

Research Article

# Logistic Analysis on Financial Literacy and Its Determinants: An Empirical Evidence from Maichew Town of Tigray, Ethiopia

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## Abstract

Financial literacy is increasingly recognized as a crucial factor for individual and societal well-being. This study investigates the determinants of financial literacy within a unique financial and economic context, focusing on civil servants in Maichew Town, Tigray. A mixed-methods approach was employed, combining quantitative and qualitative data collected through a self-administered questionnaire distributed to a random sample of 271 civil servants. The study employed a binary logistic regression model to examine the relationship between financial literacy, measured as a binary outcome, and a range of socio-demographic and economic variables. These variables included age, gender, income level, work experience, marital status, field of study, access to financial news, and the number of dependents in the household. The findings reveal that gender, field of study, access to financial news, and the presence of dependents significantly influence the financial literacy levels of the respondents. Notably, female civil servants, those with a background in fields related to finance and economics, individuals with access to financial news, and those with dependents demonstrated higher levels of financial literacy. Conversely, age, work experience, marital status, education level, and income level did not exhibit a statistically significant relationship with financial literacy. This study contributes valuable insights into the factors shaping financial literacy among civil servants in a specific Ethiopian context. The findings underscore the importance of targeted interventions and financial education programs that address the unique needs of different demographic groups, particularly women and those in professions not directly related to finance. By enhancing financial literacy, policymakers and educators can empower individuals to make informed financial decisions, ultimately fostering greater economic stability and well-being.

## Keywords

Financial Literacy, Determinants, Logistic Analysis, Civil Servants, Maichew, Tigray

## 1. Introduction

Following the imperious developments in technology, financial markets are rapidly changing with interminably new financial innovations and more complex financial products. Unlike what it has been in the past, currently, the range of

financial products people have to choose from is enormous. Correspondingly, the implications of decisions relating to those financial products for individuals' wellbeing are greater today than ever before [5]. To this end, therefore, it would be

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of paramount importance to investigate the knowledgeability and informed decision-making ability of individuals. The term Financial Literacy connotes various meanings to different people. The concept is evolving in different aspects over time and across spaces. Some authors state it as a broad concept comprising of understanding of economics and, how economic conditions and circumstances affect decisions made by households, while others narrowly understand it as merely concerned with money management; budgeting, saving, investing, and insuring [2]. These divergences in defining financial literacy, bestowed with its newness [31], beckoned difficulties in precisely establishing and measuring the construct.

Leaving the arguments over the concept aside, however, researchers and organizations have tried to offer some conceptual definitions pertaining to financial literacy in a manner that enhances comparability and consistency across evidence bases [4]. In view of that, the President's Advisory Council on Financial Literacy outlines financial literacy as the *"ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being"* [8]. Sanjib [70] also defined financial literacy in short as possession of knowledge and understanding about one's own financial affairs.

Financial literacy, as a research area, is a new rapidly evolving body of knowledge under the spectrum of financial economics. Although the history of people's concern over their financial affairs traces itself back to ancient times, it was not until the 21<sup>st</sup> century that the issue of financial literacy gained researchers' attention [40]. Since recent years, as stated by Harsha [19], it has begun to be a prominent agenda for academicians, business practitioners, government agencies, societal organizations, and policymakers, across the globe. This contemporary involvement in financial literacy can be attributed to the fact that financial institutions are becoming innovative with financial products and services which are complex for their beneficiaries [17, 36]. Moreover, the recent financial crisis also signaled a need to investigate the financial literacy of consumers [41].

Largely convinced by its significance for individual and societal wellbeing and in pursuit of new knowledge in finance, scholars have now started to place an emphasis on financial literacy. Few studies [40, 19, 80, 60, 36, 64, 5] have been undertaken in the past few years. On top of that, most of the previous research works have disappointingly reported low levels of basic financial literacy even in developed Anglo-Saxon countries [12]. Thus, the issue what is really contributing for this low level of financial literacy? Remains as highly baffling as it is. This study was, therefore, designed to examine financial literacy and its determinants in a completely under-explored financial-economic setting, Ethiopia. *Here it should be noted that a preliminary draft of this research has been published as preprint for the mere purpose of collecting academic feedback on the subject matter.*

## 1.1. Problem Statement

The fact that individuals are not rational decision-makers, is the heart of behavioral finance. In other words, behaviorists in the field of finance are convinced by the existence of pertinent psychological factors in financial decisions. As stated by Edwin & Sunit [16], they propose some modifications in finance predictions to account for how people actually behave in economic situations.

Many academicians and practitioners residing in the standard finance camp, however, are yet to apprehend the effect of human emotions and cognitive errors on the decision-making behavior of individuals [50]. For these reasons, researches in behavioral finance are scarce. The financial literature has, for long, been narrowly concerned on the standard finance topics, to the neglect of behavioral finance [16, 76]. Thus, the existing gap in behavioral finance literature reveals a need for further investigations on the issue.

Individuals have to possess better financial literacy during their lifetime [60], so as to make an informed judgment on various financial decisions relating to borrowing, investing, and retirement planning [80]. Of course, in an attempt to appreciate the vital importance of financial literacy and following the emerging complexity in the financial system, which entailed difficulty for consumers, researchers and policymakers started to thematize financial literacy at the forefront of finance literature [6, 78]. Besides, the recent financial crisis is believed to have contributed for financial literacy to appear as global concern [64]. The findings in the extant literature are also mixed, primarily due to, the lack of common conceptual definition [25].

Enhancing financial literacy is especially of paramount importance to developing countries as it is helpful in enhancing an inclusive financial growth and a key for achieving other poverty reduction initiatives [45]. Nevertheless, as can be evidenced from the preliminary studies [7, 37, 39, 45], the inquiries on financial literacy are confined to the developed economy settings, specifically in USA and European Union member countries. Only a few researches [9, 25, 28, 71], have been conducted in underdeveloped economies. Thus, there is also a literature availability gap in the developing economies, to which Ethiopia belongs.

Besides, as per the knowledge and access of the researcher, only just the studies by [79, 10, 47, 18, 34] have been conducted to date to investigate the issue of financial literacy in Ethiopia. On top of this, all these researches, with the exception of [18], simply strained to assess the implications of the levels of financial literacy on personal financial management, with no regard to its determinants. Hence, alike the other developing economies, there exists a huge gap in establishing financial knowledge insights in the Ethiopian financial system. Induced by the aforementioned gaps, therefore, this study tries to assess the levels and determinants of financial literacy in the Maichew town of Tigray region, Ethiopia.

## 1.2. Objectives of the Study

The general objective of this study is to determine the level and determinants of financial literacy of civil servants in Maichew town. While attempting to achieve the general objective, the study also sought to accomplish the following specific objectives.

- 1) To assess the financial literacy level of the students.
- 2) To examine the effect of gender on financial literacy.
- 3) To assess the influence of Age on financial literacy.
- 4) To determine the effect of income level on financial literacy.
- 5) To know the bearing of educational level on financial literacy.
- 6) To assess the effect of access to financial news on financial literacy level.
- 7) To examine the effect of having dependent families on financial literacy level.
- 8) To examine the effect of the field of study on financial literacy.

## 1.3. Research Hypothesis

On the basis of the extant literature [15, 9, 12, 41, 37-38] and [27, 80], this study has developed the following testable hypotheses:

- 1)  $H_1$ : The level of financial literacy of the respondents is low.
- 2)  $H_2$ : Females have statistically significant low financial literacy than males.
- 3)  $H_3$ : Older individuals are more financially literate than younger ones.
- 4)  $H_4$ : Individuals with high income level are more financially literate than those with low income level.
- 5)  $H_5$ : individuals with High Education level are better financially literate than those with low education level.
- 6)  $H_6$ : Work experience of respondents has a positive significant effect on their financial literacy.
- 7)  $H_7$ : Individuals with conjugal marital status are better financially literate than those who are single.
- 8)  $H_8$ : Individuals who have access to financial news are more financially literate than those who have not access to financial news.
- 9)  $H_9$ : Those who specialized in Business and Economics are more financially literate than those who are non-business and economics majors.
- 10)  $H_{10}$ : Those who have dependents in household are more financially literate than those who have no dependents.

## 1.4. Scope of the Study

The scope of this study was delimited to determining the level and determinants of financial literacy of civil servants in Maichew town. The reason for selecting Maichew town

was two-fold. The first reason was that, the town is center for the southern zonal administration of Tigray and people from across different surrounding areas live here. The second reason is that, the researcher is a full-time staff at the Accounting and Finance department of Raya University, Maichew, and therefore, is mandated to impart financial knowledges and skills to the University's local community. Thus, this study attempted to shade a light on financial literacy of Ethiopian educators by taking Raya University.

## 1.5. Significance of the Study

This study is expected to contribute a great deal of importance, both for practical policy making aspect and theoretical aspect. In the practical aspect, this study will be a helpful input for policy makers who are in a position and disposition to establish an all-inclusive financial innovation. Besides, this would be important to financial institutions operating in Ethiopia and competing to attract customers with a tailored made financial innovations.

This study will also be an important contribution to the behavioral finance literature by shading a light into the financial literacy of an almost undiscovered financial system setting. As to the best attempt of the researcher, there is no any research conducted on the issue of financial literacy. This could, in fact, be considered as a major drop back of financial literature to establish a fairly typifying insight of financial decision making on different economic settings. Thus, this study is expected to provide empirical evidence to the financial literacy literature.

## 2. Literature Review

### 2.1. Defining and Measuring Financial Literacy

The concept of financial literacy is new for academics and scholars are yet to arrive at consensus [25]. Individuals and organizations who initiated research on financial literacy insisted using their own definition and measurement [68]. Hence, the way it is defined in the literature greatly varies from study to study [66]. Even a glimpse look in several preliminary studies would substantiate the assertion that the concept of financial literacy seriously lacks a precise definition.

Several conceptual definitions, each with differing dimension of financial literacy, have been documented by those previous researches [58]. Nonetheless, having an established definition is central to ensure comparability and relative consistency across findings of studies [61]. Besides, devising a single standard definition and common view on its components are very fundamental to construct a standard measurement of financial literacy [55]. In light of this, therefore, the term financial literacy could be systematized as conceptual definition and operational definition, i.e., measurement issue

[68].

According to Ali & Meysam [2], the terms financial education, financial capability, and financial literacy are interchangeably used in the literature, and so are the reasons for not having a concise definition and concept. Correspondingly, many other studies itemized different concepts as dimensions of financial literacy. Huston [22], asserts financial literacy as a composition of financial knowledge and application of the knowledge. Remund [68] also views financial literacy as the bundle of understanding financial concepts, and possessing the ability and confidence to manage personal finances through sound financial decisions, while remaining vigilant to life events and dynamic economic conditions. Moreover, another most recent study by Swiecka et al. [74] framed financial literacy in terms of three aspects; financial knowledge, financial behavior and financial attitude.

Nonetheless, the definition given by the Organization for Economic Cooperation and Development (OECD) is, by various scholars, regarded as broad and encompassing [27]. It outlines financial literacy as a “combination of knowledge, behavior, and attitude necessary to make sound financial decisions and ultimately achieve individual financial wellbeing” [57]. As explained by Kimiyaghalam & Safari [29], the conceptual definition of financial literacy could also be summarized from the extant literature as a composition of four dimensions; knowledge of financial concepts, ability in managing personal finance, skill in making financial and confidence on future financial planning.

According to several preliminary studies financial literacy is key for financial wellbeing of a society [66]. From the personal finance perspective, only financial literate consumers, as outlined by Bhushan & Medury [12], will sail through tough economic times as they might have accumulated savings, purchase insurance and diversified their investments.

## 2.2. Measurement of Financial Literacy

Even in the absence of a common conceptual definition, researchers attempted most to operationalize the concept of financial literacy. In fact the way they put it into operational terms greatly varies across studies. It is apparent from the extant literature that the concept financial literacy is broad in scope. Given that breadth and its relative newness as research field [31], the measurement issue of financial literacy posits another difficulty (Kunovskaya et al., 2014).

In his review of 71 articles Huston [22] established lack of conceptualization and definition of the construct, content of the instrument, and interpretation of the instrument as three barriers for having a standardized financial literacy measure. Hence, different studies have used different measurement items in a way that includes the variety aspects of financial literacy; financial knowledge, financial skills, financial behaviors, and etc. However, some of the financial literacy aspects such as financial behaviors and skills are found relatively complex to measure [41]. What is more on this issue is,

a newly emerging sect, Islamic financial literacy, is also contending for the biasedness of the financial literacy construct for the inclusion of unlawful elements such as interest and other concepts that are not under the philosophy of Islamic finance [64]. Therefore, the measurement issue of financial literacy is yet to be standardized.

Moreover, Huston [22] summarized that majority of the studies he reviewed have used financial literacy and financial knowledge interchangeably in developing the financial literacy construct. Similarly, Kimiyaghalam & Safari [29] appraised that, despite the fact financial literacy is more than just knowledge, the studies in the literature most dominantly defines and measures financial literacy in terms of financial knowledge. With the intent of maintaining comparability with the extant literature and induced by the studies of [9, 12, 14, 54, 66], this study ruminates only financial knowledge as a proxy for financial literacy.

## 2.3. Determinants of Financial Literacy

According to findings of earlier studies conducted on the subject, several demographics, socio-economic, background and behavioral factors are said to affect the level of financial literacy [23, 37, 81]. Factors such as gender, age, marital status income level, education level, work experience, religion, place of residence, dependents, and field of study are among the mostly cited determinants of financial literacy. Moreover, access to financial information is also considered to have significant implication for financial literacy level of individuals [27, 48].

Ansong & Gyensare [9] assessed financial literacy in 250 randomly selected undergraduate and post graduate students of Ghana and concluded age, work experience and mother's educational level as positive predictors of the variations in financial literacy level. In that study, however, level of study, work location, father's level of education, access to media, and source of education on money affairs were to have an insignificant relationship with financial literacy. Bhushan & Medury [12] conducted a survey on 516 salaried individuals of the Himachal Pradesh district of India and found that gender, education, income, nature of employment and place of work have significant influence on financial literacy levels of salaried individuals, while age and geographic region have no significant effect on financial literacy.

In a study by Mouna & Anis [53], a total of 350 Tunisian stock market participant households were surveyed and it is reported that age, education level and annual income have a significant positive relationship with financial literacy. In their theoretical review of financial literacy literatures, Laxmi & Maheshwary [38] concluded that age, occupation, Income level, type of family, attitude and behavior towards investment avenues are significant factors affecting the levels of financial literacy. Norman et al. [56], also conducted a study to examine the demographic determinants of financial literacy, and concluded that education, gender, and geographic



location were significant determinants of financial literacy, while age and income level were not significant determinants. It should, therefore, be noted that selection of explanatory variables used in this study was primarily motivated by previous empirical findings.

### 3. Methodology

#### 3.1. Research Design

This study aims to determine the levels and determinants of financial literacy. Thus, both descriptive and explanatory types of research designs are pertinent for the purpose of this study. According to Kothari [33] descriptive research designs are used to describe the characteristics of a particular individual or groups, or specific situations. Descriptive research designs are employed in this study to describe the financial literacy level of the salaried individuals and variety patterns and behaviors of the socio-economic factors. The explanatory research design, also called causal design, is used to explain the cause-and-effect relationships among different variables; dependent and independent variables. Hence, in this study the effect of the socio-economic and demographic factors on financial literacy was addressed by explanatory research design.

#### 3.2. Research Area

Maychew, also Maichew (Tigrinya: ማይጫው, "salt water"), is a town and woreda in the Tigray Region of Ethiopia. It is located at 665 km north of Addis Ababa. According to Ethiopia's agro-ecological setting, Maychew and its environs are classified under the Weinadega (semi-temperate zone). Maychew is located in the endoreic basin of the Afar Triangle. Based on the 2007 national census conducted by the Central Statistical Agency of Ethiopia (CSA), this town has a total population of 23,419, of whom 11,024 are men and 12,395 women. 95.28% of the population said they were Orthodox Christians, and 4.24% were Muslim. The 1994 census reported it had a total population of 19,757 of whom 8,894 were men and 10,863 were women.

#### 3.3. Population and Sample Size

The aim of this study was to assess financial literacy and its determinants among civil servants in Maichew town. The target population of this study comprises all civil servants working in the town. According to the reports obtained from Maichew town administration office of civil service and social security, there are a total of 1,638 civil servants among which 1,020 of them are men while the remaining 616 are women. Due to economical and procedural matters it seems impractical to administer the survey over the total salaried individuals. Thus, taking some representative units, technically called samples, is intuited as appropriate way to deal

with. In this study, the sample units were randomly selected 322 civil servants, determined using the formula developed by Yamane [83] as follow:

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

Where in this formula, n is the required sample size, N is target population, and e = margin of errors (5% in this case). Accordingly, the sample size for this study was determined as follow:

$$n = \frac{1,638}{1+1,638*(0.05^2)} \approx 322$$

#### 3.4. Data and Instrument

For this study, data was collected from 271 randomly selected civil servants of Maichew town through self-administered questionnaire. Initially, questionnaires translated into Tigrigna to overcome language barrier, were distributed to the 322 randomly selected sample respondents. But out of the total, only 271 questionnaires were appropriately filled and usable. The questionnaire was comprised of two major parts. The first part covers socio-demographic and economic data of the respondents, where respondents were asked to provide genuine response about their age, gender, marital status, education level, work experience, monthly income, dependents on household, field of study, and whether they have access to financial news. Whereas the second part of the questionnaire consisted of five questions related to financial literacy, adopted from [43] and other subsequent studies on the subject. Those five questions have been applied in several studies, mainly due to their relative precision [27], and covers the concepts of basic numeracy, compound interest, inflation, time value of money, and money illusion.

#### 3.5. Description of Study Variables

##### *Dependent variable:*

The dependent variable for this study was financial literacy. The concept financial literacy, is yet to have a standardized measurement and studies are using different tailored made measurement techniques. Some have measured it in blended terms of financial knowledge, skill, behavior, and confidence, while others narrowly define it in context of financial knowledge only [9, 12, 14, 55, 66]. Persuaded by those previous researches, therefore, this study opted to define and measure financial literacy in a manner similar to the latter ones.

According to Razali [67], a respondent who scored greater than or equal to three points out of the five questions developed by Lusardi & Mitchell [43] is considered as high financially literate, whereas one who scored less than three points is considered as low financially literate. In view of that, this study classified respondents into high and low financial literacy categories, based on their score points, and thus consid-

ers financial literacy as dummy variable.

*Independent variables:*

In considerations of the extant literature and greatly induced by [9, 12, 15, 2, 37-38, 41, 80], Age, Sex, Marital Status, Work Experience, Religious faith, Level of Education,

Field of Study, Income Level, access to financial news, and the presence of dependents on household, were used as independent variables in this study. The variables and their related values are described as follow:

**Table 1.** Description of study variables.

Type of Variable	Description of the variable
Dependent	
Financial literacy	Dummy variable that takes 1 if the respondent scored more than three on the financial literacy test and 0 otherwise.
Independent Variables	
Age	Continuous expressed in terms of the years since the birth of the respondent.
Sex	Dummy that takes 1 if female and 0 otherwise.
Marital status	Nominal that takes the values 1 if single and 0 if conjugal.
Dependents	A dummy variable that takes the value 1 if the respondent has economically dependents upon him and 0 otherwise.
Work experience	Continuous expressed in terms of number of years the respondent has been in service.
Education level	Interval in nature that takes the value of 1 for diploma & below, 2 for BA degree, and 3 for Masters and above.
Field of study	Nominal that takes the value of 1 for Business and Economics and 0 otherwise.
Access to financial news	It is a dummy variable that takes the value 1 if the respondent has access to financial news and 0 otherwise.
Income	A continuous variable that takes the value of the natural logarithm of respondent's monthly salary.

Source: own compilation

### 3.6. Model Specification

The dependent variable used in this study is dichotomous that takes the value of either 0 or 1; where 1 is for high financial literate and 0 is for low financial literate. The association between such types of binary dependent variable and set of predictor variables are better dealt through models other than the linear regressions. Given the better interpretational simplicity from its Probit counterpart, and induced by several preliminary studies on the subject [11, 30, 57, 77], the logit regression model of the following formula is used in this study:

$$P(Y = 1/X) = \frac{e^{\beta'X}}{1+e^{\beta'X}}$$

$$P(Y = 0/X) = 1 - \frac{e^{\beta'X}}{1+e^{\beta'X}} = \frac{1}{1+e^{\beta'X}}$$

This probability model is a regression of the conditional expectation of Y on X given as follow:

$$E(Y | X) = 1(F(\beta'X_i) + 0(1 - F(\beta'X_i))) = F(\beta'X_i)$$

Where the  $F(\beta'X_i)$  term is the cumulative distribution function of a symmetric probability distribution usually called the standard logistic function. Since this model may not give warrant of linearity in the association, the coefficients of the equation doesn't necessarily indicate the effect of the independent variables on the dependent variable. For that matter, the logit model used in this study is estimated by using the maximum likelihood method of estimation. In this study, to analyze the impact of the socio-economic and demographic factors on the level of financial literacy, the following empirical model was specified for this study:

$$\text{logit}(\text{Pr.}(Y = 1|X)) = \beta_0 + \beta_1.(Gndr) + \beta_2.(Ag) + \beta_3.(Incmlv) + \beta_4.(EduLBA) + \beta_5.(EduLMSc.) + \beta_6.(Wexp) + \beta_7.(MarSt) + \beta_8.(AcsFn) + \beta_9.(FldS) + \beta_{10}.(Dep) + \varepsilon$$

Where:

Pr. = the probability of a respondent being high financial

literate

Y = the dependent variable, level of financial literacy

X = the set of predictor variables

Gndr = Gender of a respondent that takes 0 if he is mal and 1 if she is female.

Ag = Age of a respondent expressed in terms of years.

Loginm = respondent's monthly salary.

EduLBA = Educational level (BA degree)

EduLMSc. = Educational level (Master's degree)

Wexp = Work experience expressed in terms of years.

Marst = Marital status of a respondent that takes 0 if he/she is conjugal and 1 if he/she is single.

AcsFn = Access to financial news that takes the value of 1 if a respondent has access to finance related news and 0 otherwise.

FldS = Field of study that takes 0 for None-Business and 1

for Business and Economics related.

$\beta_0, \beta_1, \beta_2, \dots, \beta_9$  = the coefficients of the regression model.

$\varepsilon$  = error term

## 4. Results and Discussions

### 4.1. Descriptive Statistics

To apprehend the basic characteristics and patterns of the data sets, different relevant descriptive statistical measures were employed in this study. As the variables used in this study were composed of both discrete and continuous, different statistical measures such as mean, standard deviation, minimum and maximum values, and frequencies and percentages are jointly used to describe the variables.

**Table 2.** Descriptive statistics of categorical variables.

Variable	Categories	Frequency	%
Gender	Male	169	62.36
	Female	102	37.64
Education level	Diploma & below	93	34.32
	Bachelors	168	61.99
	Masters & above	10	3.69
Marital status	Single	117	43.17
	Conjugal	154	56.83
Field of study	Business & economics	81	29.89
	Non-Business & economics	190	70.11
Access to financial news	Have access	140	51.66
	Have no access	131	48.34
Have dependents	Yes	158	58.30
	No	113	41.70
FL level	High	74	27.31
	Low	197	72.69

Source: own computation

As indicated in Table 2, a total of 271 usable questioners were returned and of those participated in this study, 169 (62.36%) were males while the remaining 102 (37.64%) were females. The reason for this much statistical range in gender ratio might be attributed to the cultural stigma of the society. It is true that until very recent years they were only males that are assigned to take off-home duty. Of the total participants, 93 (34.32%) were diploma holders and below, 168 (61.99%) of the respondents had Bachelor degree, and

only 10 (3.69%) had MSc. degree and above. This could be true as education in the nation is of recent phenomena. 154 (56.83%) of the respondents were collectively conjugal, i.e., marriage, divorced, and widowed, whereas the remaining 117 (43.17%) were still single.

Majority of the respondents, 190 in number or about 70.11 in percentage, were found to be none-business majors, while only the remaining 81 (29.89%) were business and economics majors. 131 (48.34%) out of the total 271 respondents

had no access to financial news, be it from print or digital media, while the remaining 140 or just 51.66% of the total had access to financial news. 113 of the participants (about 41.70%) had no dependent households, whereas the remaining 158 (58.30%) of the total had dependent households.

One objective of this study was to describe financial literacy level of civil servants. In view of that, financial literacy is tabulated in Table 2 above, and the majority of respondents fall under the low financial literacy group. About 72.69 percent of the participants, which is 197 of the 271 in number, scored below three score points out of the five financial

literacy questions, while only 27.31% of the respondents managed to score above three points out of the five questions. Plainly, therefore, it is robust to conclude that the respondents have low financial literacy, and the first hypothesis of this study is accepted. Obviously, several previous researches as well have reported a low level of financial literacy [48, 72, 82], and hence this research is consistent with them at all. In this respect the study conducted by Habtemariam [18] also reported a low level of financial literacy in owners/managers of small and micro enterprises in Addis Ababa city administration.

**Table 3.** Descriptive statistics of continuous variables.

Variable	Obs	Mean	Std. dev	Min	Max
Age	271	30.15	5.52	20	50
Income	271	4236.33	1505.66	1137	9525
Work experience in years	271	5.158672	3.856777	1	20

Source: own computation

As indicated in Table 3 above, the minimum age score of the participant was 20 while the maximum was 50. And more, the respondents had a maximum of 20 years work experience only. The minimum monthly salary of the respondents was birr 1137 while the maximum is birr 9525. There is a huge dispersion in the income of the respondents as there is a standard deviation of Br. 1505.66 and a range of Br. 8388 in income level.

## 4.2. Model Diagnosis Tests

To test for the model specification, a test called linktest,

has been performed. This linktest uses the linear predicted value ( $\hat{y}$ ) and linear predicted value squared ( $\hat{y}^2$ ) as predictors to rebuild the regression model. In order for a model to be considered well specified, the linear predicted value ( $\hat{y}$ ) should be statistically significant with P-value of less than 0.005 ( $P < 0.005$ ), at the 95% confidence interval, whereas the linear predicted value square ( $\hat{y}^2$ ) must be statistically insignificant with P-value of greater than 0.005 ( $P > 0.005$ ). Insignificant ( $\hat{y}^2$ ) is associated with insignificant linktest. In this study, as shown in Table 4, the model is considered well specified as it was found to have an insignificant linktest.

**Table 4.** Linktest model specification test.

Financial literacy	Coef.	Std. Err.	Z	P> z	[95% Conf. Interval]	
$\hat{y}$	.8944386	.1769845	5.05	0.000	.5475553	1.241322
$\hat{y}^2$	-.0753642	.0890605	-0.85	0.397	-.2499197	.0991912
_cons	.0705725	.2033812	0.35	0.729	-.3280473	.4691923

Source: own computation

Another diagnostic test, *Hosmer and Lemeshow's test*, was used to test for the model fit. A common practice in this test is to construct a contingency table of 2 by 10 size, by combining the patterns formed by the predictor variables of the model. Under Hosmer and Lemeshow's test, the larger the P-value is the better fit the model is. Accordingly, in this study the p value is 0.218, signifying the goodness of the model in its fit, (see Table 5).



**Table 5.** Hosmer and Lemeshow's Model fit test.

Numbers of observations	Number of groups	Hosmer-Lemeshow chi2	Prob > chi2
271	10	10.72	0.2180

Source: own computation

The model was also tested for the possibility of multicollinearity and no serious such problem was observed, as the pairwise correlation among the independent variables is, all in all, less than 0.8, which is considered as the threshold.

### 4.3. Econometric Analysis

To examine the determinants of financial literacy, the dependent variable was regressed on predictor variables gender, age, income level, education level, work experience, marital status, access to financial news, field of study, and the presence of dependents on the household. On this regard, as shown in Table 6, the log likelihood chi-square value was 87.69, significant at 1% significance level. This displays that the independent variables in this model, altogether, were better in explaining the variations in financial literacy level than a model with no explanatory variable. In this regression gender, field of study, access to financial news, the presence of dependents on household were found to have a statistically significant effect on financial literacy level of respondents at 1% level of significance.

In the logistic regression, Gender was found to have strong statistical relationship with financial literacy, at 1% significance level. Holding all other factors constant, the odds for being high financially literate were 13.19% lower for fe-

males compared to their male counterparts. Hence, the second hypothesis of this study is accepted. This finding corroborates the findings of earlier studies [7, 12, 24, 41, 56, 62, 66, 75, 80]. But also contradicts with the study conducted by Mbarire & Ali [48], where women were found to be more financially literate than men. In other similar studies [51, 65] gender was found to have no statistical significant effect on financial literacy.

According to Lusardi & Mitchell [42], the gender difference in financial literacy is persistent and widespread across surveys and countries. This could be partially explained in light of the traditional role model that women only have an incentive to invest in financial literacy late in their lives [21], the claim that there are differing levels of confidence [32], and the existence of diverging interests [13]. However, none of these approaches can entirely explain this gender difference [73], and thus further researches are required to close the debate [42]. Obviously, numerous researches have documented that financial decision making among married people mostly vests on the hands of husbands, and thus it gives rise to the gender difference. This is particularly true of developing countries as women in such countries have no the empowerments to take part in the socio-economic and political affairs.

**Table 6.** Logistic regression output.

<b>Number of obs = 271</b> <b>LR chi2(10) = 87.69</b> <b>Prob &gt; chi2 = 0.0000</b> <b>Log likelihood = -115.03555 Pseudo R2 = 0.2760</b>						
FL	Odds Ratio	Std. Err	Z	p>z	[95% Conf. Interval]	
Gender	0.131913***	0.0576442	-4.64	0.000	0.0560175	0.3106357
Age	1.039439	0.0519062	0.77	0.439	0.9425251	1.146319
Income	2.936742	3.813254	0.83	0.407	0.2304683	37.42144
Education	1.304947	0.4918382	0.71	0.480	0.6234083	2.731575
Education	0.1254632	0.167931	-1.55	0.121	0.0091032	1.729175
Work experience	0.9152105	0.0637147	-1.27	0.203	0.798477	1.04901
Marital status	1.139683	0.3969117	0.38	0.707	0.5758907	2.255422
Fnews	4.349327***	1.54658	4.13	0.000	2.166421	8.73175

Number of obs = 271  
 LR chi2(10) = 87.69  
 Prob > chi2 = 0.0000  
 Log likelihood = -115.03555 Pseudo R2 = 0.2760

FL	Odds Ratio	Std. Err	Z	p>z	[95% Conf. Interval]	
Field of study	3.06365***	1.057331	3.24	0.001	1.557655	6.025692
Dep	0.2845267***	0.0954807	-3.75	0.000	0.1473937	0.5492462
Constant	0.003015	0.0136999	-1.28	0.201	4.09e-07	22.23446

Note: Variables marked \*\*\* are significant at the 0.01 level of significance. There are no significant variables at the other standard levels of significance.

Source: own computation

Having access to financial news was also found to have a significant effect on financial literacy level of the respondents. As shown in the logistic regression (Table 6), the odds for being high financially literate were 3.35 times larger for those who have access to financial news than those who don't have the access. Accordingly, the eighth hypothesis of this study, which was developed in expectation of better financial literacy for those with access to financial news, is accepted. This finding supports the results of Karaa & Kuğu [27], where social media users were found to be better financially literate than the none-users, and that of Mbarire & Ali [48], where strong association between access to financial news and financial literacy was reported. But, the finding of this study contradicts the result reported by Ansong & Gyensare [9], where access to media was found to have an insignificant influence in financial literacy. The positive contribution of access to financial news for financial literacy, found in this study, is justifiable as news outlets could help the users to rehearse some financial knowledges.

The variable Field of study was found to have significant relationship with financial literacy at 1% level of significance, where business majors had higher financial literacy than none-business majors. In this study the odds for being high financially literate were approximately 28.45% times larger for non-business and economics majors than business and economics majors. Therefore, the ninth hypothesis of this study is accepted. This finding corroborates with earlier findings of [15, 23, 49, 66]. According to Chen & Volpe [15], business majors are more financially literate because the curriculum requirement in the field provides them with opportunity to take finance and related courses. Similarly, Jamaludin [23], stated that business majors are more financially literate than the non-business majors as the syllabus in business programs is helpful in equipping them with financial knowledge. This statement is also supported by Chatterjee [14], in which introductory finance courses offered in business schools were found to be contributing factors of financial literacy levels.

Having dependents in household was also found to have a statistically strong relationship with financial literacy level of respondents at 1% level of significance. The regression output indicates that, the odds for being high financially literate are 28.45% lower for those who have dependents than those who have no dependents in the household. Hence, the tenth hypothesis of this study is accepted. This result is in line with the finding of Mottola [52], in which households with dependents were found to be more prone to low financial literacy levels. The negative relationship between the presence of dependents in household and low financial literacy levels is, according to Potrich et al. [62], admissible as individuals with low financial literacy are presumed to be less concerned about financial planning.

The other predictor variables included in this study; namely, age, income level, education level, work experience, and marital status were found to have no significant effect on the financial literacy level of respondents. Even though it was not significant, the odds for being high financially literate increases by a factor of 1.0394 for every one-year increase in age. Thus, in this study the third hypothesis, pertaining to the effect of age on financial literacy, is not accepted as age is found to have no significant implication for financial literacy. This finding is similar to [12, 56], where age is found to have positive relationship but statistically insignificant effect on financial literacy, nonetheless in contradiction with Chen & Volpe [15] and Mbarire & Ali [48], in which younger participants were found to be less financially knowledgeable.

In this study income level was also found to have no significant effect on financial literacy. The odds ratio in the logistic regression shows that individuals with higher income level may well have a 2.94 times higher level of financial literacy. Nonetheless, as this relationship is not statistically significant, the fourth hypothesis of this study is not accepted. And this is robust enough to conclude that income level has no bearing on financial literacy. The finding of this study supports Mbarire & Ali [48] and Norman et al. [56] in which income level was found to have no significant association

with financial literacy.

In this study, it was also found that education level had no significant influence on financial literacy. The odds ratio for education level indicates that individuals with Bachelors degree could have higher probability of being financially literate than the reference group, diploma holders & below. Conversely, those masters degree holders could have times less probability of being financially literate than the diploma holders. In this regard, close investigation of the data shows that most of the Masters degree holders are from the non-business streams and have longer work experience, causing some degree of intricate interrelationship among field of study, education level, and work experience.

Thus, as a result of this interactional effect of field of study, education level, and work experience, masters degree holders were found to have lower financial literacy than the diploma holders. Nevertheless, the relationship between education level and financial literacy was not statistically significant. Therefore, the fifth hypothesis of the study is not accepted. The result of this study corroborates with that of [22, 65] but contradicts with that of [44, 48, 56].

Work experience was also found to have no significant effect on financial literacy level of the respondents. The odds for being high financially literate shrinks by 91.52% for every one year increase in work experience of the respondents. This negative relationship is, however, insignificant and thus the sixth hypothesis of this study is not accepted. This finding contradicts with that of Lantara and Kartini [37], in which work experience was found to be a positive and significant determinant of financial literacy.

In this study it was found that single individuals are more financially literate than those conjugal. Though it is not statistically significant, the odds for being financially literate are 1.14 times higher for single respondents than to married/engaged ones. Thus, the seventh hypothesis of this study is not accepted, as marital status has positive but insignificant effect on financial literacy of the respondents. This finding is somehow in contradiction with the result reported in Luksander et al. [41], where married and divorced were found to have higher financial literacy scores than the unmarried respondents.

## 5. Conclusions and Recommendations

This study attempted to describe the prevailing level of financial literacy and its determinant factors from a completely unknown financial economics setting. In general a very low level of financial literacy has been observed from the sampled units of 271 respondents. The low level of financial literacy is observed to be serious specially in females, as huge gender gap is reported under the logit regression analysis. Besides, business majors are found to be better financially literate than the non-business majors. Similarly, households who have access to financial news and/or have no dependent family members are better literate

than those who don't have access to financial news and/or have dependent family members. All those conclusions, combinedly, warrants the researcher to forward the following major recommendations:

To begin with, the low level of financial literacy observed highlights the need for provision of an enhanced financial education to the general public. As it is documented in the extant literature, financial literacy is significant determinant factor for financial well being of individuals and society at large. Owing to this importance, provision of financial education should receive priority as a public agenda. Of course, several universities, both public and private owned, operating in the nation have numerous business schools. But, all business and economics courses being offered in those institutions are mostly focused on business finances, to the neglect of behavioral finances. Therefore, revisiting the existing curriculum to incorporate behavioral finance and economics courses to the existing ones, is one possible way forward to provide enhanced financial education. Furthermore, the public servants in the nation are most dominantly from non-business majors, where finance and economic courses are not offered at all. Thus, offering such courses as common courses at freshman level is another possible remedy to tackle the prevailing low level of financial literacy.

Secondly, women should be empowered to participate more on the socio-economic affairs of the nation, so as to fill the gender gap in the financial literacy levels. Encouraging and educating females would enable them feel confident to take part in the financial planning and related decisions of their household. By doing so, women can be relieved from any financial problems that would happen to them as heads of a family.

Thirdly, owing to their role in influencing generations, different media platforms operating in the nation should work towards bringing financial literacy to the forefront of public attention, by hosting different shows and discussions, publishing financial articles and reviews, incorporating business news as news stories, and so on. Besides, policy makers should think of introducing financial planning as new scheme of family planning. As a result, the financial well being of the society and economic growth of the nation might well be achieved.

## Abbreviations

OECD	Organization for Economic Cooperation & Development
CSA	Central Statistical Agency of Ethiopia (CSA)

## Author Contributions

Hailekiros Nigus Adhana is the sole author. The author read and approved the final manuscript.

## Conflicts of Interest

The authors declare no conflicts of interest.

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