

Determinants of Financial Inclusion Gender Gap in Ethiopia: Evidence From Decomposition Analysis

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Determinants of Financial Inclusion Gender Gap in Ethiopia: Evidence from Decomposition Analysis

Shemelis Kebede Hundie^{*1} and Daniel Tadesse Tulu²

Abstract

In Ethiopia, the gender gap in financial inclusion is high, and the effect of socioeconomic variables on the gap is not well investigated. As a result, this study uses the World Bank's Global Findex database from 2017 to analyze magnitude and determinants of the gender gap in financial inclusion in Ethiopia. Using Fairlie decomposition technique, we find statistically significant gender gap in all indicators of financial inclusion under study in Ethiopia. The result shows that the highest financial inclusion gender gap is observed in formal saving followed by formal account holding. The decomposition results show males are 16.5%, 16.6%, 8.9 %, 8.4 %t, and 5.8% more likely to have a formal account, formal saving, borrowing, emergency fund possibility, and debit card ownership, respectively. We further decompose these gaps using Daymont and Andrisani approach and the result reveals that differences in coefficients between males and females explain 57.7% in formal saving, 43.4% in formal account holding, and 110.9% in borrowing from formal financial institutions. About 54.2% of the total gender gap in possibility of raising emergency fund is attributed to differences in characteristics/predictors between the two genders while gender gap in debit card holding is explained by the interaction between differences in characteristics and coefficients. Being older, more educated, and wealthier favor financial inclusion, with age, employment, and education having a greater effect. Furthermore, gaps in coefficients, productivity, and advantage to males and disadvantage to females aggravate the gender gap in financial inclusion in Ethiopia. Gender mainstreaming in economic activities to increase income, employment opportunities and education for females to bridge the gender gap in financial inclusion is important.

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1. Introduction

Financial inclusion refers to enabling all individuals and businesses in an economy to have access to useful and affordable financial services that meet their needs (Sha'ban et al., 2019). It indicates all efforts that primarily enable low-income people to access affordable formal financial services (Omar & Inaba, 2020). According to Zins and Weill (2016) financial inclusion is related to having an account at a formal financial institution that enables a person to save and borrow money. Access, usage, and quality are the three dimensions of financial inclusion. Access refers to affordability and physical proximity. Usage implies regularity, frequency, and duration of time used whereas quality refers to the customization of products to client needs and appropriate segmentation to develop products for all income levels (African Development Bank (AfDB), 2013).

Nowadays, financial inclusion has been regarded as a vital instrument for realizing multidimensional macroeconomic stability, sustainable and inclusive economic growth, employment generation, poverty reduction and income equality in both developed and developing nations (Omar & Inaba, 2020). Furthermore, financial inclusion plays a crucial role in meeting the United Nation's Sustainable Development Goals (Kuada, 2019; Omar & Inaba, 2020). For instance, access to finance enables the impoverished segment of the society to enhance their production and productivity that can improve their food security (SDG 2), invest in human capital and health (SDGs 3 and 4), promotes gender equality (SDG 5), and meet the decent work goal and innovation goal (SDGs 8 and 9).

Financial inclusion is still one of the most significant development priorities. As a result, there is increased interest in intellectuals, financial institutions, governments, policymakers, and others (Abel et al., 2018). The significance of financial development in every country's economic growth is critical. It is a crucial component of economic development since it functions as the economy's "blood." For the economy to remain healthy, financial development must flow in the same way that blood does in the human body. According to research conducted in 67 low and middle-income countries, financial development is an important instrument for poverty reduction (Boukhatem, 2016; Nanziri, 2016; Ogunleye, 2017). Hence, financial development in one country denotes that there is alternative funding for the poor and disadvantaged group because it enhances access to finance. Financial inclusion is one of the major indicators of financial development (Hajilee et al., 2017; Li, 2018; Singh, 2017).

Access to finance contributes to economic development (Aterido et al., 2013; Desalegn & Yemataw, 2017; Zins & Weill, 2016). We cannot think of development without finance. When there are fast and accessible financial services, it is easy for individuals as well as organizations to fulfill their needs. In one way another, they are gratifying themselves and they are partaking in economic activities via different level investments. Hence, financial inclusion denotes having all kinds of financial needs in a continuous way for sustainable economic prosperity. Financial inclusion reduces poverty and income inequality (Aslan et al., 2017; Neaime & Gaysset, 2018; Ogunleye, 2017; Park & Mercado, 2017).

It appeared that the financial inclusion of women is vital in the broader socio-economic play in developing nations. Sharma and Kukreja (2013), and Sujlana and Kiran (2018) noted that for the inclusive growth of a country, inclusive financing remains mandatory. Financially independent citizens contribute to a strong and independent economy. Ensuring financial stability for citizens is ensuring sustainable development.

World Bank data shows one-third of the population of adults remains unbanked. From these, about half percent are women population which are living in rural areas. In developing nations, the gender gap of owning accounts is only 9 percent. This is shocking news for countries since the gender gap has a big implication on economic development. Financial exclusion of women hampers their participation in any economic activities, diminishes innovation, and deteriorates participation in entrepreneurial endeavors (Fareed et al., 2017). Credit and other financial services can provide small-scale farmers with the opportunity to improve farm productivity and transition from subsistence farming to large-scale and commercial farming. In the short run, credit can help farmers increase their purchasing power to gain necessary production inputs and finance their operating expenses, while in the long run, it can help farmers to make profitable investments. Female farm managers, however, are 9 percentage points less likely to live in a household with access to credit than male farm managers (World Bank, 2019).

The gender gap is an important dimension in the debate over access to finance that has received less attention. It has often been contended, for example, that a lack of access to finance stifles female entrepreneurship and inhibits women from participating in the contemporary market economy. Recent worldwide data analysis demonstrates the extent to which Sub-Saharan African (SSA) countries are distinguished by a degree of gender that is different from other regions (Aterido et al., 2013). Females are still less likely than males to have an account with a financial institution, according to the World Bank's 2017 Global Findex Database (Demirguc-Kunt et al., 2018).

One reason a woman may have less access to formal credit is that she is less likely to possess and manage tangible assets that may be used as collateral. Furthermore, women have lower levels of human and social capital on average, which might limit their access to formal finance, and this disadvantages women. When financing is scarce, farmers are more inclined to utilize sub-optimal amounts of productive inputs, reducing their productive potential (World Bank, 2019). Deléchat et al. (2018) find a robust negative relationship between being female and financial inclusion as in previous studies, and their analysis points to legal discrimination, lack of protection from harassment, including at the workplace, and more diffuse gender norms as possible explanatory factors.

An initiative led by the World Bank Group focuses on accelerating country-based reforms to achieve countries' national financial inclusion goals. The initiative is called The Financial Inclusion Support Framework (FISF). Commenced in 2013, the initiative is supported by G20 countries to improve the existing situation regarding financial services in unbanked and under-banked sectors. With the national support program and knowledge components, FISF is committed to helping countries to build financially strong nations. National support program component under its four themes- national financial inclusion strategy, and monitoring and evaluation; financial infrastructures, such as payments and credit reporting systems; diversified financial services for individuals and enterprises; and financial consumer protection and financial capability has been implemented by different countries. Ethiopia is among few countries like Mozambique, Rwanda, Indonesia, Zambia, Pakistan, Vietnam, and Cote d'Ivoire that launched Country Support Programs in 2015. Supporting strategies for national financial inclusion in Ethiopia was also one of the moves of the initiative (World Bank, 2018). Even though Ethiopia has put remarkable efforts into promoting financial inclusion, is not as successful as other East African countries. Evidence shows that Ethiopians, especially women, prefer informal saving clubs rather than formal financial institutions. In this regard, Lakew and Azadi (2020) argued that this preference, combined with unemployment and low income, is the barrier to the financial inclusion strategy in Ethiopia.

Some economies have had gains in account ownership but missed out on opportunities for greater progress because women were insufficiently included. In Ethiopia, account ownership has risen by 18 percentage points among men since 2014, roughly twice the size of the increase among women (Demirguc-Kunt et al., 2018). At the economic level too, gender gaps have mostly remained stable. Economies that had no gender gap in 2014 generally still do not have one; the converse is also true. But there are exceptions. In 2014, no gender gap was found in Burkina Faso or Ethiopia. Since then, these two economies have seen a big growth in account ownership — but more among men than among women. As a result, both now have a double-digit gender gap in account ownership.

The availability of finance and its accessibility have a significant impact on farmers' production start-up and subsequent performance. Obstacles to obtaining adequate loans will affect farm households' technical efficiency. Increased output production as a result of better credit availability is, therefore, evidence of binding credit constraint (Komicha & Öhlmer, 2007).

Women farmers are less productive than male farmers in Ethiopia (Ethiopia's Ministry of Agriculture and Natural Resources et al., 2018). According to the World Bank and ONE (2014), the agricultural productivity gender gap in Ethiopia was found to be 24%. This gap is attributed to women's unequal access to key agricultural inputs including labour, land, fertilizers, improved seeds, and knowledge which in turn are highly determined by access to financial resources. This is because, financial resources constraint is a barrier to modern agricultural technology adoption (Balana et al., 2020). Constrained access to finance affects not only the agricultural productivity and efficiency of women but also their chance of participating in off-farm activities and self-employment. For instance, Komicha and Öhlmer (2007) found that the mean technical efficiency score of credit unconstrained farm households is 12% higher than that of credit-constrained farm households in Ethiopia. Mukasa et al. (2017) argued that credit constraints result in a productivity loss of about 60% in Ethiopia and the majority of the losers are female-headed smallholders.

Financial exclusion impedes the entrepreneurial endeavors of women and prevents them from actively participating in market economies (Aterido et al., 2013; Kuada, 2019). It is argued that the availability of financial resources will encourage talented but poor entrepreneurs to start their businesses. According to Beriso (2021), lack of access to finance is the leading major factor hindering Ethiopian women entrepreneurs in entrepreneurial activities.

Being financially excluded relative to men, women in Ethiopia are constrained from participating in various economic activities to their full potential. They lag behind their male counterparts in terms of productivity and efficiency due to the low adoption of modern technology. Besides, women earn lower income from self-employment and wage income. All these impede the endeavors of Ethiopian women to pull themselves from the poverty trap and aggravate income inequality. The financial inclusion gender gap, therefore, is a major challenge for Ethiopia to realize inclusive growth, the full potential of women's economic empowerment, and gender equality. Despite the seriousness of the consequences of the financial gender gap in Ethiopia, empirical studies that address factors determining the gap are non-existent. Given this background, the current study tries to examine how socioeconomic characteristics contribute to the financial inclusion gender gap by considering different indicators of financial inclusion.

This paper makes two major contributions to the existing empirical literature. First, to the best of the authors' knowledge, this paper counts the first of its kind for Ethiopia that attempts to examine gender gaps in access to formal financial accounts, formal savings, formal credit, debit card holding, and an emergency fund in Ethiopia. Unlike Lakew and Azadi (2020), Abdu and Adem (2021), and Desalegn and Yemataw (2017), which focused

on determinants of financial inclusion, this paper focuses on determinants of the financial gender gap in Ethiopia. Second, the majority of the previous related empirical literature dealt only with a single dimension of financial inclusion, mainly that is related to access. This fails to capture the full picture of financial inclusion. The present study tries to cover all the three dimensions, access, usage, and quality, of financial inclusion in examining the determinants financial inclusion gender gap in Ethiopia. The results of empirical analysis show that the gender gap in financial inclusion is highest in the ownership of formal savings, followed by formal account holding, borrowing, emergency fund possibility, and debit card ownership, respectively. In addition, being a female was found to decrease the likelihood of financial inclusion for all its indicators. Age, income level, employment status, and education explain financial gender in Ethiopia. Finally, the overall gender disparity in financial inclusion in Ethiopia is attributed to differences in observable characteristics, differences in coefficients, and the interaction between characteristics and coefficients. Furthermore, the differences in productivity, advantages to males, and disadvantages to females determine the gender gap in financial inclusion.

The remainder of this paper is organized as follows. Section 2 presents data and methods of data analysis. Section 3 discusses results on the financial inclusion gender gap in Ethiopia and Section 4 is devoted to conclusions and policy implications.

2. Data and Methods

2.1. Variables and Sources of Data

Data for the study were obtained from the 2017 Global Findex database. The 2017 Global Findex database was compiled using nationally representative surveys of more than 150,000 adults age 15 and above in over 140 countries. The current study has focused mainly on Ethiopia.

Table 1: Variables Definition

Variable Name	Description
Account	The respondent owns (or not), alone or with someone, an account in a formal financial institution. It takes 1 if the individual owns an account, and 0 otherwise.
Borrowing	The respondent has (or not) saved in a formal account in the past 12 months. It takes 1 if the individual has saved in the past 12 months, and 0 otherwise.
Saving	The respondent has (or not) borrowed from a formal financial institution. It takes 1 if the individual has borrowed in the past 12 months, and 0 otherwise.
Emergency	Dummy that takes 1 if the respondent came up with an emergency fund, and 0 otherwise.
Debit Card Holding	Dummy that takes 1 if the respondent accessed account using mobile phone or internet, and 0 otherwise.
Female	Dummy that takes 1 if the respondent is a female, and 0 otherwise.
Education	Instruction level of the respondent: Primary education or less; and Secondary education. It takes 1 if the respondent completed Secondary education, and 0 otherwise
Age	Age of the respondent in years.
Age square	Age in years of the respondent squared
Income quantile	Income quintiles of the respondent: Income1 for poorest (20%), Income2 for second poorest (20%), Income3 for third poorest (20%), Income4 for fourth poorest (20%), and Income5 for fifth poorest (20%).
Employment	Dummy that takes 1 if the respondent is in the workforce, and 0 otherwise.

3.1. Estimation Strategies

Blinder (1973) and Oaxaca (1973) introduced the decomposition method, which was later extended by Neumark (1988) and Oaxaca and Ransom (1988, 1994) to decompose outcome variables between two groups into a part explained by differences in observed characteristics and a part explained by differences in the returns to these characteristics (Bauer & Sining, 2008; Fairlie, 2006, 2017; Jann, 2008). However, if the result is binary and the coefficients are from a logit or probit model, the technique cannot be used directly (Fairlie, 2006).

The standard Blinder-Oaxaca decomposition of the male/female difference in the average value of the dependent variable, for linear regression, is as follows:

$$\bar{Y}^M - \bar{Y}^F = \left[(X^M - X^F) \hat{\beta}^M \right] + \left[\bar{X}^F (\hat{\beta}^M - \hat{\beta}^F) \right] \dots \dots \dots \quad (1)$$

Where \bar{X}^j is a row vector of average values of the independent variables and β^j is a vector of coefficient estimates for gender j . Following Fairlie (1999, 2006), and Ghosh and Chaudhury (2019), this study applied the Fairlie decomposition technique for a nonlinear equation, $Y = F(X\hat{\beta})$, to analyze the gender gap in financial inclusion in Ethiopia. Fairlie decomposition model can be specified as:

$$\bar{Y}^M - \bar{Y}^F = \left[\sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^M)}{N^M} - \sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^M)}{N^F} \right] + \left[\sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^M)}{N^F} - \sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^F)}{N^F} \right] \dots \dots \dots \quad (2)$$

Where, N^j is the sample size for gender j (M=male, F=Female). \bar{Y}^j is the mean probability of outcome variable for sex j , X_i^j is the vector of independent variables for sex case j , $\hat{\beta}_i^j$ the vector of coefficient estimates including a constant term, and F is the cumulative distribution function from the logistic distribution. The first term in brackets represents the part of the gender disparity caused by differences in group X distributions (i.e., differences in the distributions of the independent variables), and the second term represents the part caused by differences in group processes deciding (i.e., differences in the coefficients) levels of Y. The second term also includes the portion of the gender difference created by unmeasurable or unobserved endowments between classes.

Notably, in the first term of the equation, we use the male coefficient estimates $(\hat{\beta}^M)$ as weights, while in the second term, we use the female distribution of independent variables X^F as weights.

An equally valid expression for the decomposition is:

$$\bar{Y}^M - \bar{Y}^F = \left[\sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^F)}{N^M} - \sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^F)}{N^F} \right] + \left[\sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^M)}{N^M} - \sum_{i=1}^{N^F} \frac{F(X_i^M \hat{\beta}^F)}{N^M} \right] \dots \quad (3)$$

Here, the female coefficient estimates, $(\hat{\beta}^F)$ are used as weights for the first term in the decomposition, and the male distributions of the independent variables (X^M) are used as weights for the second term.

The Blinder-Oaxaca decomposition technique's alternative method of measuring the decomposition often yields different estimates, which is the well-known index problem (Fairlie, 2006; Ghosh & Chaudhury, 2019). A third choice is to use coefficient estimates from a combined sample of the two groups to weigh the first term of the decomposition expression. In our research, we used this method to measure decomposition. We used coefficient estimates from a logit regression with a sample of all gender groups in particular.

However, a separate calculation is needed to assess the position of gender differences in particular variables in the distance. Consider the case where X comprises two variables: X_1 and X_2 . As a consequence, the independent contribution to the gender gap can be expressed as:

$$\frac{1}{N^F} \sum_{i=1}^{N^F} F\left(\hat{\alpha}^* + X_{1i}^M \hat{\beta}_1^* + X_{2i}^M \hat{\beta}_2^*\right) - F\left(\hat{\alpha}^* + X_{1i}^F \hat{\beta}_1^* + X_{2i}^M \hat{\beta}_2^*\right) \dots \quad (4)$$

Similarly, the contribution of X_2 can be expressed as:

$$\frac{1}{N^F} \sum_{i=1}^{N^F} F\left(\hat{\alpha}^* + X_{1i}^M \hat{\beta}_1^* + X_{2i}^M \hat{\beta}_2^*\right) - F\left(\hat{\alpha}^* + X_{1i}^M \hat{\beta}_1^* + X_{2i}^F \hat{\beta}_2^*\right) \dots \quad (5)$$

The amount of the contributions from individual variables would equal the cumulative contribution from all of the variables measured for the full sample, which is a useful property of this technique. The cumulative contribution of sex differences in the independent variables to the gender disparity in the dependent variable is calculated using this methodology. It also helps us to determine how much each independent (explanatory) variable contributes to the overall difference. The change in the average predicted probability from replacing the female distribution of a specific variable with the male distribution while holding the distributions of the other variables' constant is the contribution of each explanatory variable to the gap.

A one-to-one matching of cases between the two groups is used in the decomposition technique (Aterido et al., 2013; Ghosh & Chaudhury, 2019). Because the groups are different sizes, a sample is taken and the process is repeated 1000 times, with the mean results being reported. We draw a random sub-sample of females with or without replacement equal to the size of the full male sample and match the sample by their respective rankings in predicted probabilities because the number of females and males is not equal. We draw 1,000 different sub-samples because the decomposition estimates are sensitive to the sub-sample chosen, and our results are based on average values obtained from the decomposition method carried out over these sub-samples.

We used decomposition techniques suggested by Daymont and Andrisani (1984) to decompose the disparities in financial inclusion between males and females into a part explained by differences in observable characteristics, a part explained by differences in estimated coefficients, and a part explained by interactions between characteristics and coefficients.

where E denotes the portion of the raw differential due to endowment differences, C denotes the portion attributable to coefficient differences, and CE denotes the portion that can be clarified by the relationship

between C and E. Bauer and Sinning (2008) created the Stata command “nldecompose,” which is used to estimate Equation 6.

The decomposition strategies discussed thus far do not provide a detailed breakdown of each independent variable's contribution to the disparity in financial inclusion between the two classes. Furthermore, path dependence and identification issues associated with the selection of a reference group in which dummy variables are included among the independent variables plague the techniques. To solve these issues, we used the detailed decomposition technique developed by Powers et al. (2011). When dummy variables are used in the predictors, this approach manages path dependence (Schwiebert, 2015; Yun, 2004), computes asymptotic standard errors (Yun, 2005a), and overcomes the identification problem associated with the choice of a reference group (Yun, 2005b, 2008). According to Powers et al. (2011), the raw difference can be expressed as a sum of weighted sums of the unique inputs in terms of the total components.

$$C = \sum_{k=1}^K C_k = \sum_{k=1}^K W_{\Delta\beta_k} \left\{ \overline{F(X_F \beta_M)} - \overline{F(X_F \beta_F)} \right\}$$

$$E = \sum_{k=1}^K E_k = \sum_{k=1}^K W_{\Delta X_k} \left\{ \overline{F(X_M \beta_M)} - \overline{F(X_F \beta_M)} \right\}$$

Where $W_{\Delta X_k}$ is the weight component for the explained component (E) and $W_{\Delta \beta_k}$ is the weight for the unexplained component (C).

3. Results and Discussions

In this section, we present both preliminary results based on descriptive statistics and econometric decomposition analysis from different decomposition techniques.

4.1. Descriptive Statistics

The data used in this study comprises 39.8% males and 60.2% females. About 71.3% of respondents attended secondary education and 28.7% have primary education. The average age of the sampled respondents is 33, with 15 and 98 minimum and maximum ages, respectively.

Descriptive statistics and inferential statistics, such as t-test and chi-square tests, as set out in Table I-IV of Appendix Section, are used to present a preliminary finding on the gender differential in financial inclusion and selected socio-economic variables. The findings from Table I show that there is a statistically significant age gap between males and females in our study. Males are on average older than their female counterparts by three years. Table III shows that there is no statistically significant association between level of income and gender, which lays down preliminary evidence that the financial gender gap in Ethiopia is not mainly attributed to the

difference in income level between males and females. Educational status and employment status are statistically associated with gender. It shows that a larger proportion (76.3%) of females attended primary education compared to males (63.8%). However, the proportion of males who attended secondary education (36.2%) is higher than that of females. This confirms that there are great education gender gaps in Ethiopia. According to the World Economic Forum (2021) Global Gender Gap Report, the education gender gap in Ethiopia amounts to 15%-20%. There is a statistically significant association between gender and employment status in Ethiopia during the study period.

4.2.Explaining Financial Inclusion Gender Gap

4.2.1. Fairlie Nonlinear Decomposition Estimates

Table 2 shows the results of Fairlie's nonlinear decomposition. The gender dummy has a statistically significant positive relationship with all indicators of financial inclusion — that is formal saving, formal account, formal borrowing, and the possibility of emergency fundraising. It implies that the likelihood for females to be included in these financial inclusion indicators is less compared to their male counterparts. On the other hand, there is no statistically significant difference between males and females in debit card holding. Except in debit card holding, the coefficient of age and age square is positive and negative respectively and both are statistically significant. This finding suggests that individuals have a higher propensity to save, own a formal account, borrow from formal financial institutions, and raise emergency funds at a younger age when they are economically active. Nevertheless, this effect reduces at an older age. This finding corroborates with the results of Zins and Weill (2016), Mndolwa and Alhassan (2020), and Ghosh and Chaudhury (2019).

As can be shown in Table 2, the size of the financial inclusion gender disparity varies depending on the financial inclusion indicator. Males are more likely to be financially included than their female counterparts on all financial indicators. To be more precise, the gender differences in formal account ownership, formal saving, formal borrowing, the likelihood of coming up with an emergency fund, and debit card ownership are 16.5 percent, 16.6 percent, 8.9 percent, 8.4 percent, and 5.8 percent, respectively. These gaps are positive and statistically significant, meaning that males are 16.5 percent, 16.6 percent, 8.9 percent, 8.4 percent, and 5.8 percent more likely to have a formal account, formal saving, borrowing, emergency fundraising, and debit card ownership, respectively.

We find that the lower use of formal financial services and digital financial services by females can be explained by gender disparity in age, education, and employment status. This implies that the observed financial inclusion gender disparity is attributed to females being less educated and less employed than men. Our finding corroborates with the findings of Aterido et al. (2013) and Asuming et al.(2019) for Sub-Saharan Africa, Zins and Weill (2016), Botric and Broz (2017) for Central and Eastern Europe, Mndolwa and Alhassan (2020) for

Tanzania, and Ghosh and Chaudhury (2019) for India. Out of the total financial inclusion gender gap mentioned above, the proportion explained by differences in socioeconomic characteristics (age, income, education, and employment) differs across the financial inclusion indicators. In the case of formal account ownership, only 35% of the gap is explained by differences in these socioeconomic variables. The differences in socioeconomic variables explain 29.5% of the gender gap in formal saving and 17.3% in formal borrowing. Among the financial inclusion indicators considered in this study, group differences in socioeconomic variables better explain the gender gap in debit card holding (65.5%) while the contribution of the socioeconomic variables in explaining gender gap in case of the possibility of coming up with emergency fund is the least (7.1%). The results show that higher proportion of the gender gap in indicators of financial inclusion, except debit card holding, is attributed to differences in other factors across gender.

Table 2: Fairlie Decomposition Result

Variables	Formal Account		Formal Saving		Formal Borrowing	
	Logistic Results	Decomposition	Logistic Results	Decomposition	Logistic Results	Decomposition
Gender	0.530***		0.604***		0.377***	
Age	0.167***	-0.102***	0.136***	-0.095*	0.049**	-0.021
Age square	-0.002***	0.093***	-0.002***	0.086*	-0.001**	0.025
Income1	-1.803***	-0.004	-1.944***	-0.002	0.199	-0.002
Income2	-1.649***	-0.002	-1.337***	-0.006**	0.425*	0.000
Income3	-1.178***	0.003	-1.174***	0.006**	0.124	0.001
Income4	-0.873***	0.005**	-0.774***	0.000	0.100	0.000
Education	1.513**	-0.041***	1.045***	-0.024***	-0.382**	0.008
Employment	0.469***	-0.008	0.700***	-0.014**	0.679***	-0.028***
Constant	-3.598***		-3.648***		-1.790***	
Group (male)		0.530		0.425		0.455
Group (female)		0.367		0.259		0.357
Difference		0.163***		0.166***		0.098***
Explained gap		0.057 (35%)		0.049 (29.5%)		0.017 (17.3%)
Unexplained gap		0.106 (65%)		0.117 (70.5%)		0.081 (82.7%)
Observations	1000	1000	1000	1000	1000	1000

<i>LR</i> $\chi^2(9)$	278.29	219.33	54.25
<i>Prob</i> > χ^2	0.203	0.000	0.040

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 2: Continued

Variables	Debit Card Holding		Emergency	
	Logistic Results	Decomposition	Logistic Results	Decomposition
Gender	0.421		0.406***	
Age	0.025	-0.037	0.050**	-0.013
Age square	0.000	0.031	-0.001***	0.021
Income1	0.000		-1.918***	0.013***
Income2	0.000		-1.174***	0.002
Income3	-1.674		-1.240***	-0.002**
Income4	-1.306	-0.006***	-0.142	0.001
Education	2.141	-0.021**	0.409**	-0.018***
Employment	0.992	-0.005	0.211	0.002
Constant	-4.462		0.210	
Group (male)		0.116		0.673
Group (female)		.058		0.589
Difference/gap		0.058***		0.084***
Explained gap		0.038 (65.5%)		.006 (7.1%)
Unexplained gap		0.020 (34.5%)		0.078 (92.9%)
Observations	1000	1000	1000	1000
<i>LR</i> $\chi^2(7)$	125.87		163.762	
<i>Prob</i> > χ^2	0.000		0.000	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The only major driver for the gender gap in formal borrowing is employment status, which narrows the gap. This is because income derived primarily from employment is seen as a guarantee for borrowing in a risky environment (Bell & Mukhopadhyay, 2020).

In Ethiopia, a lower proportion of the gender disparity in financial inclusion is explained by socioeconomic characteristics, implying that other non-socioeconomic factors are also to account for the reported gender difference. The gender disparity in financial inclusion is attributed to a variety of causes, including socio-cultural, institutional, legal, and regulatory barriers, according to the literature (Adegbite & Machethe, 2020). Ethiopia has a diverse population, patrilineal ethnicity, and customs, which make women vulnerable to socio-cultural norms, especially in rural areas. For example, customary norms prevent Ethiopian women from inheriting property, owning it, and transferring it in the same way as their male counterparts do (Bezu & Holden, 2014; Kumar & Quisumbing, 2015). Furthermore, young rural women in Ethiopia possess less productive assets than males (Doss et al., 2019), putting them at a disadvantage when attempting to use their assets as leverage for financial services, protect themselves from income shocks, and increase their income through the use of productive assets (International Fund for Agricultural Development [IFAD], 2019). Ethiopian women are unable to participate in many agricultural practices that include male labor due to traditional beliefs which limits their income-generating activities.

Women in Ethiopia face greater and more systematic obstacles to accessing formal financial services, according to Demirguc-Kunt et al. (2013) and Stevenson and St-Onge (2005). According to the World Bank (2019), only 24% of Ethiopian households are headed by women, and productive assets in Ethiopia are managed by the household head (Fafchamps & Quisumbing, 2002). As a result, regardless of their financial needs, most females depend on male decisions about getting access to and using financial resources. This supports the findings of Demirguc-Kunt et al. (2013) and Deléchat et al. (2018) that women are less likely to have an account, borrow, or save in a formal financial institution in countries where women are restricted from household headship, employment, mobility, or asset ownership.

Financial inclusion, according to Abebe et al. (2017), necessitates paying close attention to institutional concerns such as gender-responsive finance technologies, efficiency, affordability, accessibility, and sustainability. Women in Ethiopia, on the other hand, lack collateral, formal identification, and mobility owing to social norms (World Bank, 2017b). Inappropriate product offerings and a lack of gender-specific regulations are both significant barriers to women's financial inclusion in Ethiopia.

Other barriers to Ethiopian women benefiting from financial services include legal and regulatory issues. Women, for example, are constrained by account opening requirements, obstacles to accessing formal identification, and a lack of gender-inclusive credit reporting (AFI (Alliance for Financial Inclusion), 2017; World Bank, 2017b). Furthermore, there are major gender differences, at least within urban areas: older teenage boys were slightly more likely than girls of the same age to influence financial capital (39 percent vs. 21 percent) (Jones et al., 2019).

4.2.2. Daymont and Andrisani Decomposition Estimates

This section presents the overall gender disparity in the selected financial inclusion indicators decomposed into differences in characteristics, differences in coefficients, and interaction effects in this section. The findings of the decomposition (gender gap) are consistent with those in Table 2. In comparison to their male counterparts, females lag in all indicators of financial inclusion. The following sections look at the factors that contribute to the gender gap in financial inclusion in Ethiopia.

Table 3: Daymont and Andrisani Decomposition Results

	Saving		Account		Borrowing		Emergency		Debit Card	
	Coef.	%	Coef.	%	Coef.	%	Coef.	%	Coef.	%
<i>Omega = 1</i>										
Char	.049***	29.5	.057***	35.1	.017	17.2	-.006	-7.2	.031***	54.2
Coef	.096***	57.7	.071**	43.4	.108***	110.9	.043	51.4	.006	10.4
Int	.021	12.8	.035*	21.5	-.027	-28.1	.047*	55.8	.020	35.3
<i>Omega = 0</i>										
Char	.070***	42.3	.092***	56.5	-.011	-10.9	.041	48.6	.051	89.6
Coef	.117***	70.4	.106***	65	.081**	82.7	.090***	107.2	.026	45.8
Int	-.021	-12.8	-.035*	-21.5	.027	28.2	-.047*	-55.8	-.020***	35.3
<i>Omega = wgt</i>										
Prod	.065***	39.5	.073***	45	.019	19.1	.012	14.5	.042***	73.1
Adv	.060***	36.4	.054***	33.1	.048***	48.7	.043***	51.5	.009	16.2
Disadv	.040***	24.1	.034***	21.9	.031***	32.2	.028***	34.0	.006	10.7
Raw	.165***		0.163***		.098***		.084***		.057***	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The weighting introduced by Neumark (1988) was applied in specifying Omega and the bootstrap method was used to drive analytic standard errors of the components of the decomposition equation to judge the statistical significance of the estimates.

The overall gender disparity in financial inclusion can be decomposed into three components: differences in observable characteristics/predictors, differences in coefficients, and the interaction between characteristics and coefficients. Furthermore, the overall gender disparity in financial inclusion is decomposed into differences in productivity, advantages to males, and disadvantages to females.

The estimates of characteristics and coefficients for formal saving are both positive and statistically significant at the 1% level of significance, meaning that the gender gap in formal saving is due to differences in both measurable characteristics and coefficients. The gender gap in financial inclusion is widened by both characteristics and coefficients. The total gender gap in formal saving is due to differences in productivity (39.5%), advantages to males (36.4 percent), and disadvantages to females (24.1 percent).

In the case of formal account holding, the gender gap is caused by differences in observable characteristics, coefficient differences, and their interaction. All of the estimates are positive and statistically significant, meaning that they all add to the worsening of the gender gap in formal account ownership. About 45 percent of the total gender gap in account holding (16.3 percent) is explained by differences in productivity, 33.1 percent by advantages to males, and the remaining 21.9 percent is due to disadvantages to females.

The difference in coefficient explains 110.9 percent of gender disparity in formal borrowing when Omega is 1 and 82.7 percent when Omega is 0. The advantages to males (48.7%) and the disadvantages to females (32.2%) in formal borrowing explain a 9.8% gender gap in formal borrowing, indicating that there are no gaps in productivity in formal borrowing. The gender gap in emergency fund availability is explained by males' advantage (51.5%) and females' disadvantage (34%), while only a difference in productivity accounts for around 74.1 percent of the gender disparity in debit card holding.

4.2.3. Detailed Decomposition Estimates

Table 4 shows the contributions of each socioeconomic variable to the financial inclusion gender gap between males and females. It outlines the results of the decomposition, as well as the contribution of each socioeconomic variable to the overall gender gap in financial inclusion. The first section of the table shows the decomposition results, which are consistent with those in Table 3. The total financial inclusion gender disparity is decomposed into gaps due to variations in socioeconomic characteristics and differences in coefficients for each indicator of financial inclusion.

About 57.7% gender gap in formal saving is explained by differences in characteristics/predictors between the two groups. Differences in coefficient account for 57.7% of the observed gender disparity in formal saving, with age differences explain about 43.4% of it. Endowment gaps account for just 42.3 percent of the overall gender differential in formal savings, with differences in age (100%) and employment status (74.3%) accounted for the majority of the gap. Since income and asset accumulation are positively associated with age, the financial gender gap in Ethiopia during the study period is well explained by age differences across gender. The average age of the women in our study is lower than that of the males, indicating that men have an age advantage. Furthermore, in Ethiopia, the gender gap in employment status is enormous. Due to insufficient access to training and education, Ethiopian women are less likely to be employed, more likely to be underemployed, and more likely to receive lower wages from their employment (Mat, 2020). According to the World Economic Forum (WEF, 2020), only 77 percent of women were employed, while 88 percent of men were employed. Furthermore, Ethiopian young women are less economically active than their male counterparts. According to Mat (2020) and World Bank (2017), young women in Ethiopia who are not in

employment, education, or training (NEET) are higher than young men (15.1% for women vs. 5.7% for men). The World Economic Forum (WEF, 2020) report shows that Ethiopian gender parity in education is low (85%, with the rank of 140th) because human capital investment is insufficient and penalized women more than men which resulted in a low literacy rate for women (44% of women vs. 59% of men). Low employment, low skills, and education of women resulted in a low earning rate. According to Mat (2020) and the World Bank (2017), young women in Ethiopia are more likely than young men to be unemployed, educated, or trained (NEET) (15.1 percent for women vs. 5.7 percent for men). According to the World Economic Forum (WEF, 2020), Ethiopian gender parity in education is poor (85 percent, ranking 140th) due to inadequate human capital spending, which penalizes women more than men, resulting in a low literacy rate for women (44 percent of women vs. 59 percent of men). Women's poor earning rates are due to a lack of employment, expertise, and education.

It means that equalizing male and female employment status would result in a 74.3 percent reduction in the gender gap in formal savings. The discrepancy was widened by differences in income level 1 (the lowest 20%) and age square, while the remaining socioeconomic variables narrowed the reported formal saving gender gap. Differences in the coefficients of the fourth quantile of income are expected to broaden gender disparities in formal saving, while differences in the coefficients of age are expected to narrow them.

Differences in endowments account for 56.6 percent of the gender disparity in formal account holding at formal financial institutions, while differences in coefficients account for 43.4 percent. Age differences (64.3%), employment status (28.4%), and educational qualification (21.4 percent) each account for a greater proportion of the total reported gender gap in formal account ownership.

Differences in socioeconomic characteristics of groups, which accounted for 48.6% of the overall gender gap, explain the gender disparity in the ability to come up with an emergency fund. The larger proportions are explained by age (62.9%) and employment status (44.9%), both of which are expected to widen the gap in explaining the observed gender disparity. Furthermore, the financial inclusion gender gap was narrowed in the second, third, and fourth income quantiles.

Table 4:Detailed Decomposition Results

	Saving		Account		Borrowing		Emergency	
Decomposition Results								
	Coef.	%	Coef.	%	Coef.	%	Coef.	%
E	.070***	42.3	.092***	56.6	-.011	-10.9	.041**	48.6
C	.095***	57.7	.071**	43.4	.109***	110.9	.043	51.4

R	.165***	.163***	.098***	.084***				
Due to Difference in Characteristics (E)								
Age	.113***	100.44	.105***	64.254	.048**	49.3	.053***	62.9
Age square	-.104***	-80.307	-.093***	-57.21	-.056**	-57.7	-.054***	-64.5
Income1	-.011***	-10.745	-.009***	-5.7869	.000	.6	-.012***	-12.7
Income2	.002**	1.8019	.002***	1.2361	-.001**	-1.1	.002***	1.9
Income3	.0023***	3.2095	.002**	1.7949	-.000	-.1	.007***	7.8
Income4	.007***	7.0639	.004**	2.4683	-.001	-1.1	.004**	4.9
Education	.023**	15.653	.035***	21.404	-.011	-11.6	.003	3.4
Employment	.038***	74.342	.046***	28.403	.010	10.8	.034**	44.9
Due to Differences in Coefficients (C)								
Age	.718*	434.1	.4005	245.7	.398	407.7	.466	556.5
Age square	-.291	-175.7	-.147	-90	-.174	-177.8	-.146	-174.2
Income1	.001	.8	.006	3.4	-.006	-6.4	.008	9.7
Income2	-.006	-3.4	-.005	-2.9	.023	23.6	-.006	-6.6
Income3	.015	8.9	.022	13.7	-.007	-7.5	-.031**	-37.6
Income4	-.036**	-22.3	.002	1.2	.009	9.3	-.048**	-57.3
Education	-.006	-3.9	-.006	-3.4	-.004	-3.7	-.028	-34
Employment	.052	31.2	.150	92.3	-.088	-90.5	.141**	168.4
Constant	-.351	-212.1	-.353	-216.5	-.043	-43.8	-.312	-373.3

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4. Conclusions and Policy Implications

Even though the overall financial inclusion in Ethiopia has improved over time for both men and women, the gender gap has remained unchanged. Women's exclusion from financial services has ramifications for financial inclusion as a whole, as well as women's political, economic, and social participation. To meet long-term growth goals, the gender gap in financial inclusion must be closed. Using various econometric decomposition techniques, the primary goal of this study is to investigate the financial inclusion gender gap and the effect of socio-economic variables in understanding the gap. We used the World Bank's Global Findex 2017 data for this, and we are forwarding policy suggestions for bridging the gap.

We investigated the presence of a financial gender disparity in financial inclusion using Fairlie decomposition techniques. In all indicators of financial inclusion, women are less likely to be financially included, according to the empirical results. Except for debit card holding, the included socio-economic variables account for less than 40% of the overall gender gap, implying that factors such as socio-cultural, institutional, legal, and regulatory issues play a role in explaining the observed gap. During the study period, age, employment status, and educational level are among the socioeconomic variables that reliably describe the financial inclusion gender disparity across all indicators.

We have used Daymont and Andrisani's (1984) methodology to break down the overall financial inclusion gender disparity into socioeconomic gender gaps, coefficient differences, and differences in the interaction of the two. Furthermore, this method breaks down the average gender gap into disparities in productivity, as well as advantages and disadvantages for men and women. The empirical results indicate that gender gaps in saving and account holding in Ethiopia are explained by differences in measurable characteristics and coefficients, while gender disparities in borrowing and emergency fund development are solely due to differences in coefficients. Gender disparity in saving and formal account ownership is related to differences in productivity, advantages to men, and disadvantages to women, while gender disparity in borrowing and debit card holding is attributed to advantages to men and disadvantages to women. Only gaps in productivity account for the gender disparity in emergency fund availability.

We investigated the degree to which socioeconomic variables explain the gender disparity in financial inclusion in Ethiopia using a detailed decomposition method. We found that the gender disparity in financial inclusion in Ethiopia is primarily due to variations in included measurable socio-economic variables rather than differences in coefficients, and the variables that play a key role, in this case, are the respondents' age, employment status, and educational level. In conclusion, females in Ethiopia are unable to use financial services due to their lack of education, employment, age, and earnings/income. However, socio-economic variables explain less than half of the gender gap in financial inclusion in most indicators. Therefore, future studies need to focus on the impact of socio-economic, socio-cultural, institutional, legal, and regulatory factors in the study of the financial inclusion gender gap in Ethiopia. Policies, to improve access to financial services for women, need to address the growing gender gap in employment, education, and earnings/income. In most indicators, however, socio-economic factors account for less than half of the gender disparity in financial inclusion.

The following policy recommendations are derived from the analysis. Closing the financial inclusion gender gap requires bridging the employment gender gap by enhancing females' level of employment, which will increase their likelihood of accessing formal financial services. Ethiopia needs to close the gender gap in education by promoting females' level of education to close the financial gender gap. Increasing females'

educational status will reduce their likelihood of being excluded from financial services. Moreover, providing financial education to women will enhance their financial literacy, which will enhance they are being included in financial services. For all these recommendations to be feasible, Ethiopia needs to apply gender mainstreaming in all sectors of its economy since gender gaps in each sector may be reflected in the financial sector gender gap. Therefore, applying a gender lens to reduce the gender gap in each sector of the economy has the potential to close the gender gap in financial inclusion in the country.

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The authors declare that they have no competing interests.

Availability of data and material

The data and material supporting the conclusions of this article would be provided upon reasonable request.

Code availability

The Stata code used to undertake the analysis of this article would be provided upon reasonable request.

Authors' contributions

SKH conceived the idea, contributed to conceptualization, data curation, analysis, methodology, and original draft preparation. DTT contributed to the introduction and edited the whole manuscript. Both authors read and approved the final manuscript.

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References

Abdu, E., & Adem, M. (2021). Determinants of financial inclusion in Afar Region : Evidence from selected woredas Determinants of financial inclusion in Afar Region : Evidence from selected woredas. *Cogent*

Economics & Finance, 9(1). <https://doi.org/10.1080/23322039.2021.1920149>

Abebe, J. O., Maina, L., Ondiek, J., & Ogolla, C. (2017). Driving Gender- Responsive Financial Inclusion Models in Africa 1. In *UN Women*.

Abel, S., Mutandwa, L., & Roux, P. Le. (2018). A Review of Determinants of Financial Inclusion. *International Journal of Economics and Financial Issues*, 8(3), 1–8.

Adegbite, O. O., & Machethe, C. L. (2020). Bridging the financial inclusion gender gap in smallholder agriculture in Nigeria : An untapped potential for sustainable development. *World Development*, 127, 104755. <https://doi.org/10.1016/j.worlddev.2019.104755>

African Development Bank (AfDB). (2013). *Financial Inclusion in Africa* (No. 978-9938-882-19-3).

Aslan, G., Deléchat, C., Newiak, M., & Yang, F. (2017). *Inequality in Financial Inclusion and Income Inequality* (WP/17/236; IMF Working Paper).

Asuming, P. O., Osei-agyei, L. G., & Ibrahim, J. (2019). Financial Inclusion in Sub-Saharan Africa : Recent Trends and Determinants Financial Inclusion in Sub-Saharan Africa : Recent Trends and. *Journal of African Business*, 20(1), 112–134. <https://doi.org/10.1080/15228916.2018.1484209>

Aterido, R., Beck, T., & Iacovone, L. (2013). Access to Finance in Sub-Saharan Africa : Is There a Gender Gap ? *World Development*, 47, 102–120. <https://doi.org/10.1016/j.worlddev.2013.02.013>

Balana, B., Mekonnen, D., Haile, B., Hagos, F., Yimam, S., & Ringler, C. (2020). *Are Smallholder Farmers Credit Constrained ? Evidence on Demand and Supply Constraints of Credit in Ethiopia and Tanzania* (No. 01974; IFPRI Discussion Paper, Issue November).

Bauer, T. K., & Sinning, M. (2008). An extension of the Blinder – Oaxaca decomposition to nonlinear models. *ASIA*, 92, 197–198. <https://doi.org/10.1007/s10182-008-0056-3>

Bell, C., & Mukhopadhyay, A. (2020). Income Guarantees and Borrowing in Risky Environments: Evidence from India's Rural Employment Guarantee Scheme. *Economica*, 87. <https://doi.org/10.1111/ecca.12325>

Beriso, B. S. (2021). Determinants of economic achievement for women entrepreneurs in Ethiopia. *Journal of Innovation and Entrepreneurship*, 10(5).

Bezu, S., & Holden, S. (2014). Are Rural Youth in Ethiopia Abandoning Agriculture ? *World Development*, 64, 259–272. <https://doi.org/10.1016/j.worlddev.2014.06.013>

Blinder, A. S. (1973). Wage discrimination: Reduced form and structural estimates. *Journal of Human Resources*, 8, 436–455.

Botric, V., & Broz, T. (2017). GENDER DIFFERENCES IN FINANCIAL INCLUSION : CENTRAL AND SOUTH EASTERN EUROPE. *South-Eastern Europe Journal of Economics*, 2, 209–227.

Boukhatem, J. (2016). Assessing the direct effect of financial development on poverty reduction in a panel of low- and middle-income countries. *Research in International Business and Finance*, 37, 214–230. <https://doi.org/10.1016/j.ribaf.2015.11.008>

Daymont, T. N., & Andrisani, P. J. (1984). Job Preferences , College Major , and the Gender Gap in Earnings. *The Journal of Human Resources*, 19(3), 408–428.

Deléchat, C., Newiak, M., Xu, R., Yang, F., & Aslan, G. (2018). *What is Driving Women ' s Financial Inclusion Across Countries ?* (WP/18/38).

Demirgüç-Kunt, A., Klapper, L., & Singer, D. (2013). Financial inclusion and legal discrimination against

- women: Evidence from developing countries. In *World Bank Policy Research Working Paper* (No. 6416; Issue April). <http://dx.doi.org/10.1596/1813-9450-6416>
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution*. The World Bank.
- Desalegn, G., & Yemataw, G. (2017a). Financial Inclusion in Ethiopia : Using LSMS (Ethiopia Socioeconomic Survey) Data. *Ethiopian Journal of Economics, XXVI*.
<https://www.ajol.info/index.php/eje/article/viewFile/177737/167090>
- Desalegn, G., & Yemataw, G. (2017b). *Financial Inclusion in Ethiopia: Using LSMS (Ethiopia Socioeconomic Survey) Data*.
- Doss, C., Heckert, J., Myers, E., Pereira, A., & Quisumbing, A. (2019). *Gender, rural youth and structural transformation : evidence to inform innovative youth programming*.
- Ethiopia's Ministry of Agriculture and Natural Resources, UN Women, UNDP, & UN Environment. (2018). *THE COST OF THE GENDER GAP IN AGRICULTURAL in Ethiopia*.
- Fafchamps, M., & Quisumbing, A. R. (2002). Control and ownership of assets within rural Ethiopian households. *Journal of Development Studies, 38*(6), 47–82.
<https://doi.org/10.1080/00220380412331322581>
- Fairlie, R. W. (1999). The Absence of the African-American Owned Business: An Analysis of the Dynamics of Self-Employment. *Journal of Labor Economics, 17*(1), 80–108.
- Fairlie, R. W. (2006). An Extension of the Blinder-Oaxaca Decomposition Technique to Logit and Probit Models. In *IZA Discussion Paper* (Issue 1917).
- Fairlie, R. W. (2017). Addressing Path Dependence and Incorporating Sample Weights in the Nonlinear Blinder-Oaxaca Decomposition Technique for Logit , Probit and Other Nonlinear Models By. In *SIEPR Discussion Paper No. 17-013 Addressing* (Issue 17).
- Fareed, F., Gabriel, M., Lenain, P., & Reynaud, J. (2017). *Financial Inclusion and Women Entrepreneurship : Evidence from Mexico* (No. 1411; Issue September). <https://doi.org/10.1787/2fdb0f35-en>
- Ghosh, C., & Chaudhury, R. H. (2019). Gender Gap in case of Financial Inclusion : An Empirical Analysis in Indian. *Economics Bulletin, 39*(4), 2615–2630.
- Hajilee, M., Stringer, D. Y., & Metghalchi, M. (2017). Financial market inclusion, shadow economy and economic growth: New evidence from emerging economies. *Quarterly Review of Economics and Finance, 66*, 149–158. <https://doi.org/10.1016/j.qref.2017.07.015>
- International Fund for Agricultural Developmen [IFAD]. (2019). *2019 Rural Development Report: Creating Opportunities for Rural Youth*.
- Jann, B. (2008). The Blinder – Oaxaca decomposition for linear regression models. *The Stata Journal, 8*(4), 453–479.
- Komicha, H. H., & Öhlmer, B. (2007). International Conference on African Influence of Credit Constraint on Technical Efficiency of Farm Households in Southeastern Ethiopia. *International Conference on African Development Archives*. https://scholarworks.wmich.edu/africancenter_icad_archive/125
- Kuada, J. (2019). Financial Inclusion and the Sustainable Development Goals. In *Extending Financial Inclusion in Africa*. Elsevier Inc. <https://doi.org/10.1016/B978-0-12-814164-9.00012-8>
- Kumar, N., & Quisumbing, A. R. (2015). Policy Reform toward Gender Equality in Ethiopia : Little by Little

- the Egg Begins to Walk. *World Development*, 67, 406–423.
<https://doi.org/10.1016/j.worlddev.2014.10.029>
- Lakew, T. B., & Azadi, H. (2020). Financial Inclusion in Ethiopia : Is It on the Right Track ? *International Journal of Financial Studies*, 8(28). <https://doi.org/10.3390/ijfs8020028>
- Li, L. (2018). Financial inclusion and poverty: The role of relative income. *China Economic Review*, 52(1), 165–191. <https://doi.org/10.1016/j.chieco.2018.07.006>
- Mat, M. Le. (2020). *Nexus skills/jobs: Assessment of Youth Skills Development/Jobs Nexus in Ethiopia*.
- Mndolwa, F. D., & Alhassan, A. L. (2020). Gender disparities in financial inclusion : Insights from Tanzania. *The African Development Review*, 32, 1–13. <https://doi.org/10.1111/1467-8268.12462>
- Mukasa, A. N., Simpasa, A. M., Salami, A. O., & John, C. (2017). *Credit constraints and farm productivity : Micro-level evidence from smallholder farmers in Ethiopia* (No. 247; Working Paper).
- Nanziri, E. L. (2016). Financial Inclusion and Welfare in South Africa : Is there a Gender Gap ? *Journal of African Development* 2016, 18(2), 109–134.
- Neaime, S., & Gaysset, I. (2018). Financial inclusion and stability in MENA : Evidence from poverty. *Finance Research Letters*, 24(May 2017), 230–237. <https://doi.org/10.1016/j.frl.2017.09.007>
- Neumark, D. (1988). Employers' discriminatory behavior and the estimation of wage discrimination. *Journal of Human Resources*, 23, 279–295.
- Oaxaca, R. (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economic Review*, 14(3), 693–709.
- Oaxaca, R., & Ransom, R. (1988). Searching for the effect of unionism on the wages of union and nonunion workers. *Journal of Labor Research*, 9, 139–148.
- Oaxaca, R., & Ransom, R. (1994). On discrimination and the decomposition of wage differentials. *Journal of Econometrics*, 61, 5–21.
- Ogunleye, T. S. (2017). Financial Inclusion and the Role of Women in Nigeria. *African Development Review*, 29(2), 249–258.
- Omar, A., & Inaba, K. (2020). Does financial inclusion reduce poverty and income inequality in developing countries ? A panel data analysis. *Journal of Economic Structures*, 9(37). <https://doi.org/10.1186/s40008-020-00214-4>
- Park, C., & Mercado, R. J. (2017). Financial inclusion, poverty, and income inequality. *The Singapore Economic Review*, 1–22. <https://doi.org/10.1142/S0217590818410059>
- Powers, D. A., Yoshioka, H., & Yun, M. (2011). mvdcmp: Multivariate decomposition for nonlinear response models. *The Stata Journal*, 11(4), 556–576 mvdcmp:
- Schwiebert, J. (2015). A detailed decomposition for nonlinear econometric. *J Econ Inequal*, 13, 53–67. <https://doi.org/10.1007/s10888-014-9291-x>
- Sha'ban, M., Girardone, C., & Sarkisyan, A. (2019). Financial Inclusion : Trends and Determinants. In E. Gualandri et al. (Ed.), *Frontier Topics in Banking* (pp. 119–136). Palgrave Macmillan. <https://doi.org/10.1007/978-3-030-16295-5>
- Sharma, A., & Kukreja, S. (2013). An Analytical Study:Relevance of Financial Inclusion For Developing Nations. *Research Inventory: International Journal Of Engineering And Science Issn*

Www.Researchinventy.Com, 2(6), 2278–4721.

- Singh, N. (2017). *Financial inclusion: Concepts, issues and policies for India* (I-35406-INC-1; Issue April).
- Stevenson, L., & St-Onge, A. (2005). *Support for Growth-Oriented Women Entrepreneurs in Ethiopia, Kenya and Tanzania: An Overview Report*. <http://books.google.co.uk/books?id=2Pykac55epsC>
- Sujlana, P., & Kiran, C. (2018). A Study on Status of Financial Inclusion in India. *International Journal of Management Studies*, 5(2(3)), 96. [https://doi.org/10.18843/ijms/v5i2\(3\)/12](https://doi.org/10.18843/ijms/v5i2(3)/12)
- WEF. (2020). *Global Gender Gap Report 2020*. <https://www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality>
- World Bank. (2017). *Employment and Jobs Study in Ethiopia*. <https://openknowledge.worldbank.org/handle/10986/32093>
- World Bank. (2018). *Financial Inclusion Support Framework(FISF)*.
- World Bank. (2019). *Ethiopia Gender Diagnostic Report: Priorities for Promoting Equality*.
- World Bank, & ONE. (2014). *Leveling the Field: Improving Opportunities for Women Farmers in Arica*.
- World Economic Forum. (2021). *Global Gender Gap Report 2021: Insight Report*. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiBm5r59MvxAhWFmFwKHUQECrM4ChAWMAR6BAgJEAM&url=http%3A%2F%2Fwww3.weforum.org%2Fdocs%2FWEF_GGGR_2021.pdf&usg=AOvVaw2ieXL1lL8q3kKL_h16xe9i
- Yun, M. (2004). Decomposing differences in the first moment. *Economics Letters*, 82, 275–280. <https://doi.org/10.1016/j.econlet.2003.09.008>
- Yun, M. (2005a). A Simple Solution to the Identification Problem in Detailed Wage Decompositions. *Economic Inquiry*, 43(4), 766–772 766. <https://doi.org/10.1093/ei/cbi053>
- Yun, M. (2005b). Hypothesis tests when decomposing differences in the first moment. *Journal of Economic and Social Measurement*, 30, 295–304.
- Yun, M. (2008). Identification problem and detailed Oaxaca decomposition : A general solution and inference. *Journal Of Economic and Social Measurement* 33, 33, 27–38.
- Zins, A., & Weill, L. (2016). The determinants of financial inclusion in Africa. *Journal of Advanced Research*, 6(1), 46–57. <https://doi.org/10.1016/j.rdf.2016.05.001>

Appendix

Table I: Statistical Significance of Gender Gap in Respondent's Age (t-test)

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
Female	602	31.89203	.536695	13.16818	30.838 32.94605
Male	398	34.62312	.7448988	14.86069	33.15868 36.08755
combined	1,000	32.979	.4403049	13.92366	32.11497 33.84303
diff		-2.731089	.8958148		-4.488986 -.9731923

$\text{diff} = \text{mean(Female)} - \text{mean(Male)}$ $t = -3.0487$
 $H_0: \text{diff} = 0$ degrees of freedom = 998

Ha: diff < 0 $\Pr(T < t) = 0.0012$ Ha: diff != 0 $\Pr(|T| > |t|) = 0.0024$ Ha: diff > 0 $\Pr(T > t) = 0.9988$

Table II: Statistical Significance of Gender Gap in Respondent's Age-Square (t-test)

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
Female	602	1190.214	43.68786	1071.912	1104.415 1276.014
Male	398	1419.045	66.10657	1318.822	1289.083 1549.008
combined	1,000	1281.289	37.3495	1181.095	1207.997 1354.581
diff		-228.8309	75.9974		-377.964 -79.6979
diff = mean(Female) - mean(Male)					$t = -3.0110$
$H_0: \text{diff} = 0$					degrees of freedom = 998
Ha: diff < 0 $\Pr(T < t) = 0.0013$					Ha: diff != 0 $\Pr(T > t) = 0.0027$ Ha: diff > 0 $\Pr(T > t) = 0.9987$

Table III: Chi-Square Test of Association between Gender and Discrete Explanatory Variables

Explanatory Variables					
Income level 1 (poorest 20%)					
Gender	Income level 1 (dummy)		Total	Pearson χ^2	
	0	1			
Male	83.2%	16.8%	100%		
Female	86%	14%	100%		
Total	84.9%	15.1%	100%		
Income level 2 (second 20%)					
Gender	Income level 2 (dummy)		Total	Pearson χ^2	
	0	1			
Male	84.2%	15.8%	100%		
Female	83.6%	16.4%	100%		
Total	83.8%	16.2%	100%		
Income level 3 (third 20%)					
Gender	Income level 3 (dummy)		Total	Pearson χ^2	
	0	1			
Male	83.9%	16.1%	100%		
Female	82.1%	17.9%	100%		
Total	82.8%	17.2%	100%		
Income level 4 (fourth 20%)					
Gender	Income level 4 (dummy)		Total	Pearson χ^2	
	0	1			
Male	80.4%	19.6%	100%		
Female	77.9%	22.1%	100%		
Total	78.9%	21.1%	100%		
Educational status of respondents					
Gender	Education (dummy)		Total	Pearson χ^2	
	Primary	Secondary			
Male	63.8%	36.2%	100%		

Female	76.3%	23.7%	100%	18.0810***
Total	71.3%	28.7%	100%	
Employment status of respondents				
Gender	Employment (dummy)			Pearson χ^2
	Out of workforce	In workforce		
Male	10.6%	89.4%	100%	54.1174***
Female	30.4%	69.6%	100%	
Total	22.5%	77.5	100%	

Table IV: Chi-Square Test of Association between Gender and Dependent Variables

Dependent Variables				
Formal Account				
Gender	Account (dummy)			Pearson χ^2
	0	1	Total	
Male	47%	53%	100%	25.9562***
Female	63.3%	36.7%	100%	
Total	56.8%	43.2%	100%	
Formal Savings				
Gender	Saving (dummy)			Pearson χ^2
	0	1	Total	
Male	57.5%	42.5%	100%	29.9102***
Female	74.1%	25.9%	100%	
Total	67.5%	32.5%	100%	
Formal Borrowing				
Gender	Borrowing (dummy)			Pearson χ^2
	0	1	Total	
Male	54.5%	45.5%	100%	9.5482***
Female	64.3%	35.7%	100%	
Total	60.4%	39.6%	100%	
Debit Card Holding				
Gender	Debit Card (dummy)			Pearson χ^2
	0	1	Total	
Male	88.4%	11.6%	100%	10.6190***
Female	94.2%	5.8%	100%	
Total	91.9%	8.1%	100%	
Possibility of coming up with emergency fund				
Gender	Emergency fund (dummy)			Pearson χ^2
	0	1	Total	
Male	32.7%	67.3%	100%	7.1408 ***
Female	41%	59%	100%	
Total	71.3%	28.7%	100%	