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## **LIGNE EDITORIALE DE LA REVUE**

Journal of Applied Economics and Management of Organizations (JAEMO) publie les manuscrits scientifiques dans le domaine des sciences économiques et de gestion ainsi que dans les domaines très proches. De nos jours, les sciences économiques et de gestion ont beaucoup progressé au point qu'elles ont fait des alliances avec les sciences voisines. Cette revue se veut faire la promotion de la recherche scientifique très pointue, originale et innovante.

Actuellement, la revue publie dans deux langues qui sont le français et l'anglais. La revue JAEMO est semestrielle (un numéro le mois de juin et le second en décembre). Les articles à publier par la revue doivent porter sur une problématique très claire dans les domaines tels que définis ci-dessus, présenter le cadre conceptuel, la méthodologie bien fournie, les données de qualité avec un traitement rigoureux et les résultats pouvant contribuer à la recherche scientifique et aux politiques appliquées.

Les articles théoriques sont aussi les bienvenus pour autant qu'ils indiquent les faits stylisés modélisés et les intuitions sur des théories avancées. Ces types de manuscrits doivent faire preuve d'une conceptualisation avancée et user d'outils méthodologiques rigoureux pour ouvrir la voie à des vérifications empiriques futures. En tout état de cause, la revue reste très exigeante sur la rigueur scientifique.

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## **Analysis of Gender Inequalities in Financial Inclusion in Mali**

### *Analyse des Inégalités de Genre en Matière d'Inclusion Financière au Mali*

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#### **Abstract**

This paper analyzes gender inequalities in financial inclusion in Mali. We used data from the survey conducted by the Solidarity and Industrial Economy Research Group (GRESI) in April 2023 on the issue of mobile telephony and financial inclusion in Mali. Fairlie's nonlinear decomposition method is implemented for statistical and econometric analysis purposes. Thus, it appears on the one hand that the average difference between men and women in accessing bank accounts is 13% compared to 6% in the case of access to mobile money accounts. And on the other hand, the average difference between men and women in saving money in the bank is 11% while this rate is 5% for the use of mobile money services. Which leads us to say that in Mali, the inequality of access is greater compared to the inequality of use of financial services between men and women in terms of financial inclusion.

**Keywords** : Gender inequalities, financial inclusion, Mali.

**JEL classification** : J16, G21, D63, G28.

#### **Résumé**

*Ce papier analyse les inégalités de genre en matière d'inclusion financière au Mali. Nous avons utilisé les données de l'enquête menée par le Groupe de Recherche en Economie Solidaire et Industrielle (GRESI) en avril 2023 sur la problématique de la téléphonie mobile et l'inclusion financière au Mali. La méthode de décomposition non linéaire de Fairlie est implémentée pour des fins d'analyse statistique et économétrique. Ainsi, il ressort d'une part de cette implémentation que la différence moyenne entre les hommes et les femmes pour accéder aux comptes bancaires est de 13% contre 6% dans le cas de l'accès aux comptes mobile money. Et d'autre part, la différence moyenne entre les hommes et les femmes à épargner de l'argent à la banque est de 11% tandis que ce taux est de 5% pour l'usage des services mobile money. Ce qui nous amène à dire qu'au Mali, l'inégalité d'accès est plus importante comparativement à l'inégalité d'usage des services financiers entre les hommes et les femmes en matière d'inclusion financière.*

*Mots-clés* : Inégalités de genre, Inclusion financière, Mali.

**Classification JEL** : J16, G21, D63, G28.

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## Introduction

Financial inclusion (FI) is considered one of the keystones of economic development. For this reason, it has attracted the attention of politicians, regulators, and a significant part of the scientific community for decades. The contribution of financial inclusion to economic development does not seem to be in any dispute.

Financial inclusion according to the World Bank consists of affordable access to financial services consisting mainly of transactions, payments, savings, credit, and insurance. There are disparities in terms of access and use of financial services between countries (Demirguc-Kunt & Klapper, 2012; Demirgüç-Kunt & Klapper, 2013). These same disparities exist within countries and territories between men and women (Ohiomu & Ogbeide-Osaretin, 2020; Fouejieu, Sahay, Cihak, & Chen, 2020; Soumaré, Tchana Tchana, & Kengne, 2016).

The analysis of these disparities has attracted the attention of researchers around the world. It is increasingly focusing on the gap in access and use of financial services based on gender. In recent years, studies focused on this theme have been carried out by various researchers around the world. But unfortunately, countries and territories are not housed in the same way. The countries of the West African Economic and Monetary Union (UEMOA) are also not an exception in this regard. At the end of 2021, this economic zone recorded strict and expanded banking rates of 21.8% and 42.4% respectively. During the same time, Mali recorded the following respective values or the same rates: 16.8% and 30.8%, which are far from the average of the zone (BCEAO, 2022).

A high accordance of results is reflected in the conclusions of the different studies regarding the area concerned by the study. Men are generally more financially included than women. In addition to this regularity, the studies explored in the context of writing this paper invariably converge on the same determinants that can explain the persistence of the gaps induced at the gender level.

Musa, Abdullahi, Idi and Tasiu (2015) showed in the case of study on Nigeria analyzing the determinants of financial inclusion as well as the gender gap the existence of a gap in terms of financial inclusion for men. In addition, they specified that this gap is mainly explained by the level of education and the high level of income of men from the 2nd quintile. Two years later Ghosh and Vinod (2017), through a study aimed at analyzing the links between gender and finance and the elements that can facilitate these links in India, concluded that the probability of access of households headed by women is 8% lower compared to their male-led equivalents. The same trend is further reinforced in credit granted where the probability of access for households headed by women is 20% lower than for households headed by men. The authors ultimately argued that access to finance is explained by household status, level education, and salary. While uses are explained by political and social contexts. Ghosh and Chaudhury (2019), also obtained results like those presented above, in extension of the previous case of India using data from the Global Findex 2017. In the same year, an analysis on the countries of eastern and southern Europe was carried out by Brotic & Broz on the same topic. Their results show that men are more financially included than women based on bank accounts held. The gender gap is mainly explained by employment to the extent that exclusion through work promotes financial exclusion.

In 2018, in an article analyzing gender equality regarding financial inclusion in the case of Burundi, Niyuhure (2018) proved that the inclusion rate of women is low in Burundi compared to that of men. The factors explaining this situation were among others the problems of training, information, the lack of guarantees and time to devote to lucrative activities, the reluctance to work in groups as well as the problems linked to the nature of activities women who remain

mainly in the informal sector. The author concluded that gender equality in financial inclusion is problematic in Burundi.

In the Namibian and Tanzanian cases, the gender gap in financial inclusion is proven by the following studies: (Mukong, Shiwayu, & Kaulihowa, 2020) and (Mndolwa & Alhassan, 2020). For Tanzania, it was proven that in a sample of 4,466 individuals obtained from the Finscope survey of the country, that men are 17.1% more likely to be financially included than women. This trend is also supported by the differences between the two genders in terms of savings rates (+21.3%); bank accounts (+10.6%) and mobile money accounts (+9.4%). The disparities in financial inclusion in terms of access and usage between Tanzanians are explained specifically by the low level of education and the level of income. While in Namibia the determinants which explain financial inclusion are individual characteristics such as the level of education achieved and the level of financial education as well as the proximity of financial institutions.

Using Finscope data of 2017 of Cameroon, the authors Ndoya and Tsala examined the gender gap in financial inclusion in 2021 in terms of access and uses. Of the six (06) variables retained, the authors found that there are gaps in access and use between men and women which are all in favor of men. Specifically, the results established that the variable that contributes mostly to the access gap between men and women is income about 50%. And that the main contributor to the gender gap is the level of education with an average contribution of 35%. In a similar study of the two authors previously cited, Hegueu (2021) presented an analysis of the elements that can explain the gaps in terms of financial inclusion in Cameroon between men and women. After implementing the Fairlie decomposition model as a data estimation method, he concluded that there were positive gaps favorable to men for the six (6) indicators selected. Specifically, the results prove that the level of income gaps are important in explaining gender inequalities linked to financial inclusion in Cameroon. This is justified by the fact that more than 50% of the differences in access to financial products and services are explained by the latter. In terms of the use of financial products and services, the differences are mainly explained by the level of education around 35%. The main results of these two studies are confirmed by other studies such as (Maureen, Maureen, & Caroline, 2021);(Kulkarni & Ghosh, 2021);(Houngbedji & Assouma, 2021);(Chabane, Abdelkader, & Hamid, 2021).

Antonijević, Ljumović, and Ivanović (2022) in their study on the gender gap in the case of financial inclusion based on Global Findex 2017 data from 144 countries found that out of the seven (07) segments selected, the gender gap is favorable to men in terms of financial inclusion. Following these authors, Abbes (2022), in an article, analyzed the main socio-economic determinants of financial inclusion in the 13 countries of the MENA region. To achieve its goal, a sample of 13,000 individuals among whom a survey was conducted in 2017 was used. The results obtained lean more towards gaps in access favorable to men which can be explained by the income and the level of education. According to the author, the latter characteristic having a very strong influence on the gaps. In the Saudi case, Shabir & Ali (2022), analyzed the importance of financial inclusion in Saudi Arabia from the angles of its access and uses. They used data from the Global Findex database of 1009 Saudis. Their results showed that there are links between access and uses of financial inclusion and gender. Access to financial inclusion is favorable to men with 82% compared to 60% for women. An analysis of the marginal effects in terms of access proves that the probability of men's access to financial inclusion is higher than that of women by around 10 to 13%. We also note that variables such as age, level of education, profession of the individual as well as the income contribute significantly to the access and the use of financial inclusion in Saudi Arabia.

Finally, Loaba (2023) examined relevant factors that may explain differences in access to financial accounts between men and women in 25 sub-Saharan African countries. After

implementing the logit and Fairlie decomposition models, she concluded that gender gaps are formally in favor of men. Men are financially included with 42.73% compared to women with 32.7% of. The differences in levels between men and women also vary depending on the level of development of the concerned countries. These differences in access to financial accounts are better explained in high-income countries with 79% than in low-income countries with 65%. The level of education (especially secondary) is the main characteristic justifying the gaps in access between men and women in sub-Saharan Africa.

Regarding of the mentioned literature above, which sufficiently shows the low participation of women in financial inclusion compared to men. Indeed, this low participation of women in terms of financial inclusion has harmful consequences on the economic and social development of developing countries in general and in Mali particularly. Malian women who cannot access financial services struggle to save, invest in their own businesses and improve their standard of living. It also limits their ability to contribute meaningfully to the national economy and reduce poverty. This leads us to interest on the analysis of gender inequalities in financial inclusion in Mali, with the aim of making economic policy implications to promote the economic participation of women and reduce gender inequalities in Mali.

## **Methodology and Data**

This section discusses the description of the data and variables as well as the methodology of the study.

### ***2.1 Data and Variables Description***

The data used in this article come from the survey carried out by the Solidarity and Industrial Economy Research Group (GRESI) in April 2023 on the issue of mobile telephony and financial inclusion in Mali.

The probability sampling method was used to survey 1,624 individuals across all regions in Mali. The choice of this probability sampling method is justified by the fact that there is no official database on mobile telephony and financial inclusion in Mali.

The database was collected from a questionnaire structured in four sections. The first section concerns the socio-demographic and professional characteristics of the respondents, particularly gender, age groups, marital status, level of study, profession, and income. The second section concerns information relating to the banking system of the respondents. Section three covers issues relating to Mobile money. The last section focuses on the link between mobile money and banking.

The variables used in this article are inspired by existing literature, helping to explain gender inequalities in financial inclusion. Thus, the retained variables in this research are the following: financial inclusion, gender, age, marital status, level of education and income.

***Financial inclusion:*** referring to access and the use of basic financial services by the less population, and is captured in this research by four main indicators relating to both access and use of financial services. Indeed, access to financial services is measured by binary variables: holding a bank account (holding a bank account is equivalent to the value 1 and 0 otherwise) and holding a mobile money account (holding a mobile money account equals the value 1 and 0 otherwise). Regarding the use of financial services, it is also measured binary variables: Saving money at the bank (Saving money at the bank takes the value 1 and 0 otherwise) and making use of the mobile money (Using mobile money takes the value 1 and 0 otherwise).

**Genre:** As part of this research, it is assumed that the probability of men accessing and using financial services is significantly higher than that of women. This would suggest the existence of gender inequality in terms of financial inclusion in Mali.

**Age:** the “age” variable is made up of four categories [(15-25 years); (25-35 years old); (35-45 years old); (45 years and over)]. Each modality is transformed into a binary variable. The “age” variable is likely to have a negative as well as a positive effect on the probability of accessing and using financial services.

**Marital status:** this variable was a categorical variable which takes the following modalities: single, married, divorced and widowed. Each modality is considered binary. A mixed effect is expected from these modalities.

**The level of education:** the modalities of the level of education (none, primary, secondary, and higher) can positively or negatively influence the probability of access and the use of financial services. According to Loaba (2023), individuals with a high level of education (use of IT tools in their school or university curriculum) are the majority users and access to financial services.

**Income:** this variable is used to capture the monthly amount that the respondent earns. In this research, income is a categorical variable which takes the following modalities: less than 40,000 CFA francs; equal to 40,000 Fcfa and more than 40,000 Fcfa. Therefore, it is assumed that a significant level of income positively influences the probability of accessing and using financial services by men compare to women.

**Profession:** this variable is a categorical variable bringing together the following modalities: private sector executive, public sector executive, other liberal professions and the unemployed.

**Table 1: Description of the exogenous variables**

Variables (Abbreviations)	Definition of exogenous variables
<b>Age groups</b>	
[15 years-25 years [ (age1)	The age of the respondent is between 15 and 25 years old
[25 years-35 years [ (age2)	The age of the respondent is between 25 and 35 years old
[35 years-45 years [ (age3)	The age of the respondent is between 35 and 45 years old
[45 years and over [ (age4)	The age of the respondent is between 45 years and above
<b>Marital status</b>	
Single (single)	Values 1 if the respondent is single and 0 otherwise
Married (mar)	Values 1 if the respondent is married and 0 otherwise
Divorced (div)	Values 1 if the respondent is divorced and 0 otherwise
Widower (wid)	Values 1 if the respondent is widowed and 0 otherwise
<b>Categories of Income</b>	
Income 1 (inc1)	Values 1 if the respondent has a monthly income less than the SMIG “40,000 Fcfa”
Income 2 (inc2)	Values 1 if the respondent has a monthly income equal to the SMIG “40,000 Fcfa”
Income 3 (inc3)	Values 1 if the respondent has a monthly income more than the SMIG “40,000 Fcfa”
<b>Profession</b>	
Private sector executive (pse)	Corresponds to 1 if the respondent is from the private sector and 0 otherwise
Public sector executive (puse)	Corresponds to 1 if the respondent is from the public sector and 0 otherwise

Variables (Abbreviations)	Definition of exogenous variables
Other liberal professions (other_liberp)	Corresponds to 1 if the respondent exercises other liberal professions and 0 otherwise
Without jobs (unempl)	Corresponds to 1 if the respondent is unemployed and 0 otherwise

Source: Authors

**Table 2: Descriptive statistics of financial inclusion measurement indicators by gender**

Variables (Abbreviations)	Proportion		Definition and measurement
	Man	Women	
<b>Financial Inclusion</b>			
<i>Access</i>			
Have a bank account (bk_acc)	62%	38%	Takes the value 1 if the respondent has a bank account and 0 otherwise
Have a mobile money account (mob_mon)	52%	48%	Takes the value 1 if the respondent has a mobile money account and 0 otherwise
<i>Use</i>			
Save money at the bank (save_bk)	60%	40%	Takes the value 1 if the respondent saves money in the bank and 0 otherwise
Use mobile money (use_mob_mon)	52%	48%	Takes the value 1 if the respondent uses mobile money and 0 otherwise

Source: Authors

Table 2 highlights the descriptive statistics in proportion to the indicators measuring the access and the use of financial inclusion by gender in Mali. Indeed, it appears from this table that there is a moderately high gender inequality in terms of financial inclusion in Mali in favor of men. Explicitly, regarding the access aspect of financial inclusion, it shows that the proportion of men who hold a bank account and/or a mobile money account respectively equal 62% and/or 52%. These values are on average higher than those of women who also have a bank account and/or a mobile money account, respectively 38% and/or 48%. Regarding the uses of financial inclusion component, it shows that the proportions of men who use financial inclusion on the basis of saving money in the bank and using mobile money, respectively 60% and 52%, are also averagely higher than those of women, with 40% and 48%. These results of statistical inferences could be explained in Mali by the following reasons: (i) women are often faced with social, cultural, and economic barriers which prevent them from accessing financial services; (ii) the lack of financial autonomy of women which prevents them from accessing and using financial services.

## 2.2 Methodology

In this article, Fairlie's nonlinear decomposition method is used. The Fairlie decomposition method is an extension of the Blinder-Oaxaca decomposition to overcome the limits encountered when the dependent variable is a dichotomous or polytomous variable (Jann, 2008; Ndoya & Tsala, 2021; Loaba, 2023).

The choice of this method is explained on one hand by the fact that the coefficients resulting from the estimation of a Probit or Logit model can be directly used in the specification of the Fairlie decomposition. On the other hand, by the fact that this decomposition method can identify the individual and group factors which contribute the most to gender inequalities in terms of financial inclusion and of quantifying the impact of each exogenous factor on gender

inequalities. This makes it possible to assess the relative importance of each factor in explaining gender inequalities in financial inclusion and to highlight the sources of these inequalities.

Thus, drawing inspiration from the original article by Fairlie and Mayer (1999) and the studies carried out by Ndoya & Tsala (2021) and Loaba (2023), we can write the decomposition of the nonlinear equation, of the following way:  $Y = F(X\hat{\beta})$

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

Where  $N^H$  et  $N^F$  denote the sample size for the male and female genders, respectively. The first term in brackets of expression (1) designates the share of the gender deviations due to differences in the distribution of levels of X. The second term in square brackets of expression (1) represents the share of deviations in the process of determining the levels of Y. In addition, the second term also captures the portion of the gender gap due to group differences in unmeasurable or unobserved endowments.  $\bar{Y}^H$ : is the average probability of accessing or using financial services in the male group and  $\bar{Y}^F$  is the average probability of accessing or using financial services in the female group.  $X_i$  : is the distribution of characteristics observable in the studied population while  $\hat{\beta}_i$  represents the estimated coefficients attributed to the observed characteristics.  $F(.)$  denotes the cumulative distribution function that follows a normal distribution. To simplify the decomposition formula in equation (1), we assume that  $N^H = N^F$  and that there is a natural two-way correspondence of observations between males and females. Using the estimated coefficients from a Logit regression for a pooled sample  $\hat{\beta}$ , the contribution of an observable characteristic  $X_i$  is described as follows:

$$\frac{1}{N^F} \sum_{i=1}^{N^F} F(\hat{\beta}_0^* + \hat{\beta}_1^* X_{1i}^H + \hat{\beta}_k^* X_{ki}^H) - F(\hat{\beta}_0^* + \hat{\beta}_1^* X_{1i}^F + \hat{\beta}_k^* X_{ki}^M) \quad (2)$$

The contribution of a characteristic can be positive or negative, and the sum of the relative contributions measures the total difference attributed to differences in the distribution of characteristics between men and women. This indicates the expected change in the access difference if women had the same distribution of characteristics as men. The second term of equation 2 shows that even though men and women have the same observable characteristics, there is a difference in the access and the use of financial services due to other unexplained factors.

## Results and Discussions

This section presents and discusses the econometric results of the decomposition of gender inequalities of financial inclusion in Mali. Indeed, depending on the availability of data, four indicators of financial inclusion were used (having a bank account; having a mobile money account, having saved money, and having used mobile money). These four indicators are divided into two dimensions. The first is the dimension of access to financial services, bringing together indicators such as “having a bank account” and “having a mobile money account” and the second, is the use of financial services, bringing together indicators such as “having saved money” and “having used mobile money”.

### 3.1 Breakdown of gender inequalities in access to financial services

Table 3 presents the results of the decomposition of gender inequalities in access to financial services by highlighting the contribution of each significant exogenous variable to gender inequalities. Furthermore, it is important to note that the positive sign of the estimated coefficients designates the contribution of the corresponding variable to the increase in gender inequalities in terms of financial inclusion and on the other hand the negative sign of the estimated

coefficients designates the contribution of variable corresponding to the reduction in gender inequalities in terms of financial inclusion.

**Table 3: Results of the decomposition of gender inequalities in access to financial services**

	Average difference between gender			
	Have a bank account		Have a mobile money account	
Average probability of access for men (%)	36%		92%	
Average probability of access for women (%)	23%		86%	
Average difference between gender	13%		6%	
Total explained	11%		14%	
<b>Contribution of the study's exogenous variables to gender inequality</b>				
	Have a Bank Account		Have a Mobile Money	
	Coefficient	Contribution	Coefficient	Contribution
<b>Age groups</b>				
Band 1 (age1)	0.0000	0%	0.0003	0.23%
Band 2 (age2)	-0.0024	-1.85%	0.0013	1%
Band 3 (age3)	-0.0003	-0.23%	-0.0002	-0.15%
Band 4 (age4)	0.0055***	4.23%	0.0000	
<b>Marital status</b>				
Single (single)	0.0095	7.31%	0.0031	2.38%
Married (mar)	-0.0028	-2.15%	0.0000	0%
Divorced (Div)	0.0000	0%	0.0005	0.38%
Widower (wid)	-0.0026	-2%	0.0000	0%
<b>Income brackets</b>				
Income 1 (inc1)	0.0158	12.15%	0.0000	0%
Income 2 (inc2)	0.0000	0%	-0.001	-0.77%
Income 3 (inc3)	0.0405***	31.15%	0.0099**	7.62%
<b>Occupation</b>				
Private sector executive (pse)	-0.0002	-0.15%	0.0000	0%
Public sector executive (puse)	0.0000	0%	0.0001	0.08%
Other liberal professions (other_liberp)	-0.0738***	-56.77%	-0.0016	-1.23%
Unemployed (unempl)	0.1171***	90.08%	0.0000	0%
Total number of observations (N)	1851			
Number of sightings of men	928			
Number of women observed	923			

Source : Authors

The results obtained show that access to traditional (banks) and digital (mobile money) financial services favors men rather than women. They show that the average gap in terms of probability of access to bank accounts is led by men with 13%. While that relating to the probability of access to Mobile money represents 6%. These different results are like those of Mndolwa and Alhassan (2020), and Loaba (2023). These authors found that in the case of Tanzania and Cameroon the probabilities of men's access to financial services are more important than those of women with 17.1% and 10.003% respectively. In the same direction as our results, Shabir and Ali (2022), using Saudi data, they concluded that the probability of men's access to financial inclusion is higher than that of women by around 10 to 13%.

Our results also show that income significantly contributes to increasing inequalities in access to financial services, especially beyond the Guaranteed Interprofessional Minimum Salary (SMIG). From this income level, inequalities in access to bank accounts and Mobile money are explained by 31.15% and 7.62% respectively. This important result is in accordance with previous research carried out by Ndoya and Tsala (2021) and Hegueu (2021). They found that the contribution of income to the financial inclusion inequality accounts 50%. In addition, in 2015, Abdullahi, Idi, and Tasiu also proved in the case of Nigeria that from the 2nd quintile of Nigerian income the gender gap in terms of financial inclusion was in favor of men. It should nevertheless be noted that the gap in terms of inequality explained by income narrows when it comes to access to digital financial services. One of the main explanations for such a contribution of income to this type of gap can be attributed to the low cost of access to digital financial services.

The results of this research confirm the positive contribution in reducing gender inequalities between men and women of the profession variable. And this logical result is confirmed in 2017 by Ghosh and Vinod in India and in 2018 by Niyuhure in Burundi. In the case of European countries, Brotic and Broz (2019) concluded that gender inequality in terms of financial inclusion is explained by employment to the extent that exclusion through work favors financial exclusion.

### 3.2 Breakdown of gender inequalities in the use of financial services

Table 4 presents the results of the decomposition of gender inequalities in the use of financial services by highlighting the contribution of each significant exogenous variable to gender inequalities.

**Table 4 : Results of the breakdown of gender inequalities in the use of financial services**

	Average difference between gender			
	Have saved in the bank		Uses of mobile money	
Average probability of use by men (%)	32%		86%	
Average probability of use by women (%)	21%		81%	
Average difference between gender	11%		5%	
Total explained	9%		2%	
<b>Contribution of the study's exogenous variables to gender inequality</b>				
	Have saved in the bank		Use of mobile money	
	Coefficient	Contribution	Coefficient	Contribution
<b>Age groups</b>				
Band 1 (age1)	0.0000	0%	0.0000	0%
Band 2 (age2)	-0.0007	-0.64%	0.0002	0.18%
Band 3 (age3)	-0.0003	-0.27%	-0.0004	-0.36%
Band 4 (age4)	0.0025**	2.27%	0.0014	1.27%
<b>Marital status</b>				
Single (single)	0.0015	1.36%	0.0044	4%
Married (mar)	-0.0010	0.90%	-0.0021	-1.91%
Divorced (div)	0.0000	0%	0.0000	0%
Widower (wid)	-0.0037	-3.36%	0.0011	1%
<b>Income brackets</b>				
Income 1 (inc1)	0.0152	13.81%	0.0074	6.71%
Income 2 (inc2)	0.0000	0%	0.0000	0%

Income 3 (inc3)	0.0357***	32.45%	-0.0050	-4.55%
<b>Occupation</b>				
Private sector executive (pse)	-0.0004	-0.36%	0.0001	0.09%
Public sector executive (puse)	0.0000	0%	0.0000	0%
Other liberal professions (other_liberp)	-0.0438***	-39.81%	0.0019	1.73%
Unemployed (unempl)	0.0837***	76.09%	0.0062***	5.64%
Total number of observations (N)	1851			
Number of sightings of men	928			
Number of women observed	923			

Source: Authors

The results relating to the use of financial services in Mali prove that men use these services more than women. Whether the service is traditional (banking) or digital (Mobile money), the average probability of use is higher for men than for women. These results are in favor of men for the uses of traditional and digital services set at 11% and 5% respectively. It should be noted, however, that this gender gap is greater for traditional services than for digital services. The small gap between men and women in relation to the use of digital services can be explained by the low cost of use (learning, monetary) of the latter. Our results are confirmed by those obtained by Mndolwa & Alhassan in Tanzania (2020). These authors showed that the differences between the two genders in terms of savings rate (+21.3%); bank accounts (+10.6%) and mobile money accounts (+9.4%) are all favorable to men. This same result was obtained by Ghosh and Vinod (2017) by arguing that in the area of credit granted, the probability of access for households headed by women is 20% lower than for households headed by men.

In terms of the determinants of inequalities in the use of financial services in Mali, the results obtained in this research show that the variables "age", "marital status" and "profession" contribute positively to the reduction of inequalities in the use of financial services (classic and digital) between men and women in Mali, which is similar to the result obtained by Shabir & Ali (2022); Ghosh and Vinod (2017).

While the "income" variable from a level above the SMIG (i.e. the 3rd band) significantly contributes to increasing gender inequalities regarding banking financial services by 32.45%. Mndolwa & Alhassan, 2020 obtained the same result in the case of Tanzania by arguing that for this country, the disparities in financial inclusion in terms of uses between Tanzanians are explained specifically by low income. Shabir & Ali (2022) also found a result similar to ours in Saudi Arabia.

On the other hand, for digital financial services (Mobile money), this same variable contributes positively to reducing financial inclusion inequalities between men and women by 4.55%. This result seems to us to be new because we did not note it in previous studies analyzed for the present study.

Furthermore, we point out that we have not managed to establish a clear link (whether positive or negative) between the level of education and access and use of financial services (classic and digital) in the case of Mali. Despite the existence of such a result in previous studies (Loaba (2023); Abbes (2022); Antonijević, Ljumović, and Ivanović (2022); Shabir & Ali (2022); Hogueu (2021); Ndoya and Tsala, 2021; Mukong, Shiwayu, & Kaulihowa, (2020); Brotic & Broz (2019)).

## Conclusion and implications

This article analyzes gender inequalities in financial inclusion in Mali. For this, data from the survey conducted by the Solidarity and Industrial Economy Research Group (GRESI) in April 2023 on the issue of mobile telephony and financial inclusion in Mali were used. Fairlie's non-linear decomposition method was implemented for statistical and econometric analysis purposes. Thus, it appears on the one hand from this implementation that the average difference between men and women for accessing a bank account is 13% compared to 6% for accessing a mobile money account. And on the other hand, the average difference between men and women in saving money in the bank is 11% compared to 5% for the use of mobile money. Which leads us to say that in Mali, gender inequalities in terms of access and use of financial services (classics and digital) are greater for both segments (access and use) for banking services than for digital services. In other words, women are more excluded from access and use of banking financial services than digital ones. This is mainly due to the low income of the latter and to cultural restrictions which limit their mobility.

It is therefore crucial to take measures to promote the financial inclusion of women in Mali by especially developing FinTech infrastructures which have the lowest gender inequality gaps in Mali. And also, to create financial products adapted to their specific needs.

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