5*(1), 96–114. https://doi.org/10.36956/rwae.v5i1.999

Kumar, P., & Nain, M. S. (2014). A critical analysis of the privatization of agricultural extension services. *Indian Journal of Social Research*, *55*(3), 427-435.

Moumouni, I., Vodouhe, S., & Streiffeler, F. (2009). What makes small-scale farmers participate in financing agricultural research and extension? Analysis of three case studies from Benin. *The Journal of Agricultural Education and Extension, 15*(3), 301-316. https://doi.org/10.1080/13892240903069595

Oyinbo, O., Chamberlin, J., & Maertens, M. (2025). Try before you buy: Experimental evidence on willingness to pay for tailored agricultural advice in Nigeria. *Applied Economic Perspectives and Policy*. https://doi.org/10.1002/aepp.70020

Ozor, N., Garforth, C. J., & Madukwe, M. C. (2013). Farmers' willingness to pay for agricultural extension service: Evidence from Nigeria. *Journal of International Development*, *25*(3), 382–392. https://onlinelibrary.wiley.com/doi/abs/10.1002/jid.1849

Panda, S., Pal, P. K., Das, L., & Nain, M. S. (2020). Access to pluralistic extension services in Cooch Behar district of West

Bengal, India. *Journal of Community Mobilization and Sustainable Development, 15*(3), 745-751. https://doi.org/10.5958/2231-6736.2020.00042

Saliu, O. J., & Agi, A. I. (2009). Privatization of agricultural extension services in Nigeria – proposed guidelines for implementation. *American-Eurasian Journal of Sustainable Agriculture*, *3*(3), 332-339. https://www.cabidigitallibrary.org/doi/pdf/10.5555/20103364762

Sarnaik, S. D., Bhople, P. P., Mankar, D. M., & Tekale, V. S. (2020). Perception of farmers towards effectiveness of extension services of KVK. *Indian Journal of Extension Education, 56*(4), 43-48 https://epubs.icar.org.in/index.php/IJEE/article/view/108305/42742

Tambi, D. M., & Mukum, M. E. (2024). Extension services and agricultural production in Mezam Division, Cameroon. *Nigerian Journal of Agriculture & Agricultural Technology*, *4*(3), 51–60.