Impact Factor (SJIF): 3.484 E-ISSN: 2583-7206

International Journal of All Subject Research

Received: 05/November/2023 IJASR: 2023; 2(6):30-36 Accepted: 03/December/2023

Determinants of Rural Household Participation and its Level for Community-Based Ecotourism in Abune Yoseph Zigit Abuhay Gariya, North-East, Ethiopia

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Abstract

Community-based ecotourism is important for improving rural development and securing the well-being of rural households. Despite its importance, in Ethiopia, rural households have faced limited involvement in community-based ecotourism specifically in the study area. The study is aimed to analyze the determinants of household participation in community-based ecotourism in the study area. Key informants provided further support for the data that had been gathered through structured interviews from both primary and secondary sources. A multi-stage sampling technique was employed to select 204 sample households from four rural kebeles. With the participation index, descriptive statistics like mean, standard deviation, and percentage were used to evaluate the level of CBET involvement. Binary logistic regression models were employed to analyze the determinants of rural household participation for community-based ecotourism in the study area. The participation index result shows that the rural households are at a non-participant level for CBET. The results of the model revealed that CBET participation was determined by the age of households, and distance to park positively whereas sex, access to training and annual income were determined negatively. The finding shows that demographic, institutional, and economic characteristics are the most crucial variables that determine the participation of rural households for CBET in the study area. The study, therefore, recommends that the governments should improve the local ecotourism association, culture and tourism, and community conservation area offices. To encourage non-participants, the woreda culture and tourist office and the community conservation area office should develop well-sound strategies.

Keywords: Determinants, ecotourism, rural households, participation

Introduction

Ecotourism is an alternative form of tourism that is part of the sustainable tourism industry. It is responsible for travel to natural areas that protect the environment, promote local people's well-being, and includes interpretation and education [1]. Similarly, it can be a tool to promote sustainable development in developing countries due to their competitive advantages in terms of great potential [2, 3, 4, 5].

The Ethiopian tourism industry has been reversing its development for two decades since 1974 due to numerous adverse effects, such as prolonged civil war, persistent drought, and restrictions on entry and free movement of tourists [6]). Although the sector is still in its infancy, it has continued to expand since 2001. The total receipt from the Ethiopian tourism industry in 2018 was around 204.9 million dollars.

Ecotourism helps in community development by providing an alternative source of livelihood to the local community, which is more sustainable. However, to put together the ecotourism benefits, it is important to involve the local people and incorporate their needs and expectations in tourism planning and development [7]. In contrast, community participation in the tourism sector is weak and shallow encompassing low opportunity for the benefits from the tourism potential in Ethiopia [6]. Even though community participation is important, there are several constraints encountered in household participation in community-based ecotourism. Studies by [8, 5] have discussed the lack of financial viability and length of residency in the area. Generally, households are heterogeneous with unequal opportunities and different expectations. For that reason, households face limited information, resources, and access to training [9]. Another constraint pointed out by [10] was the lack of human and financial resources as well as the dominance of elite people in tourism participation.

Despite the presence of Ethiopia's tourism development policy, the vital role of community-based ecotourism in the protected area has been neglected across the country as a policy rather than a conservation issue [11]. The lack of adequate ecotourism research and little attention from

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policymakers on ecotourism impede the successful and sustainable growth of ecotourism in Ethiopia specifically in the study area [12]. Furthermore, ecotourism is still in its infancy and the country has not benefited the most output from its resources [13]. Similarly, ecotourism development and significance in social, environmental, and economic aspects are low as compared to the neighbouring countries [14].

Despite the fact of its growing importance to Ethiopia's poor, the necessity of community-based ecotourism participation has gotten little attention. There is a large body of evidence indicating CBET participation activities play a substantial influence in increasing household income and coping with different livelihood shocks [15]. Several Ethiopian research studies, for example [15]; have looked contribution of community-based ecotourism activities. However, factors affecting rural household community-based ecotourism participation are not unique, and the factors determining households' participation and adoption of community-based ecotourism activities were not yet studied in the study area.

Therefore, this study aims to examine the determinants of community-based ecotourism participation in Ethiopia with a particular focus on the Abune Yoseph Abuhay Gariya Community Conservation area. This paper contributes to the literature by inspiring to gain more insight into the factors that affect rural households' community-based ecotourism participation in Lasta woreda, Amhara region, Ethiopia. The contribution of the study to the existing literature is two-fold. First, the previous studies have emphasized the determinants of community-based ecotourism participation for rural households, for instance [14] and [16]). However, little attention has been given to community-based ecotourism participation in the community conservation area. Second, the empirical literature shows that the determinants of community-based ecotourism participation in Ethiopia in general and study area, in particular, were less researched.

Conceptual framework of the study. The framework helps to provide wide range of plan for policy-makers to improve rural household community-based ecotourism activities. Following a thorough browsing of numerous literary works and real world situations, it was found that rural household participation for community-based ecotourism were determined by socioeconomic, institutional, and demographic factors. However, no single factor can exist in isolation without the influence of others. As consequence, this study assess the relationship between dependent variable and independent variable, which give us an outcome of participated and non-participated in community-based ecotourism activities.

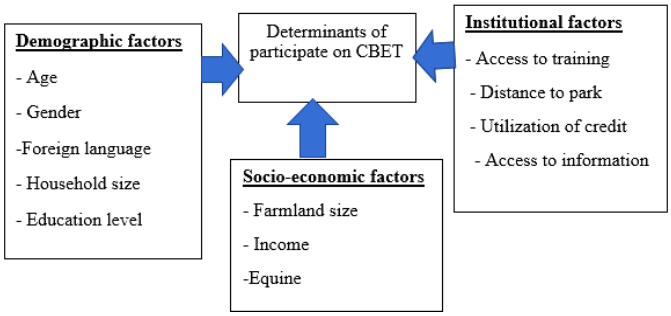
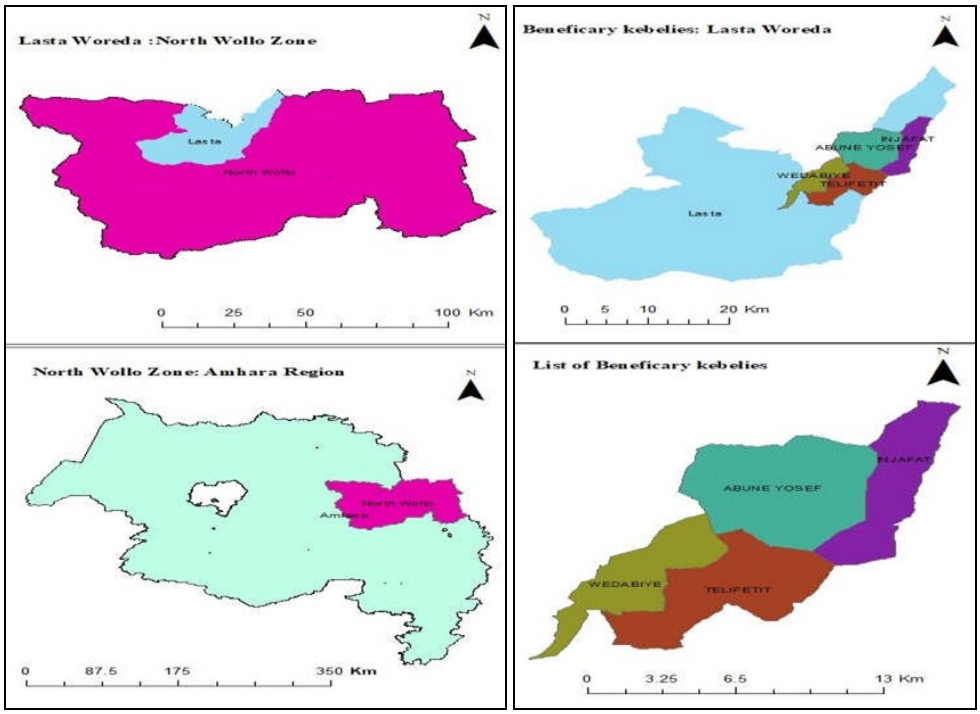


Fig 1: Determinants of rural household participation and its level for community-based ecotourism [5].

Material and Methods

i). Description of the Study Area

This study was carried out in Lasta Woreda, particularly Abune Yosef Community Conservation Area, which covers about 72 km^2 of the massif, which is found in North Wollo Zone, North East Ethiopia in Amhara national regional state. The district has 24 rural *Kebeles*. The district is one of the richest in biodiversity among the Ethiopian highlands. At 4,284 meters above sea level, it is the 3rd tallest mountain in Ethiopia and the 19th in highest Africa. This stunning and outstanding natural and historical tourist attraction area is located near the holy town of Lalibela, one of the top tourist attractions in Ethiopia. Taking advantage of this situation, a community-based tourism initiative was launched a few years ago with the support of international NGOs.



Source: Ethiopian Geospatial data

Fig 2: Location map of the study area

ii). Types and Sources of Data

To achieve the objective of this study, both qualitative and quantitative research approaches have been used. All the required data were collected from both primary and secondary data sources. Primary data such as demographic, socio-economic, and institutional characteristics of household data were collected from 204 participants and nonparticipants using a structured questionnaire.

Key informant interview with community lodge chairman, Lasta Woreda culture and tourism office expert, AYZACCA chairman, and office experts to gather additional information and validate the information obtained from a household survey. Secondary data, such as theories, empirical evidence, concepts, definitions of key terms, and econometric concepts, were collected through in-depth reviews from journal articles, previous studies, agricultural manuals, proceedings, websites, and books.

iii). Sample Size and Sampling Technique

Depending on the objective of the study, either a probability-based or a non-probability-based sampling method should be used. A probability sampling technique is preferable to a non-probability sampling technique for this type of quantitative study because it provides every sample household with an equal chance of being questioned. For this study, a multi-stage sampling technique was employed from a variety of probability sampling techniques.

In the first stage, the Lasta woreda was selected purposively due to the familiarity of the researchers to study areas that play a great role to choose the areas for the study. In the second stage, four sample *kebeles* (namely; Abune Yosef, Wodebye, Telfetit and Enjafat) were selected (out of 24 rural *kebeles*) using the purposive sampling technique due to their ecotourism potential and bordering on the community conservation area.

In the third stage, 2084 participants and 2484 non-participants were selected from the total population by using stratified sampling techniques. Finally, the sample respondents from the participant and non-participants were selected by using the systematic sampling technique proportionality population size. In this study Yamane's [17], formula was used to determine the sample size. The formula is expressed as follows;

$$n = \frac{N}{1 + N(e)^2} \quad (1)$$

Where n is the total number of sampled required; N is the total number of households

e is the precision error of 7% in this study. According to [18], the total population of the four kebeles in the study area has 4532. Therefore, using the above formula the sample size required from the study area was calculated.

$$n = \frac{4532}{1+4532\,(0.07)^2} = \frac{4532}{1+4532\,(0.0049)} = 204$$

Therefore, 204 samples were chosen following equation (1). Consequently, a final sample size of 204 was chosen using the population proportion from each chosen Kebeles.

iv). Methods of Data Collection

Before conducting the survey, the following tasks were completed in this study. Surveys are first translated into the local tongue (Amharic). The quantitative and qualitative primary and secondary data sources were used to create the data set for this study. The primary data was collected through structured sample interviews with household heads.

v). Method of data Analysis

a) Participation Index

The participation index has been used to estimate the level of participation in community-based ecotourism activities. The Participation Index is a continuous dependent variable calculated using the following formula. The value of the participation index ranges from zero to one. Zero indicates a non-participant based on the definition of this study, and 1 indicates a participant. A participation index (PI) was used following a modified formula (Kurothe, 2014; Obadire, *et al*., 2014) as cited by Solomon *et al.* [19].

$$PIi = \frac{\sum_{n=1}^{7} Yij}{K} X\ 100 \quad (2)$$

Where PIi is the participation index of the i^{th} respondent; Yij is the score of the j^{th} item for i^{th} respondent; K is the maximum participation score:

$$PI = \frac{\sum_{n=1}^{7} PIi}{N} \quad (3)$$

Where PI is the participation index for community-based ecotourism activity; PIi is the participation index of the i^{th} respondent; N indicated the total number of respondents.

Following the adoption of the above participation index, the respondents were categorized into three participation levels by adding participation values. Categorization of the participation index value is calculated in particular by community-based ecotourism activities as suggested by Bagdi and Kurothe (2014 as cited by Solomon *et al.* [19]. The result of the participation index was categorized based on the normal distribution curve values. Finally, the mean and standard deviation (SD) of marks were used to separate participants into low, moderate, and high levels of participation.

b) Specification of Econometric Model

The logistic model is extremely flexible and widely used and leads to meaningful interpretations when the dependent variable is a dichotomous outcome. It is a powerful tool in its ability to estimate the individual effects of the continuous or categorical variables on the qualitative dichotomous variable.

The dependent variable is a dummy variable with a value of 1 when the household head is involved in the ecotourism sector and 0 otherwise. This is a regression against factors that may limit the participation of households in the eco-tourism sector. The model was specified as follows:

$$Zi = \beta i + \beta Xi + Ui \quad (4)$$

Where Zi is the dependent variable with a value of 1 when the household participant and 0 otherwise. Xi is a vector of explanatory variables.

c) Logistic Distribution

Logistic distribution is also preferable to others in the analysis of the dichotomous outcome variable, in that it is extremely flexible and easy to use the model from a mathematical point of view and results in meaningful interpretation [20]. It is a maximum probability estimator that makes it possible to

estimate the probability that an event occurs or not by predicting a binary dependent outcome from a set of observable independent or predictor variables.

$$Yi = \beta 0 + \beta 1X1i + \beta 2X2i \ldots \ldots \ldots \ldots + \beta nXni + \varepsilon i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Let us consider a linear regression of the form;
Yi = the outcome variable predicted from the equation
Xi = a vector of explanatory variables representing household
β's = a vector of regression coefficients to be estimated
εi = the error terms
Logistic regression presupposes a meaningful coding of variables. It is difficult to analyze a logistic coefficient if it is not coded meaningfully. The binomial regression analysis convention is to code the dependent class of interest as 1 and the other as 0.

d) Maximum Likelihood Estimation

Although the logistic regression model looks like a simple linear regression model, the underlying distribution is binomial and Δ and β parameters cannot be estimated in the same way as for simple linear regression. The coefficients are usually estimated in the Maximum Likelihood Model [21]. The probability is that, based on observed values of independent variables, the values of the dependent variable are observed. Like every other likelihood, the probability varies from 0 to 1. The probability estimation of the dependent variable as applied by Gujarati [20] may be shown;

$$\text{Prob}(Y_i = 1) = F(\beta' X_i) \quad (6)$$

$$\text{Prob}(Y_i = 0) = 1 - F(\beta' X_i) \quad (7)$$

Where:

$$Y_i = \begin{cases} 1 \text{ if} - \text{HH participates in community} - \text{based ecotourism} \\ 0 \text{ if} - \text{HH did not participate in community} - \text{based ecotourism} \end{cases} \quad (8)$$

The probability model involves regression of the conditional expectation of Y on X as given by:

$$E(Y|X) = 1[F(\beta' X)] + 0[1 - F(\beta' X)] = F(\beta' X) \quad (9)$$

The output of the logistic regression model explains the probability that the output variable (Y) will change when the independent variables change. Thus, the positive logit coefficient tells us that the change in the independent variable (X) increases the probability (Y=1). A significant factor indicates that the positive effect is statistically significant. However, the logit coefficient does not tell us how much percentage of the probability of (Y=1) changing when the explanatory variable (X) changes by one unit. The logistic coefficient indicates the direction of the change, not the magnitude of the change. The magnitude of the impacts would be estimated by calculating the marginal effects. According to [20]:

$$\frac{\partial E[Y_i|X_i]}{\partial X_i} = F(\beta' X)[1 - F(\beta' X)]\beta \quad (11)$$

It indicates how much percent the probability of (Y=1) changes when the X covariates change by one unit.

e) Multicollinearity; the independent variables' imperfect multicollinearity is a key CLR presumption. The relationship between two explanatory variables should not be linear. Using the Variance Inflation Factor (VIF) for continuous variables and the Contingency Coefficient (CC) for categorical variables, multicollinearity was examined in this study. The calculated value of VIF using Equation (7).

$$\text{VIF (Xi)} = \frac{1}{1-R2} \quad (12)$$

Where R^2 R^2 is the square of the multiple correlation coefficients between Xi and another explanatory factor. There is not a variable that is not connected with other explanatory variables in real life. The question is whether the problem is a severe one. The issue is serious if the VIF readings are more than 10. The standard error may be exaggerated when the VIF value is more than 10. Using the following formula, the contingency coefficient was calculated

$$CC = \sqrt{\frac{\chi^2}{n + \chi^2}} \quad (14)$$

In this case, n denotes the sample size and X2 denotes the chi-square. If the correlation value is greater than 0.75, there is a major issue. VIF and CC were calculated for this study using the SPSS 25 version.

Results and Discussion

1. Level of households Participation in Community Based Ecotourism Activities

Tourists travel to the study area for a variety of reasons, including its natural beauty, cultural attractions, and occasionally unique local goods, particularly those relating to souvenirs. The key informant interview (KII) provided evidence that the activities listed below are frequent in the study area, including the production of handcrafted goods, providing agricultural products, guiding, local transportation services, cultural shows, scouts, and working at community lodges.

Table 1 shows that 51.09% of households participated in handicrafts. These local households have been involved in the production and marketing of handicrafts to tourists from abroad. One of the activities done by residents is the cultural display. Sharing folkloric bands is customary among neighbours and, at the same time, a way for neighbours to make money. Therefore, 36.26% of the participants were households, who participated in this activity.

Another activity utilizing equine animals like donkeys, mules, and horses is the local transportation system. Other activities include scouting, which is mostly carried out by skilled individuals selected from the Community Conservation Office to address the problem of animal safety. This might affect household livelihoods. Of the participant households, 52.17%were engaged in local transportation service, and those who were active as scouts were 3.30%.

Additionally, locals who work as a cook, cleaners, or storemen at the community lodge might earn more money. The local individual also contributes to the provision of a variety of agriculturally linked items, including vegetables, drinks, and animal products. The percentage of employees

who took part in the community lodge activity was 32.61%, while the percentage of responders who took part in it was 55.43%.

Table 1: Common Ecotourism Activities in the Protected Area

List of an ecotourism activity	Frequency	Percentage
Handcraft product	47	51.09
Guiding	8	8.70
Local transportation service	48	52.17
Cultural show	33	36.26
Scout	3	3.30
Employ at community lodge	30	32.61
Supplying agricultural product	51	55.43

Source: Authors' calculation, 2021

As shown in table 2, the mean of the respondent level of participation was 0.169 and the standard deviation was 0.015.

Table 2: Households' level of Participation in CBET

	obs	Mean	Std. Deviation
Level of participation	204	0.169	0.015

The level of participation of participant households was categorized into three groups namely: low participants, medium participants and high participants using a lower limit of 0.01 and upper limit of 1.00 based on statically procedure. The index score 0.00, 0.010.33, 0.034-0.66 and 0.67-1.00 gives for none, low, medium and high participants, respectively. In similar studies, [22, 23, 24] categorized similarly in the adoption study.

As shown in Table 3, from the total sample households 54.90, 7.84, 29.90, and 7.35% were categorized under none, low, medium and participants in CBET activities, respectively. This implies that households in the study area are categorized as non-participation level in CBET activities because of efforts to be expected from all actors, to increase households' participation in the common activities.

Table 3: level of households' participation in CBET activities

Level of participation	Descriptive Statistics	
	Frequency	Percentage
Non-participant	112	54.90
Low-participant	16	7.84
Medium participant	61	29.90
High participant	15	7.35
Total	204	100.00

2. Determinants of Households Participating in Community-Based Ecotourism

Logistic regression was carried out using the SPSS version 25 software to accomplish this objective. Let us examine the results of the model when all 12 explanatory variables were used as predictors. It was crucial to determine whether the models were multicollinear before estimating them.

Using VIF after regression, multicollinearity for continuous variables in the logistic regression model was detected. The mean VIF value was 1.64 and the maximum VIF value was 2.97. In both cases, the VIF value (>10 or 1/VIF 0.10) fell below the cutoff value. Therefore, the logistic regression model did not have a significant multicollinearity issue between continuous variables.

Using a correlation matrix for a logistic regression model, the issue of collinearity for categorical variables was discovered. In the logistic regression model, the greatest pair-wise correlation value for categorical variables was 0.576. As a result, the logistic regression model did not have a significant collinearity issue (<0.75) between categorical variables.

The fit of the fitted model is consistently demonstrated by the Pearson chi-square value. The chi-square statistics are very important (sig. = 0.000) according to the probability test ratio statistics, which highlights the model's potent explanatory power. As a result, the log-likelihood value was highly significant at 1% of the significance level.

The model result shows that the logistic regression model, which correctly forecasted 82.4% of the entire sample of households, correctly predicted 77.2% of participating households and 86.6% of non-participant households. The model is therefore likely to be accurate for estimating because the average percentage of the correct value is 82.4% (i.e. categorizing individual households). Between 0.490% and 0.656% of the variation in the dependent variable is predicted to be explained by the collection of explanatory variables included in the model, according to the Cox and Snell R2 index and a Nagelkerke R2 index.

This result from all of these indications demonstrates unequivocally that the model matches the data well. On the other hand, the close to one Nagelkerke R2 value and the strong p-value for the Hosmer and Lemeshow Goodness of the fittest (p=0.905) indicated the model's good fit. In other words, the Hosmer-Lemeshow statistics demonstrated a strong fit between the data and the projected model because the significance value was higher than 0.05. The model's log-likelihood ratio value was likewise very significant (p-value = 0.905), indicating that the variables selected had a considerable impact on the model's capacity for prediction.

Table 4: The maximum likelihood estimates of the logistic model

Explanatory Variables	B	S.E.	Sig.	Exp(B)
Age of household	-0.090	0.045	0.045**	0.914
Sex	1.230	0.555	0.027**	3.420
Household size	0.235	0.179	0.189	1.265
Educational level	0.090	0.079	0.251	1.094
Equine	0.132	0.321	0.682	1.141
Farmland size	-0.632	0.917	0.491	0.532
Annual income	0.032	0.012	0.005***	1.033
Distance to park	-0.299	0.110	0.006***	0.741
Utilization of credit	0.307	0.477	0.520	1.359
Access to training	1.470	0.554	0.008***	4.348
Access to information	0.115	0.536	0.830	1.112
Foreign language	1.156	0.761	0.129	3.177
Constant	1.960	2.179	0.368	7.097
Model Chi-Square=137***				
Cox & Snell $R^{2=}$ 0.490; Nagelkerke R^2=0.656				
-2 Log likelihood=143.313***				
Hosmer and Lemeshow Test goodness of fit=3.429(p=0.905)				

Authors' calculation result, 2021; *** p < 0.01, ** p < 0.05, * p < 0.1.

The result of the logistic regression model shows that the age of respondents was significant at a 5% level of significance and had a negative relationship with households' participation

in community-based ecotourism. If all other variables keep constant, the odds ratio result showed that the age of old households' participation in community-based ecotourism was 8.6 times less likely participate in community-based ecotourism than the younger age households. The result implies that the younger households are more participants in community community-based ecotourism than older households are. This might be due to that younger people tend to be particularly attracted to the natural, historical and cultural activities of ecotourism spots. This is why younger people are thought to participate in ecotourism activities and have a strong relationship with international visitors in the area, and consequently, age is believed to be a factor to participate since most of the activities are labour-intensive. The results of this study are consistent with the finding of Mugizi *et al.,* [25] revealed that the likelihood of age influences households' participation in tourism activities in the age group categories of 25-35. Similarly, [26] shows that age had a statistically significant impact on participation in ecotourism activities.

In line with our hypothesis, the variable sex was also found to be significant at a 5% level of the significant and positive association between sex and the decision to participate in community-based ecotourism. The positive coefficient and the odds ratio showed that male-headed households were 3.420 times more likely to participate in community-based ecotourism than female-headed households. This implies that male households are more likely to participate in community-based ecotourism than their female counterparts are. This is because of that, the social norms, the majority of women in the study area spend a large part of their time on housekeeping tasks and various responsibilities such as childcare, fetching water, and cooking food. The study is consistent with those two studies [27]; Safari *et al.* [28] which found that more men than women were engaged in tourism-related activities. The authors noted that males tended to be more involved in tourism development than their female counterparts were. However, the result of this study is contradicted by the finding of Hassan [29] who found that women are more likely to participate in development activities when consulted and actively engaged.

The effect of access to training was positively associated with the likelihood of participation in community-based ecotourism in the study area as expected. The positive coefficient and odd ratio indicate that participation in community-based ecotourism was 4.348 times more likely to participate in CBET-trained households than in non-trained households if keeping all other variables constant. This implies that the higher participation for the household that had access to training compared to the household does not have access to training. This is due to less information dissemination regarding ecotourism benefits and each type of training fills the gap in the decision-making ability of households for participating in the tourism sector. This finding is also similar to the result of (Israr *et al.* [30]; Ndzifon *et al*. [9] which found that a large proportion of respondents who participated in training preferred to participate in ecotourism activities. Due to the access to training, which can be relevant to staff needs, increase performance, make a difference in the work of ecotourism, and resolve organizational issues.

Annual income is another important variable and the model revealed that this variable was statistically significant at a 1% level of a significant and positive association between annual income and household participation in community-based ecotourism, if all other variables keep constant. The positive sign of coefficient and odd ratio shows that as the household annual income increase by 1 ETB the probability of participation increases by a factor of 1.033. This is because the relationship between annual income and participation in community-based ecotourism has benefits more from ecotourism activities, and participant households have diversified their livelihoods. Money and enough income were a source of start-up for small businesses in the study area, such as selling handicrafts, renting horses, and cafes, to do so when households had enough money to be more involved in the ecotourism destination listed above. This result is in line with the study of [26]; Wei *et al.* [31] 23 which found that annual income had a statistically significant impact on participation in ecotourism.

The variable distance to park was significant at a 1% level of a significant and negative association between distance to park and the decision to participate in community-based ecotourism. The negative sign of the coefficient shows that if all other variables were kept constant, the far-away of distance parks were 25.9 less likely to participate in community-based ecotourism than the nearest household heads. This implies that where the residencies of households were close to the park, they could easily decide to participate in ecotourism activities. Because households living near the park may have information about the economic benefits of eco-tourism. This finding is consistent with the study of Safari *et al.* [28].

Conclusion

This study undertook an appraisal of the community-based ecotourism participation for a rural household in Northeast, Ethiopia. The study employed a cross-sectional survey with qualitative and quantitative methods. Both primary and secondary sources of data were used. The multistage sampling technique was used to select 204 sampled respondent households from four rural kebeles namely; Abune Yosef, Wodebye, Telfetit and Enjafat Descriptive statistics and a logistic regression model were used to identify the determinants of community-based ecotourism participation for pursued by rural households in the study area.

The participation index was used to analyze the level of rural households' participation in community-based ecotourism. The results of the index revealed that the level of participant households was non-participant. The logistic regression was employed to analyze the determinants of rural households for CBET in the study area. The results of the model revealed that out of 12 explanatory variables included in the model, 5 explanatory variables were found to be signed up to less than a 10% probability level. Community-based ecotourism participation was determined by age of the household head, distance to park negatively and annual income, sex, and access to training positively.

Therefore, it might be concluded that community-based ecotourism participation in the study area was determined by the sex of the household head, annual income, and access to training positively; whereas, the age of the household head and distance to the park were determined negatively.

Recommendation

Based on the above findings, the study recommended the following implications:

The Park Office and the Woreda of Culture and Tourism should conduct regular and organized training for households to maximize their participation in CBET activity. Similarly,

the Ministry of Culture and Tourism, Tourism Ethiopia, Bahir Dar University, Woldiya University, and Saint Lalibela Techniques of Vocational Education Center should deliver simple training and promote using different tools to be a potential tourist destination and improve households' financial assets.

The international and domestic private tour operator, NGOs and Lalibela tourist guide association shall have contact with the CBET board to work together, upgrade households' awareness, and enhance the households' participation.

The Woreda Women, Youth and Children Affairs Office, the Community Conservation Area Office, and the Woreda Culture and Tourism Office should therefore strengthen the capacity of women to stimulate optimal participation in ecotourism activities.

Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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