Determinants of Financial Inclusion among Rural Households in West Wollega Zone, Ethiopia

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Abstract

The General objective of the study is to investigate the determinants of financial inclusion among rural households in the West Wollega Zone of Oromia regional state, Ethiopia. The study used an explanatory research design and a mixed research approach. This study selected respondents through multi-stage sampling techniques, and used a questionnaire to collect the necessary data from 384 sample households. The data were analyzed using descriptive statistics and a logistic regression model. The result of regression shows that among the incorporated independent variables; financial literacy, level of awareness, monthly income, level of education, and age of household heads had positive relationship with the financial inclusion of households with significance level of 0.000, 0.004, 0.000, 0.030, and 0.018 respectively. The remaining variables had insignificant effect on financial inclusion of rural households. The research findings would have an impact on different stakeholders and policy makers with respect to financial inclusion among rural households. The study, recommends promotion of financial education, and creating awareness about financial system among rural households. The study would also contribute to knowledge gap and capacity building with respect to determinants of financial inclusion among rural households in west wellega zone of Oromia regional state, Ethiopia.

Keywords: *Education level, Financial Inclusion, Financial Literacy, Rural Households*

JEL Classification: G00, G18

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1. Introduction

Improving and expanding access to financial services remains an important policy challenge in many countries, with much for governments to do. In recent decades, a rapidly growing literature across the globe continues to emphasize that, financial inclusion is an instrument that can help to achieve financial development, reduce poverty and inequality, and economic growth (Thathsarani et al., 2021). The development of a financial system supporting the disadvantaged and poor people leads to improved access to financial services, which has a huge impact on investment rates and savings as well as on technological innovation and long-term growth rates (Getnet, 2014). Access to financial services can have a strong positive impact on economic growth and alleviating poverty (Demirguc-Kunt et al., 2017).

The latest Findex data (Financial Inclusion Data) for Ethiopia show that just only 35% of people aged over fifteen years have an account in a financial institution, which is far away from the average of SSA countries (42.6%). The government of Ethiopia launched the national Financial Inclusion strategy, to reach out to a vast majority of unbanked communities across the country and to achieve the national objectives, of poverty alleviation and elimination of dependence (Dinku, 2019). Many rural people are constrained by an ongoing lack of financial services and support. Rural people have limited access to financial services due to the lack outreach financial institutions (Baza et al., 2017). Formal financial institutions in Ethiopia tend to found only in major cities and towns, where 85% of the nation's population resides due to infrastructural difficulties and potentially poor returns (Dinku, 2019). In addition, a survey conducted by the Ethiopia Socioeconomic Survey (ESS), also cited that in Ethiopia, individuals in urban areas are over three times more likely to have a formal account than those in rural areas (Achew et al., n.d.).

Therefore, to understand what influence financial inclusion in rural area is a major question to favor economic development in Ethiopia. Regardless of the information, the literature on financial inclusion is ample with studies carried out frequently in other countries, however no empirical study in the study area. With this background, also considering the envisaged benefits of financial inclusion on rural households, it considered appropriate to undertake this study. In this scenario, the aim of the present study is, to identify the determinants of financial inclusion among rural

households in the West Wollega Zone Oromia Regional State, Ethiopia. Specifically, the primary aim of this study was to accomplish the subsequent specific objectives.

- To investigate how gender affect rural households financial inclusion in west Wellega zone.
- To examine how age of the Household affect financial inclusion in west Wellega zone.
- To investigate how educational level of the Household head affect financial inclusion in west Wellega zone.
- To examine how income affect financial inclusion in the west Wellega zone.
- To investigate how distance of financial institutions affect financial inclusion in west Wellega zone.
- To investigate how the documentation requirement of financial institutions affect financial inclusion in west Wellega zone.
- To investigate how trust in financial institutions affect financial inclusion in west Wellega zone.
- To investigate how awareness about financial services and products affect financial inclusion in west Wellega zone.
- To investigate how financial literacy affect financial inclusion in west Wellega zone.

2. Theoretical and empirical Frame

2.1.literature review

There is a growing body of academic research examining the determinants of financial inclusion. (Zins & Weill, 2016) investigated the contributing determinants of financial inclusion in Africa. The study employed the Global Findex database on 37 African countries to perform probit estimations. The authors found that being a man, richer, more educated, and older favour financial inclusion with a higher influence on education and income. On the other hand, education is negatively associated with most barriers, although gender is associated with several barriers in opposite directions.

(Eze & Markjackson, 2020) investigated the contributing determinants of financial inclusion in Nigeria. To achieve this, supply-side data spanning 2000 to 2018 were collected and estimated using multiple regression techniques. The result found that commercial bank branches and deposit interest rates exert a negative and insignificant impact on financial inclusion. In addition, domestic credit to the private sector (percentage of GDP), a ratio of rural deposits to loans and lending interest rate exerts a positive and significant impact on financial inclusion. (Wokabi, 2018) also investigated the determinants of financial inclusion among five East African countries and found

that rural population and income are significant determinants of financial inclusion with the rural population being negatively related to financial inclusion. Unemployment though statistically insignificant had a negative relationship with financial inclusion. Interest rates had a positive but insignificant relationship with financial inclusion.

(Evans, 2016) also conducted a study that employed dynamic panel data approaches to assess the determinants of financial inclusion in 15 African countries. Authors cited that GDP per capita, broad money as a per cent of GDP, adult literacy rate, internet access and Islamic banking presence and activity are significant factors explaining the level of financial inclusion in Africa. The study conducted by (Mhlanga et al., 2020) sought to analyze the underlying determinants of financial inclusion in Zimbabwe. The study is employed the logistic and probit regression approach and used a 4000-sample size of the study. The study cited that financial inclusion is influenced by factors such as age, education, financial literacy, income, internet connectivity, documentation requirement, and distance. In another study, (Mhlanga et al., 2020)investigated the determinants of financial inclusion in Southern Africa with a specific focus on South Africa and found out that financial inclusion is driven by age, education level, the total salary proxy of income, race, gender, and marital status.

In the Ethiopian case, there are only a few researches conducted to scrutinize the determinants of financial inclusion. To understand the extent of financial inclusion throughout Ethiopia, and its determinants towards it past literature shows that no specific studies made in rural areas. (Desalegn & Yemataw, 2017) was analyzed the status, level and determinants of financial inclusion and barriers to financial inclusion in Ethiopia. The study employed the data from World Bank's 2016 Ethiopian Socioeconomic Survey (ESS) for analyze. The study identified that financial inclusion was determined by education, financial literacy, gender, age, living in an urban area, living in the capital city, and preference for formal financial services. In addition, a study found that involuntary and voluntary exclusion are higher in Ethiopia.

(Teka et al., 2020) investigated the determinants of financial inclusion in East Gojjam. The study is employed the generalized binary regression analysis and logistic regression approach and found that income, residence, financial literacy, documentation, trust, awareness, accessibility, and availability have a significant impact on financial inclusion. On the other hand, sex, age, education,

occupation, family size, infrastructure, and deposit rate have no significant impact on financial inclusion. A study by (Timbula et al., 2019) examined positive and negative determinants of financial inclusion in the Jimma Zone. The study employed the logit and probit model to analyze this study. The authors found that age, education, financial literacy, and income are positively related to financial inclusion, and distance to the nearest provider of financial services negatively impacts financial inclusion.

(Mossie, 2022) also conducted study Understanding financial inclusion in Ethiopia. The objective of the study is to examine the drivers, barriers of financial inclusion, and saving and credit behavior in Ethiopia. The study is found that that being educated, richer, a man, and older associated with greater level of financial inclusion with a strong influence of income and education. (Abdu & Adem, 2021) also analyzed the determinants of financial inclusion in the Afar region. This study is employed the probit model and established that age, use, financial literacy, and mobile banking are positively and significantly related to financial inclusion. Barriers and income are negatively and significantly affected the financial inclusion.

Based on the above theoretical and empirical literature reviews the researchers tried to test the following research hypothesis.

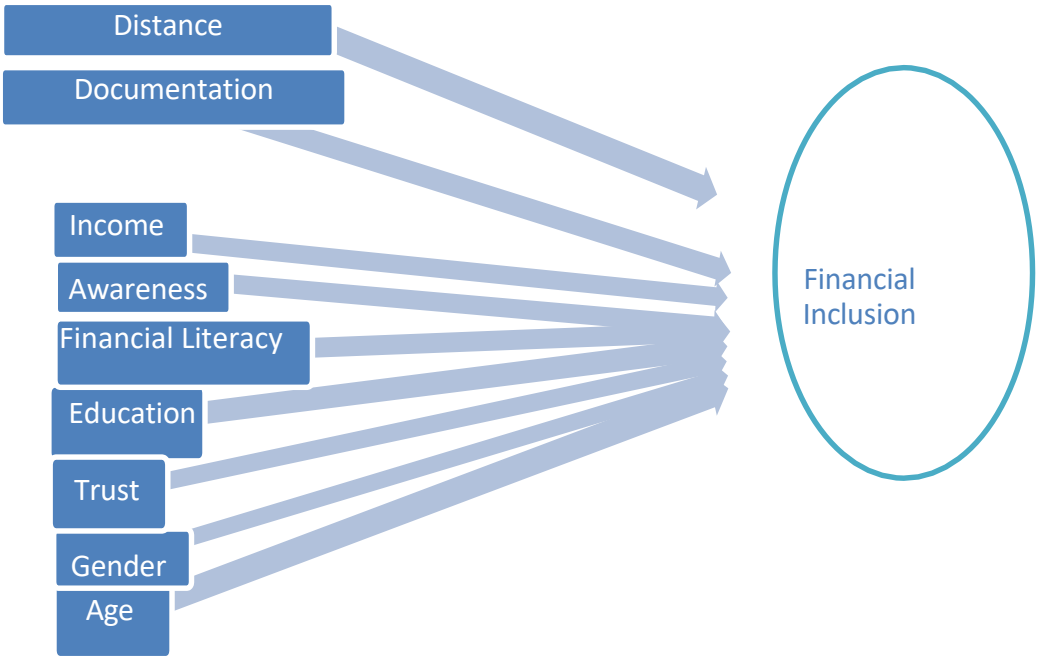
2.2. Hypothesis

H1: Gender has positive and significant effect on financial inclusion.
H2: Age has positive and significant effect on financial inclusion.
H3: Educational level of the Household head has positive and significant effect on financial inclusion.
H4: Income has positive and significant effect on financial inclusion.
H5: Distance of financial institutions has negative and significant effect on financial inclusion.
H6: The documentation requirement of financial institutions has negative and significant effect on financial inclusion.
H7: Trust in financial institutions has positive and significant effect on financial inclusion.
H8: Awareness about financial services and products has positive and significant effect on financial inclusion.
H9: Financial literacy has a positive and significant effect on financial inclusion.

Conceptual framework: based on aforementioned theoretical and empirical literature review, here under mentioned is the interrelationship between dependent and independent variables.

Figure 1: Conceptual framework

From Literature review, 2024



2.3.Methods

The study was conducted in west Wellega zone of Oromia regional state, Ethiopia which is found at about 441Kms far from Addis Ababa. The total population of the Zone has been estimated at 2,023,249 of which 77% per cent are rural population. The study employed an explanatory research design with both quantitative and qualitative (mixed) research approach to find out the determinants of financial inclusion among households in rural area of west Wellega. The data for the study was collected from both primary and secondary sources. The primary data was collected via questionnaire from rural households in west Wellega zone and secondary data was collected from different articles, books and websites. Multi-stage sampling technique was adopted to select the sample respondents. In this study, the necessary sample size of the respondents was determined by using Kothari (2004), sampling formula.

$$n = \frac{Z^2 p * q}{e^2}$$

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} \qquad n = 384.16 \approx 384$$

Where, n- sample size

e- Accepted error margin (0.05)

Z- Confidence level (95%) is 1.96

p and q- Estimates of the proportion of the population to be sampled (P=0.5 and p + q= 1)

Based on the formula, the total sample size was 384 sample household heads. To achieve the objective of the study, both descriptive and econometric analysis was used to analyze the empirical data of the study. Overall, the data was analyzed with the help of the Statistical Package for Social Sciences (SPSS). The study's dependent variable is financial inclusion and there are around nine independent variables. Descriptive statistics such as percentage and frequency distribution were used to describe the socioeconomic and demographic of the respondents. In addition to the descriptive statistics, binary logistic regression was used to analyze or explain the factors influencing aggregate financial inclusion.

The logit model was used to identify and analyze determinants of the household probability of inclusion (Gitaharie et al., 2018). As a result, the logit model is to use in this study since the model has been widely used for the estimation of the choice model in most African countries and its advantages over other models. The previous studies employed the logit model to investigate the determinants of FI supported by the work of (Abel, 2018), (Timbula et al., 2019), (Zins & Weill, 2016), and (Teka et al., 2020). The mathematical formulation of the logit model is as follows:

$$Pi=\frac{1}{1+e^{-Y_i}}=\frac{e^{Y_i}}{1+e^{Y_i}}$$

Where P= the probability of participation for i^{th} household and it ranges from 0-1, e = represents the base of natural logarithms (i.e., 2.718…), Yi = is a function of n-explanatory variables which is also expressed as $Yi = \beta 0 + \beta i\, Xi + Ui$ where YI is the observed response for the household who is either formally financially included or not included. β0 = intercept, βi = regression coefficient to be estimated or logit parameter, Xi is a set of independent variables and U is a disturbance term.

The probability of exclusive is: $1 - Pi = \frac{e^{Y_i}}{1+e^{Y_i}}$

Therefore, the odds ratio can be written as: $\frac{Pi}{1-Pi} = \frac{1+e^{Y_i}}{1+e^{-Y_i}}$

Now "Pi" /"1 − Pi" is simply the odds ratio in favor of inclusive: the ratio of the probability that a household will inclusion to the probability that it is exclusive. The odds ratio implies the ratio of the probability (Pi) that a household would choose an alternative to the probability (1-Pi) that the household would not choose it.

Hence, the logit models: $\mathrm{Li} = \mathrm{In}\left\{\frac{\mathrm{pi}}{1-\mathrm{Pi}}\right\} = \mathrm{Yi}=\beta_0 + \beta_1 \mathrm{X} + U_t$

The model is then estimated using the maximum likelihood method. To analyze the relationship between FI and socioeconomic and demographic variables, the empirical model estimated is:

$$\mathrm{P}\left(\mathrm{FinInc} = \frac{1}{\mathrm{X}}\right) = \beta_0 + \beta_1 \mathrm{gend} + \beta_2 \mathrm{age} + \beta_3 \mathrm{edu} + \beta_4 \mathrm{inco} + \beta_5 \mathrm{dist} + \beta_6 \mathrm{doc} + \beta_7 \mathrm{trus} + \beta_8 \mathrm{awrn} + \beta_9 \mathrm{finl} + U_t$$

Where the dependent variable P (FinInc=1/X), is the probability that a household will seek formal financial services from formal Financial institutions given the vector of observable socio-demographic, economic, and institutional characteristics (Table, 1).

Table 1: Description of the Variables

Variable	Type	Description
Financial inclusion	Dummy	Household with at least one member(s) who have or use financial products and/or services in any of the Financial institutions which is a dummy variable indicating 1 for financial inclusion and 0 otherwise.
Gender	Dummy	The gender of the household head is male/female. female =0, male =1
Age	Continuous	It refers to the age of the household head at the time of data collection, measured in years.
Education	Continuous	The level of education attained by the household head (Level of education or response of 0-7, 0= no formal school, 1=some primary school, 2= complete primary school, 3=some secondary school, 4=complete secondary school, 5= technique or 10+1, 6 = diploma

and 7 = Degree and above).

Income	Continuous	It refers to the average monthly income of the household head, measured in Money.
Distance	Continuous	The distance to the nearest bank, post office, ATM, Mobile money agent or MFI, measured in terms of kilometers.
Documentatio n requirement	Dummy	The documents required by Financial institutions in offering their products and services to consumers like to open bank account. (Dummy variable with dichotomous response of 1 and 0, 0= yes (simple) and 1= No (difficult / not simple).
Trust	Dummy	The trust of the household heads in the formal financial services. (Dummy variable with dichotomous response of 1 and 0, 1= Trust and 0= otherwise)
Awareness	Continuous	It refers to the household heads level of awareness about the available financial products and services at the time of data collection. Represented by 0-8 point of scale
Financial Literacy	Continuous	It refers to the household head level of financially literate at the time of data collection. Represented by 7 questions 0-7 point of scale

Source: Developed from literature review, (2024)

2.4. Research Results

The 384 copies of questionnaires were prepared and presented to respondents in the six woredas. However, only 328 usable responses were obtained which is equivalent to an 85 per cent response rate. The result and analysis made afterwards are based on these 328 usable responses.

According to Patrick, B. (2003) the return or success rate 50% is adequate; 60% response rate is good and 70% rate or higher is very good‘. Therefore, the response rate is adequate for analysis and reporting with excellent response rate.

Table 2: Response rate

Questionnaires	Number	Percentage

Filled and collected	328	85.41%
Non-Responded	56	14.58%
Total	384	100%

Source: Own calculation, (2024)

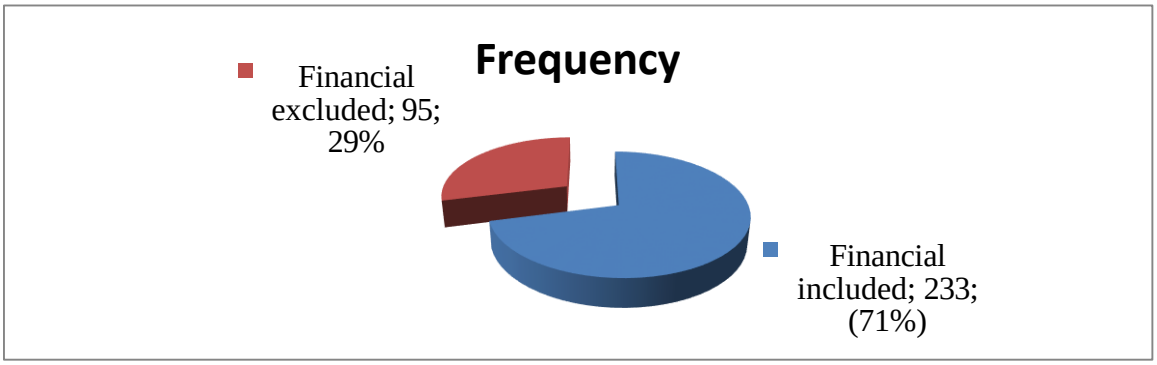
Descriptive results

In this section, results obtained using statistical tools such as percentage and frequency distributions are described and discussed. By using chi-square test the association between socio-economic factors and financial inclusion is analyzed.

Financial Inclusion

A household is said to be financially included if the person owns a formal account, otherwise, the person is financially excluded. As it can be seen, 29% of respondents are without a formal financial account, but 71% of respondents have a formal account, which is better than the results of the Ethiopian socio-economic survey in 2018/19, in which 45.9% of households Ethiopia have a bank account (ESS, 2018/19).

Table 3: Financial inclusion and exclusion



Source: Own calculation, (2024)

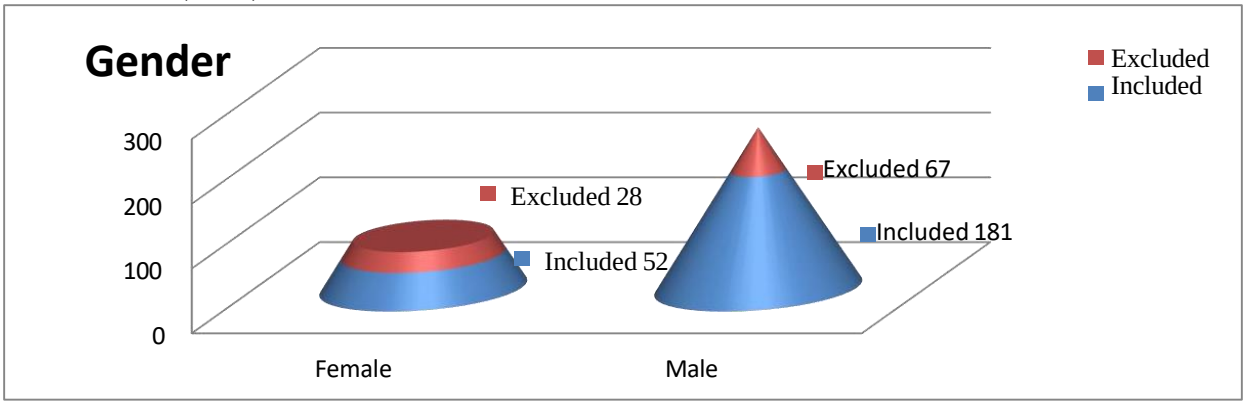
Demographic and Socioeconomic Characteristics Of Sample Households And Financial Inclusion

Gender of the Respondents

The data collected from a sample of 328 rural households are made up of 248 (75.61%) male respondents and 80 (24.39 %) were females. As far as the sex ratio of the household head is concerned, male-headed households are greater than female-headed households. Figure 2 shows the association between gender and the financial inclusion. Besides, about 73 per cent of respondents who are male- headed are financially included but only about 65 per cent of female-headed. This shows that the male-headed households were more financially included than the

female-headed households. The chi-square test of association between sex of household and financial inclusion is insignificant. The Pearson Chi- Square statistic is = 1.874 and p value is = .518, since p value is greater than 0.05. We can conclude that there is no association between the gender and financial inclusion.

Figure 2: Gender of the respondents
Source: SPSS, (2024)

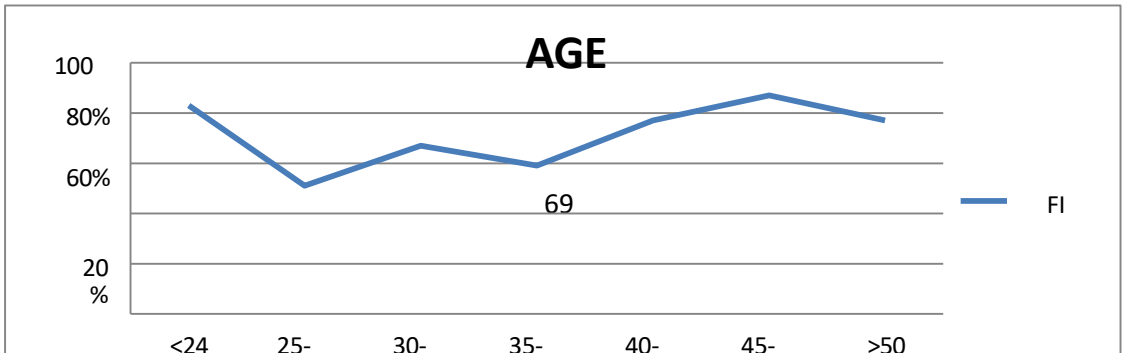


Age of the Respondents

Of the total respondents, 19.82% of them were above the age of 50, 17.38 % of the respondents were found in the age interval of 40-44, 15.55% of the respondents were found in the age interval of 25-29 and while 14.02% fall between the age of 30-34, 13.41% are placed between 35-39 years, 12.8 %fall between 20-24 years and 7 % are placed between 45-49 years.

Figure 4.2.3 shows the association between Age and financial inclusion. From financial inclusion, the majority of the financial included were from 40 to about 49 years of age, which they were more used financial services. Generally, about 87% when financial included from older age 45-49 age but only 51% are included from 25-29 ages. The Pearson Chi-Square statistic is = 21.136 and p value is = .002. The chi-square test of association of age and financial inclusion is significant at 5% level of significance. It is concluded that there is an association between the Age household heads of the respondents and financial inclusion. This shows that the older age households heads were more financial included than the younger age household heads.

Figure 3: Showing the association between age and financial inclusion



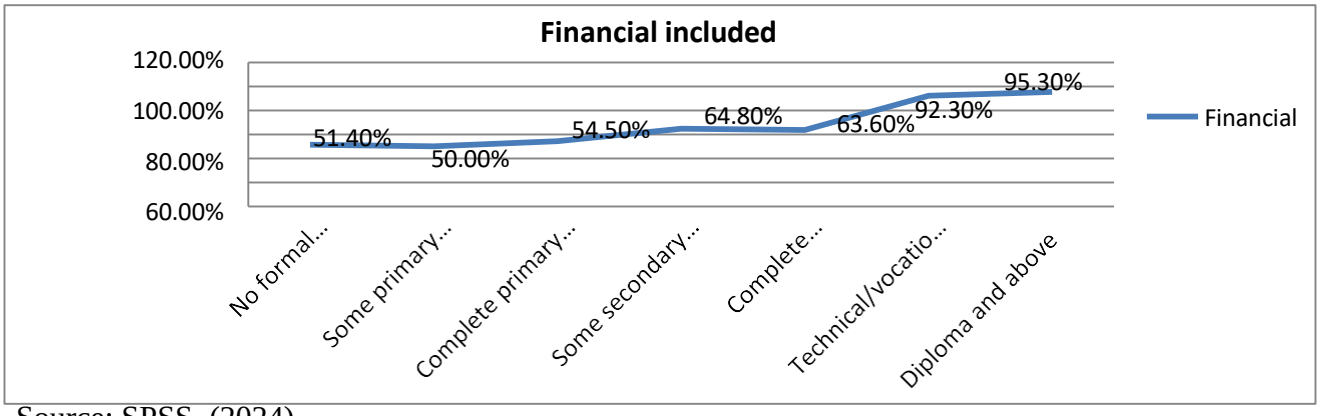
Source: SPSS, (2024)

Educational Background of the Respondents

Figure 3 shows the educational status of the respondents. The result from descriptive statistics as indicated below show that 21.65% of sample household heads were some secondary school graduate while 19.51%, 15.85%, 13.41%, 12.2 %, 10.67% and 6.71% of them have technical and vocational education, Diploma and above, completed secondary school, some primary school, no formal education, and complete primary school respectively.

Figure 4.2.5 also shows the association between Level of Education and financial inclusion. There is also a difference in financial inclusion rates between illiterate and literate households. The Pearson Chi-Square statistic is = 50.337 and p value is = .000, since p value is less than 0.05. The chi-square test of association level of education of the respondents and financial inclusion is significant. It is concluded that there is an association between the Level of Education household heads of the respondents and financial inclusion. The educated households were more financially included than the illiterate.

Figure 4: Association between education and financial inclusion



Source: SPSS, (2024)

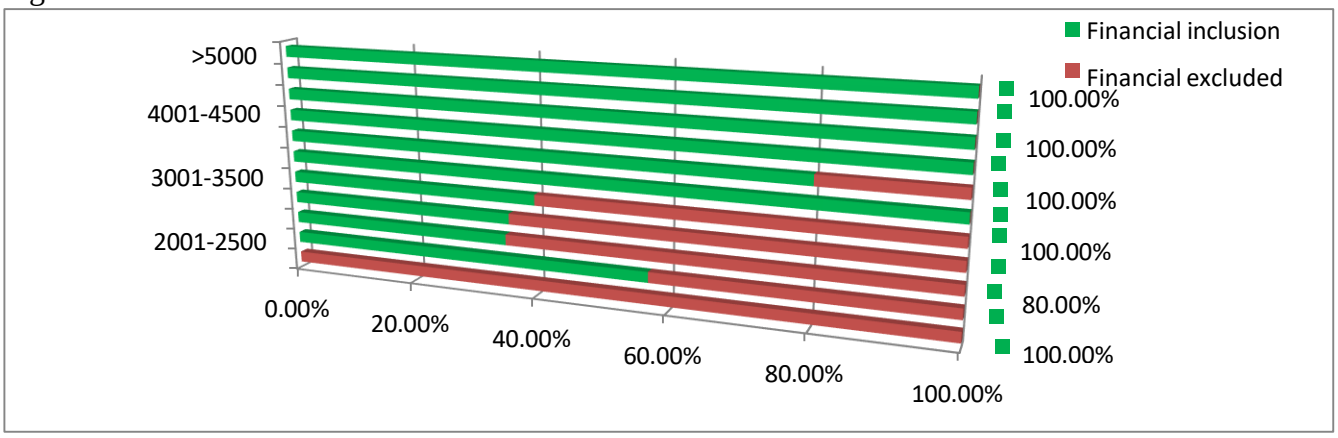
Average monthly income of respondent

Figure 4 shows the association between the income and the financial inclusion. Among the respondent household who earns more than 3000 ETB per month are supposed to have full inclusion

in financial activity, except for household that earns 3500-4000 ETB per month 80% has formal accounts with a financial institution. While whose monthly income lies between 5001-1,000 have 57% inclusion in financial activity whereas respondent who earns below 1000 ETB per month have 0% inclusion in financial activity.

Also the chi-square test of association of income and financial inclusion is significant at 5% level of significance with the Pearson Chi-Square statistic is = 179.692 and p value is = .000.It is concluded that there is an association between the income of households of the respondents and financial inclusion. That the high income households were more financial included than the low income households.

Figure 5: Income size and financial inclusion



Source: SPSS software, (2024)

3. Result of Regression Analysis

The goodness-of-fit model

The measurement model can be assessed by using various goodness fit indices of measuring the good/bad fit of the model. To estimate the model binary logistic regression analysis was used. A logistic regression model was chosen due to the dichotomy character of the dependent variable financial inclusion (0 = excluded, 1 = included).

Table 4 indicates the R-squared measures are an adequate fit for the model since both the Cox and Snell and Nagelkerke R-squared values are about 0.613 and 0.876, respectively, which is greater than 0.50, which means 87.6% of the model is explained by the independent variables collectively (the dependent variable, financial inclusion, is explained by Sex, Age, Level of Education, Income,

Distance, Documentation, Trust, Awareness, Financial literacy).

Table 4: Model summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	83.074	.613	.876

Source: SPSS software (2024)

Initially, Hosmer and Lemeshow's (1989) goodness of fit model is used to measure the model accuracy of binary data classification. The p-value of the test is 0.911, which is greater than 0.05 and, thus, found satisfactory to ascertain the model fit (Table 5).

Table 5: Hosmer and Lemeshow test

Step	Chi-square	Df	Sig.
1	3.345	8	.911

Source: SPSS, software (2024)

4. Results And Discussion

The main aim of this study is to investigate the determinants of financial inclusion. Besides this study fitted the binary logit model with financial inclusion as a dependent variable and Gender, age, educational level, income, distance, documentation trust, awareness and financial literacy as independent variables, the results are summarized in the following table: 6.

Table 6: Binary logistic regression estimation result

	B	S.E.	Wald	Df	Sig.	Exp(B)
Gender(Male)	.432	.722	.358	1	.550	1.541
Age of household heads	.083	.035	5.549	1	**.018**	1.087
Level of Education	.421	.194	4.705	1	**.030**	1.524
Monthly Income	1.020	.193	28.032	1	**.000**	2.774
Distance from financial institution	.049	.070	.489	1	.485	1.050
Documentation requirement	.143	.686	.043	1	.835	1.153
Trust	1.248	.898	1.929	1	.165	3.482
Awareness	.441	.154	8.256	1	**.004**	1.555
Financial literacy	1.731	.361	23.012	1	**.000**	5.647

Constant	-21.198	3.887	29.747	1	.000	.000

Source: SPSS software, (2024)

Generally out of all variables, five (5) of the variables were found to be significant at a 5% significant level, these variables were age, level of education, income, awareness and financial literacy, and the remaining four variables were not significant in explaining the variations in the dependent variable, these variables were the sex of the household head, documentation, distance, and trust.

Table 7: Summary of Hypotheses test results using binary logistic regression

Research Hypotheses	**Hypotheses Code**	**Result**
Gender has positive and significant effect on financial inclusion.	H1:	Rejected
Age has positive and significant effect on financial inclusion.	H 2:	**Accepted**
Educational level of the Household head has positive and significant effect on financial inclusion.	H 3:	**Accepted**
Income has positive and significant effect on financial inclusion.	H 4:	**Accepted**
Distance of financial institutions has negative and significant effect on financial inclusion.	H 5:	Rejected
The documentation requirement of financial institutions has negative and significant effect on financial inclusion.	H 6:	Rejected
Trust in financial institutions has positive and significant effect on financial inclusion.	H 7:	Rejected
Awareness about financial services and products has positive and significant effect on financial inclusion.	H 8:	**Accepted**
Financial literacy has positive and significant effect on financial inclusion.	H 9:	**Accepted**

Source: Researchers survey, (2024)

5. Conclusions

In this study, nine explanatory variables were hypothesized to explain the determinants of financial inclusion in a rural household in the study area. The finding indicates that gender, distance,

documentation, and trust are insignificant affect financial inclusion in West Wollega Zone. This stand to suggest that financial inclusion is peripheral in West Wollega Zone. Further results indicate that financial inclusion is driven by age, education, income, awareness, and financial literacy in a rural area of the Zone. Generally, the study concludes that age, education, income, awareness, and financial literacy are the determinants of financial inclusion in West Wollega Zone. This implies that an increase in any of these variables significantly increases the level of financial inclusion in the West Wollega Zone. This is also an important result of the paper for the policymakers to focus on. Based on this, the recommendations are as follows:

Promoting financial education has essential to increase financial inclusion in west Wollega Zone. An appropriate educational programme could be designed through the promotion of self-financing adult literacy classes, training and local media to increase awareness and knowledge of households on the service of formal financial institutions. Incorporating financial education into the general education can be considered for better financial literacy and inclusion. That the National Bank of Ethiopia would support design financial educational programme to increase awareness and knowledge of households. The financial institutions should provide sufficient information to the rural people of the Zone regarding the financial services provided and their benefits. For this reason, the role of the government and financial institution would play a significant role in increasing the financial inclusion.

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