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**Article**

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## FINANCIAL ECONOMICS | RESEARCH ARTICLE

# Determinants of financial inclusion in Afar Region: Evidence from selected woredas

Esmael Abdu<sup>1</sup> and Mohammd Adem<sup>1</sup>

**Abstract:** This paper examined the determinants of financial inclusion in Afar Region. To address the objectives of the study, two purposively selected woredas (Awash and Asaita) and one city administration (Samara-logia) were used. Three hundred and eighty-four sample households were selected for this study. Data collected from administered structured questionnaires were analyzed using the binary logistic regression model. The results show that age, use, financial literacy, and mobile banking are positively and significantly related to financial inclusion. On the other hand, barrier and income negatively and significantly affect financial inclusion. The study results reveal that 31.25% of households were included and 68.75% of households are excluded from formal financial services. Further results show that barriers to financial inclusion such as problem of access to credit, absence of collateral, interest rate, lack of literacy, lack of internet access, lack of trust for financial institutions, lack of money, problem of access to bank branches and ATMs are main obstacles of financial inclusion in Afar region. This study recommends that government and financial institutions should encourage financial service providers, offer fiscal incentives or request financial institutions and serve poor or low-income people. Financial institutions should adopt technologies that ensure financial services are more accessible such as mobile banking. Moreover, households should enhance the saving habits that are helpful to increase amount of income and the literacy level of their children for the best use of financial services.

**Subjects:** Economics; Finance; Business, Management and Accounting

**Keywords:** Afar region; financial inclusion; financial institution; logit regression



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### ABOUT THE AUTHOR

Mohammed Adem Ali is an Assistant Professor in the department of Economics at Samara University. He received his MSc in Agricultural Economics from Bahir-dar University. He has conducted several courses for Economics, Accounting, Statistics and Geology department students. His area of interest lies in conducting research on the status of food security, income diversification, production and marketing constraints of the agricultural sector, value and so on. He has around 8 publications as first and second author.

### PUBLIC INTEREST STATEMENT

Financial inclusion is the activity of making access to finance to all members of the community, particularly to the majority of disadvantaged and low-income groups, easy, available and usable. Financial institutions are powerful instruments against poverty. Access to financial services can help poor and low-income clients increase and stabilize their incomes, build assets, and invest in their own future. In Ethiopia the formal sources are financial institutions that are set up legally and engaged in the provision of credit and mobilization of savings.

## 1. Introduction

Financial inclusion is the activity of making access to finance for all members of the community, particularly to the majority of disadvantaged and low-income groups, easy, available and usable (Mandira, 2012; Goran et al., 2014). Financial inclusion can be defined as the process of ensuring access to financial services timely and adequate credit where needed by vulnerable groups such as weaker sections and low-income groups provided at affordable cost (Rangarajan, 2008). Rajan (2009), has pointed out that financial inclusion is not only about credit, but involves providing a wide range of financial services, including saving accounts, insurance, and remittance products. An exclusive focus on credit can lead to undesirable consequences such as over indebtedness and inefficient allocation of scarce resources. Mandira (2013) pointed out that an inclusive financial system can help in reducing the growth of informal sources of credit (such as money lenders), which are often found to be exploitative. Thus, an all-inclusive financial system enhances efficiency and welfare by providing avenues for secure and safe saving practices and by facilitating a whole range of efficient financial services.

In Ethiopia, the formal sources are financial institutions that are set up legally and engaged in the provision of credit and mobilization of savings. These institutions are regulated and controlled by the National Bank of Ethiopia (NBE). In the Ethiopian context, formal financial sector includes National Bank of Ethiopia (NBE), commercial banks (owned by private and public), Development Bank of Ethiopia (DBE), credit and savings cooperative, insurance companies (both public and private) and microfinance institutions (owned by regional governments, NGOs, associations and individuals) (National Bank of Ethiopia. (NBE)). According to Wolday (2004), the Ethiopian micro-finance industry has been growing in terms of its outreach as well as its asset and capital base. On the other hand, Aredo (2003) stated that non-formal sources in Ethiopia include relatives and friends, moneylenders, neighbors, Iddir, Eqqub and Mahaber are the major sources of loans include friends and relative's 66%, moneylender's 14%, and Iddir 7%.

Olaniyi and Babatunde (2016) found that per capita income, broad money in percent of GDP, literacy, internet access and Islamic banking presence and activity are significant factors explaining the level of financial inclusion in Africa. Mamudu (2013), conducted a study on the determinants of financial inclusion in Western Africa and found that only two in five adults are included in the formal financial sector of Ghana and that age of individuals, literacy levels, wealth class, distance to financial institutions, lack of documentation, lack of trust for formal financial institutions, money poverty and social networks as reflected in family relations are the significant determinants of financial inclusion in Ghana. Desalegn and Yemataw (2017) stated that better education, financial literacy, gender, age, living in an urban area, living in the capital city, and preference for formal financial services are associated with a greater level of financial inclusion in Ethiopia.

Financial inclusion plays an important role in the process of economic development. To expand financial facilities to all sections of population, it is necessary to identify factors that lead to financial exclusion, especially of the poorer section of population. This study seeks to examine factors that determine financial inclusion in the Afar Region of Ethiopia. In Ethiopia, the pastoral community plays a significant role in the socioeconomic growth of the country and overs about 12% of the population and 63% of the landmass (Federal Democratic Republic of Ethiopia (FDRE), 2013. Access to finance opens up opportunities for pastoralists to diversify their livelihood options by facilitating restocking livestock, purchasing inputs, establishing small livestock-related microenterprises, and considering other sedentary economic activities. However, formal financial institutions mostly exclude pastoralists from their services due to pastoralists' inability to afford collateral (Kassahun, 2017).

Afar region is one of the regions in Ethiopia which is based on pastoral and agro-pastoral community in which problems have prevalently existed at the moment related to financial inclusion. Problem of access to credit, lack of documentation, absence of collateral, interest rate, lack of literacy, lack of internet access, lack of trust for financial institutions, lack of money, problem of access to bank branches and ATMs, and lack of infrastructure are main problems of financial inclusion in Afar region.

Non-formal sources such as moneylenders, relatives and friends, neighbors, Eqqub and Iddir are the major sources of finance in the Region. Moreover, the Afar communities are Muslims and tend to avoid interest bearing based-financial services due to prohibition by Sharia law. This study is done in Afar Region for quite a few reasons. Firstly, there is no study conducted on factors affecting financial inclusion in Afar Region. Secondly, the researchers consider that financial inclusion has significant benefits for economic development nationally and worldwide. So, this study may solve problems of the community related to financial inclusion. Even if there is a good number of financial institutions available in Afar Region, the people do not adequately benefited from it. This implies that there is a gap to be included in formal financial services.

## 2. Literature review

### 2.1. Concepts and definitions related to financial inclusion

Financial inclusion is defined by the committee on financial inclusion under the chairmanship of Dr. C. Rangarajan as the process of ensuring access to financial services timely and adequate credit when needed by vulnerable groups such as the weaker sections and low-income groups at an affordable cost by mainstream financial institutions players.

Financial inclusion denotes delivery of financial services at an affordable cost to the vast sections of the disadvantaged and low-income groups. The various financial services include credit, savings, insurance and payments and remittance facilities. The objective of financial inclusion is to extend the scope of activities of the organized financial system to include within its ambit people with low incomes. An inclusive financial system is desirable for many reasons. First, it facilitates efficient allocation of productive resources. Second, access to appropriate financial services can significantly improve the day-to-day management of finances. And third, an all-inclusive financial system can help reduce the growth of informal sources of credit (such as moneylenders) which often tend to be exploitative. Thus, an all-inclusive financial system enhances efficiency and welfare by providing avenues for secure and safe saving practices and by facilitating a whole range of efficient financial services (Das, 2015).

The segment of the society not able to access timely credit and other financial services in appropriate form, from the formal sources are financially excluded creating a concern for the policy maker. Thus, the three important elements or dimensions of financial inclusion are having access to banking services, access to affordable & timely credit and access to financial literacy programmes that educates the people about a healthy financial life. Financial inclusion also defined as the delivery of banking services at affordable cost (Leeladhar, 2005). The financial services do not mean only banking products, but a host of other financial services like credit, insurance and other types of equity products (Rajan, 2009).

Inclusive growth is a prerequisite for sustainable development in an economy. Inclusive growth means easy, safe and affordable access to credit and other financial services by the poor, vulnerable groups, and lagging sectors which are acknowledged to be the drivers of economic growth and reducing disparities in income thus reducing poverty. The relationship between financial development and growth is accepted in various studies but there is lack of consensus on the direction of causality (Fitzgerald, 2006).

### 2.2. Empirical Literature

Several researchers have made various propositions and have defined financial inclusion from various perspectives, mostly on individual perspectives and experiences.

Siddik et al. (2016) studied the determinants of financial inclusion in Bangladesh using multi-dimensional index. The study established that rural population, household size, and literacy rate were significant variables among the socio-geographic variables. The infrastructure variables which were found to be significant in determining financial inclusion paved road networks and

internet. The deposit penetration in the banking sector was found to be the significant determinants of financial inclusion.

Zibei and Jin (2017) found that formal credit use is very low. Individuals oftentimes use informal credit. Formal credit is more accessible to socially and economically more advantaged individuals. The poor and the disadvantaged have limited access and use formal credits. The main impediments are an insufficient supply of bank credit in financial markets and households' low financial literacy, particularly low levels of knowledge about formal borrowing.

Mamudu (2013) conducted a study on the determinants of financial inclusion in Western Africa: insights from Ghana. The results show that only two in five adults are included in the formal financial sector of Ghana. Age of individuals, literacy levels, wealth class, distance to financial institutions, lack of documentation, lack of trust for formal financial institutions, money poverty and social networks as reflected in family relations are the significant determinants of financial inclusion in Ghana. The implication of this for policy is that there is the need for governments in Western Africa, particularly Ghana, and their development partners to formulate a holistic financial framework that seeks to mitigate the negative determinants of financial inclusion and sustained the positive ones. It is recommended that such a policy framework should be politically neutral, economically viable, gender sensitive, socially stable and financially feasible so as to make it sustainable.

Desalegn and Yemataw (2017) conducted a study on Financial Inclusion in Ethiopia. The result shows that better education, financial literacy, gender, age, living in an urban area, living in the capital city, and preference for formal financial services are associated with a greater level of financial inclusion in Ethiopia. Furthermore, the study found that involuntary and voluntary exclusions are higher in Ethiopia. Researchers recommend policies that could narrow down gender, religious, and urban-rural gaps and foster financial inclusion in Ethiopia.

Mekuanint et al. (2019) did study on financial inclusion and its determinants among households in Jimma zone of Oromia regional state, Ethiopia. According to the result age, education, financial literacy, and income are positively related to financial inclusion and distance to the nearest provider of financial services negatively impact financial inclusion. It is possible to reduce determinants of financial inclusion by regulating the financial system, creating healthy competition and building better enabling environment. Identifying and segregating the root causes and addressing it appears to be removing the distance, services charge, and credit barriers. On the other hand, the market for financial services failures and behavioural problems related to customer tends to be addressed through designing of appropriate financial products. Removing those challenges and expanding financial inclusion tend to be possible with the promise of the latest technologies.

Andualem and Sambasiva Rao (2017) did a study on financial inclusion in Ethiopia and found that in Ethiopia 33.86% of adults have an account at formal financial institution in the year 2016. They use their account to keep money safe, send and receive payments, and to get credit services and foreign exchange services. Using the data on the supply side of financial inclusion in Ethiopia as of December 2015, they found that the branch per capita and branch density of 5.54 and 3.09 respectively. Additionally, barriers to financial inclusion such as lack of money, distance, fixed cost, and documentations are important obstacles in Ethiopia.

Getnet (2014), conducted on financial inclusion, regulation and inclusive growth in Ethiopia. According to her result despite huge progress in the last ten years, financial inclusion is still very low. One of the major problems in enhancing financial inclusion is lack of physical access. Recently, the NBE has discouraged more financial institutions to join the financial sector by raising the paid-in capital for both commercial banks and MFIs. In addition, access to the existing banks has also worsened by the recent financial regulation that led banks to operate through extremely conservative lending policy, though this policy may reduce future NPLs for banks, which is very positive.

### 3. Methodology

#### 3.1. Description of the study area

Afar is located in eastern part of Ethiopia. The region has common boundaries with the state of Eritrea in the north-east, with Tigray in the north-west, with Amhara in the south-west, with Oromia in the south, with the state of Somalia in the south-east and with the republic of Djibouti in the east. Based on the 2007 census conducted by the Central Statistical Agency of Ethiopia (CSA), the Afar Regional State has a population of 1,390,273. The study was conducted in two Woredas (Awash and Assaita) and one city administrations (Samara-logia).

#### 3.2. Sample size and sampling technique

This study was used two-stage sampling techniques. In the first stage, from 34 woredas, two woredas (Awash and Assaita) and one city administrations (Samara-logia) were selected purposively because of the differences in financial institutions found in the woredas. In the second stage households were selected randomly from each woredas.

In order to determine the sample from households the following formula given by Cochran was adopted.

Cochran (1977) developed a formula to calculate a representative sample as:  $n_0 = \frac{z^2 pq}{e^2}$

Where;  $n_0$  = is the sample size,  $z$  = is the selected critical value of desired confidence level,  $p$  = is the estimated proportion of an attribute that is present in the population,  $q = p - 1$  and  $e$  = is the desired level of precision Assuming the maximum variability, which is equal to 50% ( $p = 0.5$ ) and taking 95% confidence level with  $\pm 5\%$  precision, the calculation for required sample size were as follows:

$p = 0.5$  and hence  $q = 1 - 0.5 = 0.5$ ;  $e = 0.05$ ;  $z = 1.96$

Therefore; Sample,  $n_0 = \frac{(1.96)^2 (0.5) (0.5)}{(0.05)^2} = 384$

#### 3.3. Sources and methods of data collection

The study was used as both primary and secondary source of data. Primary data were collected through observations and questionnaires. Secondary data were collected from published and unpublished materials. Questionnaires were administered on the sampled financial institutions and households.

#### 3.4. Methods of data analysis

Both descriptive and inferential statistics were used. In addition to this binary logistic regression was used to analyze the determinants of financial inclusion.

#### 3.5. Model specification

The dependent variable used in this study is financial inclusion. Let, the probability that an individual is being included formal financial service can be written as

$$P_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + U_i$$

Where,  $P_i$  = the probability of an  $i^{\text{th}}$  household is being included formal financial services,  $X_i$  is the independent variable and  $Y = 1$  means that the individual is being included and  $y = 0$  the individual is being excluded.

Where:  $\beta_0$  = Constant,  $\beta_i$  = Coefficient of explanatory variable,  $X_1$  = age,  $X_2$  = religion,  $X_3$  = use,  $X_4$  = barriers,  $X_5$  = credit,  $X_6$  = income,  $X_7$  = documentation,  $X_8$  = financial literacy,  $X_9$  = mobile banking, and  $U_i$  = error term.

## 4. Results and discussion of findings

### 4.1. Socio-economic Characteristics of Households across financial inclusion

From Table 1, 226 of the respondents were male-headed households and 158 were female-headed households. As far as sex ratio of the household head is concerned, male-headed households are greater than female-headed households. Of financial included households, 58.7% were male-headed, and 41.3% were female-headed. Similarly, within financial excluded households 59.2% and 40.8% were male and female-headed respectively. The chi-square test of association between sex of household and financial inclusion is significant at 1 percent level of significance. Regarding their marital status, 63.5% of sample households were married, 29.2% were single while 4.4% and 2.9% were divorced and widowed respectively. From financial included households, 65.2% were married, 28.8% were single while 3.4% and 2.7% were divorced and widowed respectively. Similarly, within financial excluded households, 60% were married, 30% were single while 6.7% and 3.3% were divorced and widowed respectively. The chi-square test of association between marital status of household head and financial inclusion is insignificant. Regarding their religion 58.3% were Muslim, 26.0% were Orthodox, 10.7% and 4.9% were protestant and catholic followers respectively. Of the financials included households, 56.4% were Muslim, 27.7% were orthodox while 11.4% and 4.5% were protestant and catholic religion followers respectively. Similarly, within financial excluded households, 62.5% were Muslim, 22.5% were orthodox while 9.2% and 5.8% were protestant and catholic followers respectively. The chi-square test of association of religion and financial inclusion is insignificant.

From our sample respondents, 39.58% of household have a bank account and 60.42% do not have bank accounts in CBE. From financial included households, 50.0% have a bank account and 50.0% have not a bank account. Similarly, from financial excluded households 16.7% and 83.3% were with bank account and without bank account respectively. The chi-square test of association of usage of financial service and financial inclusion is significant at 1% level of significance. Regarding barriers out of sampled respondents 47.40% of households replied there is barrier in getting access to financial services and 52.60% of households were without barrier. Of financial included households, 55.3% were with barrier and 44.7% without barrier to financial services. Similarly, from financial excluded households 30% and 70% with and without barrier respectively. The chi-square test of association of barrier and financial inclusion is significant at 1% level of significance. From our sampled households, 34.11% of households received credit from lending institutions while 65.89% have not received credit. Of financial included households, 36.0% got credit and 64.0% did not get credit from credit lending institutions. Additionally, from excluded households, 30% received credit and 70% did not receive credit. The chi-square test of association of credit and financial inclusion is insignificant.

Regarding income of households, 65.89% did not have enough source of income to their family, only 34.11% of households have enough income to support their family. From those financial included households 43.6% have enough income and 56.4% have not enough income. At same time, from excluded households, 13.3% have enough income and the remaining, 86.7% have not enough income to assist their family. The chi-square test indicates that income affect financial inclusion status significantly at 1% level of significance.

From our respondents, 79.17% of households provided appropriate documentation and the remaining 20.83% could not provide appropriate documentation required by lending institution in receiving loans. From financial included households, 76.5% have sufficient documentation but remaining 23.5% did not have sufficient documentation that is enough to be required by the lending institution. Similarly, from excluded households, 15.0% provided documentation and 85.0% could not provide the required documentation. The chi-square test of association of documentation and financial inclusion is significant at 5 percent level of significance. On average 74.48% households have full information on financial services and 25.52% have no enough information. From financial included households 69.7%, have sufficient information and 30.3% did not have sufficient information on financial services.



**Table 1. Descriptive statistics of categorical variables across financial inclusion**

Variables	Variable description	Financial inclusion status				Total household (n = 384)		Chi-square value
		included (264)		excluded (120)		Freq.	%	
		Freq.	%	Freq.	%			
<b>SEX</b>	Male	155	58.7%	71	59.2%	226	58.9%	0.0070
	Female	109	41.3%	49	40.8%	158	41.1%	
<b>MARITALSTATUS</b>	Married	172	65.2%	72	60.0%	244	63.5%	2.4975
	Single	76	28.8%	36	30.0%	112	29.2%	
	Divorced	9	3.4%	8	6.7%	17	4.4%	
	Widowed	7	2.7%	4	3.3%	11	2.9%	
<b>RELIGION</b>	Muslim	149	56.4%	75	62.5%	224	58.3%	2.0097
	Orthodox	73	27.7%	27	22.5%	100	26.0%	
	Protestant	30	11.4%	11	9.2%	41	10.7%	
	Catholic	12	4.5%	7	5.8%	19	4.9%	
<b>USE</b>	Yes	132	50.0%	20	83.3%	252	39.6%	38.3303***
	No	132	50.0%	100	16.7%	232	60.4%	
<b>BARRIER</b>	Yes	146	53.3%	36	30%	182	47.4%	21.1855***
	No	118	44.7%	84	70%	202	52.6%	
<b>CREDIT</b>	Yes	95	36.0%	36	30%	131	34.1%	1.3147
	No	169	64.0%	84	70%	253	65.9%	
<b>INCOME</b>	Yes	115	43.6%	16	13.3%	131	34.1%	33.53369***
	No	149	56.4%	104	86.7%	253	65.9%	
<b>DOCUMENTATION</b>	Yes	202	76.5%	18	86.4%	220	57.3%	3.6011**
	No	62	23.5%	102	15%	164	42.7%	
<b>FINANCIAL LITERACY</b>	Yes	184	69.7%	18	85%	202	52.7%	10.1643***
	No	80	30.3%	102	85%	182	47.3%	
<b>MOBILE BANKING</b>	Yes	147	55.7%	89	74.1%	236	61.5%	11.9008***
	No	117	44.3%	31	25.9%	148	38.5%	

Note: \*\*\*, \*\* and \* Significant at P < 0.01, 0.05 and p < 0.1 Source: Survey result, 2020

Similarly, from excluded households 15.0% have enough information 85.0% have not enough information. The chi-square test of association of financial literacy and financial inclusion is significant at 1% level of significance. Regarding mobile banking, 61.46% of households were used mobile banking at CBE and 38.54% do not mobile banking system. From financial included households, 55.7% used mobile banking and 44.3% did not use mobile banking. Additionally, from financial excluded households 25.8% used mobile banking and 74.2% were not used. The chi-square test of association of mobile banking and financial inclusion is significant at 1% level of significance.

Table 2 shows that the mean age of the sample household heads was 44.04 with a standard deviation of 10.16. The maximum age observed was 68 while the minimum was 24 years. The mean age of financial included households was 47.69 years, and that of financial excluded households was 35.40 years. The study results show that there is a significant difference between financial included and financial excluded households based on average age with t-value at 1% level of significance.

Regarding educational status, the maximum and the minimum educational level were 17 and 0 respectively. The mean values of educational status for financial included households were 7.13 while financial excluded households were 5.27. The average educational level for the surveyed households was 6.57 with a standard deviation of 3.97. The study results reveal that there is a significance difference between financial included and financial excluded households based on educational status with t-value at 1% level of significance.

The maximum and the minimum family size were 14 and 1 respectively. The mean household family sizes for financial included households were 4.51 while for financial excluded were 3.97. The average household size for the surveyed households was 4.35 with a standard deviation of 2. The study results show that there is a significance difference between financial included and financial excluded households based on average family size with t-value at 5% level of significance.

## 5. Determinants of financial inclusion

The regression analysis method adopted is binary logistic regression, which allowed the identification of the effect of each of the selected predictor variables on financial inclusion for the effects of another predictor variable. Accordingly, variables assumed to have influenced financial inclusion in different contexts were tested in the model and six out of nine variables were found to be significant. Among variables fitted into the model are age of household head, use, barrier, income, financial literacy and mobile banking. The remaining religion, credit and documentation were insignificant.

**Age of household head:** The results show that age of household head has a significantly positive relationship with financial inclusion at 1% level of significance. The probability of households being included in financial services increases by a factor of approximately 1.19 as the age of a household head increases by one year keeping the other variables constant. This implies that financial inclusion increases with age until it reaches a certain age beyond, which it starts to decrease. As peoples ages increase, they become knowledgeable about the various financial services and start using them till they reach a certain age maybe towards retirement where they stop having interest. Additionally, youths are less likely to have a savings account than adults and less likely to save in a formal financial institution. Youths are often excluded from access to formal financial services. Reasons include legal restrictions, and negative stereotypes about youth. This result is supported by the findings of (Sanderson et al. (2018); Peña et al. (2014).

**Use:** The results show that there is a positive relationship between usage and financial inclusion at 1% significance level. The positive sign of the coefficient indicates that when number of customers who open bank account increase by one unit, the probability of a household being financially included, and increase by odds ratio of approximately 5.4. This also implies households who have

**Table 2. Descriptive statistics of continuous variables across financial inclusion**

Variables	Variable descriptions	Financial included households		Financial excluded households		T-value
		Mean	Std. Dev.	Mean	Std. Dev.	
AGE	Age of household head	47.69	7.64	35.40	10.20	0.000***
EDUCATIO	Educational status	7.13	3.82	5.27	4.03	0.000***
FAMILYsiz	Family size (number)	4.51	2.04	3.97	1.87	0.018**

Note: \*\*\*and\*\*Significant at P < 0.01 and 0.05 Source: Survey result, 2020

bank account are more included in formal financial services and households who do not have are less likely to be included in the formal financial services. Opening of bank accounts for those that have never had one, and allowing people to send and receive money easily. Additionally, the households who have basic bank account mostly withdraw his/her money at the bank teller rather than other payment alternatives. The result is accepted and agrees with the prior hypothesis.

**Barrier:** This variable affects financial inclusion negatively and significantly at 1 percent probability level. The negative relationship indicates that lack of access to financial services leads to financial exclusion. The log-odd ratio implies that the probability of being financially included decreases by approximately 0.34 as barrier occurs in financial services. Lack of documentation, absence of collateral, interest rate, and lack of literacy are some of the constraints in getting financial products/services. Households with lack of access to financial services such as a basic bank account have also been identified as a major limitation to smoothing consumption and investing in the education of their children. The main barriers to bank account use are lack of money and lack of access to information and advice. The result is same with Allen et al. (2012).

**Income:** The survey results show a negative relation between income of households and financial inclusion and the coefficient is significant at 1% probability level. As income of households increases by one unit the probability of a household being financially included decreases by approximately 0.06. This negative relationship indicates that people who did not have enough money are more likely to be included in the formal financial services than those who do have. This is particularly so because people go to financial institutions to get loan/credit and then can open bank account to save in to bank his/her income generating from loan. The results also reveal that most of the household's income is irregular and less than 3,000 birr per month.

**Financial literacy:** financial literacy had a significantly positive impact on financial inclusion at 10% level of significance. The positive sign of the coefficient indicates that when financial literacy increases by one unit, the probability of a household to being financially included, increase by a factor of approximately 2.40 (Table 3). This implies that people who are literate are more likely to be included in the formal financial service than their illiterate counterparts. The results also reveal that financial literacy is foremost element for settling on sound monetary choices. Financial literacy shows the knowledge and skill sets in reading the financial products/services. Hence, it means those people who are financially literate are able to understand the advantages and disadvantages of the various financial services and ensures that the poorer to make the best use of their money. The results are supported by other prior studies (Sanderson et al., 2018; Lusardi & Mitchell, 2007; Shawn et al., 2009).

**Mobile banking:** The results show that mobile banking has a significantly positive relationship with financial inclusion at 1% significance level. This implies that when usage of mobile banking increase by one unit, the probability of a household to being financially included, increase by odds ratio of 4.21 (Table 3). Most of households with lack of awareness about mobile banking systems are one of the results of the study and some of the households expect that mobile banking will not ensure the confidentiality of the service. Hence mobile banking and payment technologies reduce the cost of providing financial services. This reduction in transaction costs is especially significant in low population densities and low per capital income areas. The result is accepted and agrees with the previous hypothesis.

Number of obs = 384, LR  $\chi^2$  (9) = 235.08, Prob >  $\chi^2$  = 0.000, Log likelihood = -120.95, Pseudo  $R^2$  = 0.49, \*\*\*, \*\*, and \* indicates statistically significant at 1%, 5% and 10% respectively.

## 6. Conclusion

Financial institutions are powerful instruments against poverty. Access to financial services can help poor and low-income clients increase and stabilize their incomes, build assets, and invest in

**Table 3. Binary logit result on factors affecting financial inclusion**

F.inclusion	Odds Ratio	Coef.	Std. Err.	Z	P > z
Age	1.193	0.177***	0.025	8.26	0.000
Religion	1.370	0.314	0.264	1.63	0.103
Use	5.400	1.686***	2.184	4.17	0.000
Barrier	0.346	-1.060***	0.138	-2.64	0.008
Credit	1.517	0.416	0.611	1.03	0.301
Income	0.067	-2.697***	0.032	-5.67	0.000
Documentation	0.569	-0.562	0.303	-1.06	0.290
F.literacy	2.403	0.876*	1.241	1.70	0.090
M.banking	4.213	1.438***	1.539	3.94	0.000
Cons	0.002	-5.955	0.004	-3.85	0.000

their own future. The study result reveals that 31.25% are included and 68.75% of households are excluded from formal financial services. Therefore, majority of households in the region were excluded from formal financial services.

The logit model was employed to answer the question “What are the various factors that affect financial inclusion in the region?” In line with the objective, the study has established that financial inclusion is driven by age, use, barrier, income, financial literacy, and mobile banking. Of these results age, use, financial literacy and mobile banking are positively and significantly related to financial inclusion. This implies that an increase in any of these variables significantly increases the level of financial inclusion in the region. On the other hand, barrier and income related negatively and significantly to financial inclusion. This means that those reduce the chances of people being financial included. The problem of access to credit, lack of documentation, absence of collateral, interest rate, lack of literacy, lack of internet access, lack of trust for financial institutions, lack of money, problem of access to bank branches and ATMs are the main obstacles for financial inclusion. In order to overcome these problems taking any possible actions to rectify the problems and continuous assessment of employees and management body of the institution and household status is the way to improve/increase the household status and being included in formal financial service.

### 7.1. Recommendation

Possible recommendations forwarded for a better financial inclusion in Afar Region are as follows.

(i) Government’s most constructive role is to foster an environment that allows a diverse set of financial service providers to flourish and compete. Government should offer fiscal incentives or request financial institutions to serve poor or low-income people.

(ii) Households should enhance the saving habits that are helpful to increase amount of income and the literacy level of their children for the best use of financial services.

(iii) The problem of access to credit has adversely affected inclusive growth and employment creation through limiting aggregate productivity growth and capacity utilization. So, the institution should provide access to finance especially to microfinance institutions and banks to enhance the capacity availability of money to the community. The institutions should provide credit to the peoples of the region through lowering interest rate.

(iv) Financial institutions should provide sufficient information to the peoples of the region regarding the financial services provided. It is necessary for people to be aware of the benefits of having access to financial systems, and to understand the consequences of financial exclusion.

(v) Policymakers should provide maximum control to youth within the legal and regulatory framework, minimize age and identity restrictions to increase financial capabilities of youth, effectively manage financial services and develop the saving habits of youth.

(vi) To enhance financial inclusion initiative all stockholders should have to work together to create better business ideas which not only serves the need of the current economy but also it should build foundation for future financial inclusion plans.

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