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# Financial Education and Economic Empowerment of Women Engaged in Small-Scale Cross-Border Trade in North and South Kivu, DRC: The Mediating Role of Financial Inclusion

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**Abstract:** This study aimed to examine how financial education and financial inclusion contribute to strengthening the economic and decision-making empowerment of women engaged in informal cross border trade. These women traders continue to face numerous constraints, particularly limited financial management skills and restricted access to formal financial services. In this context, the need for financial education appears both substantial and urgent for small cross-border traders. The study adopted a quantitative approach based on a survey conducted among 320 women involved in small cross-border trade operating at the Ruzizi 1 and Ruzizi 2 border posts in South Kivu, as well as at Petite Barrière and Grande Barrière in North Kivu. Data were collected using validated multi-item scales and analyzed through Structural Equation Modeling (SEM) using AMOS version 24 in order to test the causal relationships among the study variables. The findings reveal that financial education and financial inclusion have a positive and significant effect on the economic empowerment of women cross-border traders. Women with stronger financial knowledge demonstrate greater capacities in income management, savings, and investment practices. Furthermore, they allocate part of the profits generated from their small trading activities to supporting household income, thereby enhancing their participation and decision-making power in economic and social matters within the household.

**Keywords:** *financial education, financial inclusion, economic empowerment, small cross-border trade.*

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## Introduction

Small-scale cross-border trade is defined as an income-generating commercial activity in which the value of daily trade transactions does not exceed one hundred US dollars per trader. It is increasingly becoming a source of employment, foreign exchange earnings, and socio-economic well-being for developing countries. This type of trade plays a crucial role in ensuring food security, supporting the daily survival of thousands of households, and promoting peaceful coexistence among populations in the Great Lakes region. The border between the Democratic Republic of the Congo (DRC) and Rwanda is among the busiest in Africa, and the majority of cross-border trade activities are largely carried out by women.

In their small-scale cross-border trading activities, these women are affected by limited financial education skills and restricted access to financing opportunities. The need for financial education among small-scale cross-border traders is both real and urgent. Findings from preliminary studies conducted on financial education (Brouwers et al., 2013; FinScope-DRC, 2014; Brouwers & Kalala, 2015) in the Democratic Republic of the Congo reveal a significant lack of financial knowledge among women, including limited understanding of financial products, poor credit management, and low savings levels. These findings confirm the urgent need to strengthen women's financial literacy in order to connect them more effectively to financial services.

Financial inclusion for women engaged in small-scale trade requires the establishment of a less discriminatory financial system that addresses the specific challenges women face on both the supply and demand sides of financial services (Holloway et al., 2017). Furthermore, financial institutions are increasingly recognizing the potential of women within their commercial growth strategies. Financial institutions that have effectively responded to the needs of female clients have examined the outcomes of this new approach (Women's World Banking, 2014) and demonstrated higher customer loyalty as well as increased portfolio share per client, thereby confirming the importance of

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targeting women and improving their access to financial services in order to strengthen their businesses.

Women's empowerment can only be achieved through investment in skills development and continuous support in the daily management of their income-generating activities. Such empowerment contributes to income generation while also offering flexible working arrangements that accommodate women's additional responsibilities within their households. Therefore, women's empowerment requires their active involvement in income-generating activities (Zogning F., 2021).

This article aims to demonstrate how financial education and financial inclusion contribute to strengthening the economic and decision-making empowerment of women engaged in small-scale cross-border trade.

The contribution of this study to the existing body of knowledge is twofold. First, while most studies focus on financial inclusion in general terms, very few examine the specific realities of women engaged in small-scale cross-border trade within the Great Lakes Region, despite the fact that this marginalized group plays a crucial role in local economies. Second, this study establishes a relationship between financial education, financial inclusion, and economic empowerment.

This study is structured into five sections. The first section presents the theoretical framework. The second describes the methodology, the third presents the findings, the fourth discusses the results, while the fifth outlines the implications and future research perspectives.

## Theoretical Framework

### Financial Education

Beal and Delpachitra (2003) define financial education as an individual's ability to: (a) understand concepts related to money management; (b) possess practical knowledge of financial institutions, systems, services, and financial products; and (c) demonstrate a set of cognitive and analytical skills in personal finance matters.

Financial education also refers to the teaching of knowledge, skills, and attitudes that individuals should adopt in order to better manage spending, savings, and credit in a rational manner (Adam, 2012).

Financial education therefore provides households and individuals with the ability to understand and apply financial concepts (Servon & Kaestner, 2008) and to live decently in a rapidly changing modern society (Bowen, 2002; Zorn, 2005; Kim, 2021). It teaches households how to use financial instruments (Campbell, 2006), make sound financial decisions to improve their well-being, and avoid financial distress (Ardhendu & Venkataramai, 2012).

By providing financial education to women engaged in small-scale trade, they acquire the personal capacity to analyze, manage, and communicate about financial conditions affecting their material well-being. In addition, they develop the ability to make informed financial choices, discuss financial issues, plan for the future, and respond competently to life events (Vitt et al., 2000).

The importance attached to financial education is supported by complementary arguments. First, finance has become an integral part of the economic and social life of households. The lack of financial education appears to be a serious handicap in both the private and social lives of households (Marx et al., 2010; BenDavid-Hadar, 2015). Indeed, households may struggle to live decently and maintain a stable livelihood if they have not previously benefited from a financial education program (Lusardi, 2008a). The underlying argument is that households without financial education are more vulnerable to over-indebtedness, bankruptcy, and even socio-economic marginalization (Lucey & Cooter, 2008; OECD, 2005).

### Financial Inclusion

Financial inclusion refers to any initiative aimed at providing marginalized segments of the population, often excluded from the conventional financial sector, with accessible, user-friendly, and affordable financial services (Ziadi, 2012). Financial services include payment operations, revenue mobilization, capital allocation, user monitoring, and risk transformation (Ncube M., 2012).

Financial inclusion has become a major priority for an increasing number of countries and continues to gain importance worldwide. Many countries consider financial inclusion a key economic and social issue because it contributes to reducing poverty, exclusion, and gender disparities while promoting the economic and social well-being of populations. Nevertheless, in most countries, many people still face difficulties in accessing appropriate financial products and services available in the conventional market or in effectively using such services. According to the World Bank (2014), 2.5 billion people, representing 38% of the adult population, do not use any "formal" financial services. This exclusion is particularly pronounced among the poorest populations, where more than one household out of two does not own a bank account due to associated costs, the distance from financial institutions, or complex administrative procedures. In developing countries, only 37% of women, compared to 46% of men, have a bank account.

Economic literature has highlighted several barriers to financial inclusion. These include social disparities in access to finance. Ziadi (2013) emphasizes that in middle-income countries, financial exclusion mainly affects women, low-income individuals, less educated people, and rural populations. Gender disparities are also evident in account ownership, formal savings, and access to formal credit. Being a woman increases the likelihood of financial exclusion (Demirgüç-Kunt et al., 2013).

### Economic Empowerment

In the literature, several definitions exist regarding the concept of women's economic empowerment. Most of these definitions indicate that "economic empowerment combines the concept of strengthening power with that of economic advancement" (Foreign Affairs, Trade and Development Canada, 2013).

The definition proposed by Eyben, Kabeer, and Cornwall (2008) is also significant because it complements the understanding of the concept adopted in the previous definition. According to these authors, "economic empowerment is the capacity of poor women and men to participate in, contribute to, and benefit from growth processes in ways that recognize the value of their contributions, respect their dignity, and enable them to

negotiate a fairer distribution of the benefits of growth" (Eyben et al., 2008).

This definition emphasizes the importance of equal participation of both women and men in the development process. Economic empowerment therefore concerns populations with low or no income, with the objective of reducing inequalities generated by economic growth.

The process of women's economic empowerment thus becomes an "asset to the economy" when sustainable development is pursued in a manner that promotes the participation of the poorer segments of the population. It also contributes to reducing gender disparities. However, for the process of women's economic empowerment to succeed, it is essential to reach women who are illiterate and deprived of their rights (OECD, 2011).

**Some Theories and Development of Hypotheses**

***Theory of Financial Inclusion***

Bank Al-Maghrib (2017) defines financial inclusion as affordable and appropriate access to financial services such as savings, payments, loans, and money transfers, delivered transparently and efficiently to individuals and businesses.

The United Nations considers financial inclusion as the expansion of access to financial services at a cost adapted to different segments of the population. This definition is similar to that of Aduda, who defines financial inclusion as ensuring access to financial products and services at an affordable cost without any form of discrimination (Aduda et al., 2012). Likewise, Shankar (2011) defines financial inclusion as expanding access to formal financial products and services at an affordable cost.

In this study, we focus on two main dimensions of this definition:

- **Access to financial services:** According to Beck, Demirgüç-Kunt, and Levine (2004) as well as Honohan (2008), improving household access to savings accounts can lead to increased savings, productive investment, consumption, and poverty reduction. The World Bank indicates that despite efforts made to increase young people's access to formal financial services, more than half of the global youth population still lacks such access (Demirgüç-Kunt et al., 2015; World Bank, 2014). Furthermore, United Nations statistics reveal that 2.7 billion people worldwide are excluded from formal financial services such as savings accounts, credit, insurance, and payment services (Ehrbeck et al., 2012). Guérineau and Jacolin (2014) demonstrated that this lack of access to financial services is even more alarming in Sub-Saharan Africa, where on average only 40% of the population has access to such services.

- **Use of financial services:** Difficulties related to the use of financial services are among the main causes of withdrawal from or lack of access to financial services (Gloukoviezoff, 2004). This process of withdrawal results from the inability of banks to maintain quality relationships with clients living in precarious conditions (Brunet et al., 2004).

***Empowerment Theory***

The "empowerment approach" is closely linked to situations characterized by deprivation of access to power. It refers to the processes through which individuals who initially lack the capacity to make choices progressively acquire such capacity. In other words, empowerment is embedded in a dynamic of both social and individual transformation. Individuals who already possess broad decision-making autonomy and substantial power of action are generally not concerned by this concept, since they have not experienced situations of exclusion or restrictions on their ability to make choices (Naila Kabeer, 2003).

From this perspective, Sathar and Kazi (1997) associate access to and control over resources with the right to express oneself and to participate effectively in intra-household decision-making regarding resource allocation. Their approach operationalizes access to resources through women's involvement in decisions related to household expenditures, their level of participation in such decisions, and their freedom to acquire personal and family goods such as clothing, jewelry, or gifts intended for relatives.

Furthermore, empirical studies show that women often develop forms of empowerment referred to as "informal" or "subtle" empowerment, which preserve social norms, public image, and the apparent authority of the decision-maker while simultaneously strengthening women's actual influence in "behind-the-scenes" decision-making processes (Margaret A. Chen, 1983; Naila Kabeer, 2000; Basu, 1996). These strategies reflect a pragmatic form of adaptation whereby women mobilize relational and strategic skills in contexts where any visible disruption of the social order could generate significant social costs.

***Development of Hypotheses***

Financial education is a powerful tool for reducing the financial vulnerability of women engaged in small-scale trade in the face of market uncertainties. By gaining a better understanding of financial principles, women traders are able to implement strategies to mitigate risks such as over-indebtedness and the misuse of credit, while also securing their income more effectively, thereby contributing to poverty reduction. A lack of financial education among women engaged in small-scale cross-border trade may constitute a barrier to their access to financing opportunities. Tangible findings from VisionFund Senegal have shown that financial education helps excluded populations gain access to financial services while maintaining sound financial management practices, thereby reducing risks and promoting women's economic empowerment.

Financial education is likely to exert a positive impact on the social and economic well-being of households. Indeed, households that benefit from financial education are more likely to make sound financial decisions in favor of their families and thereby improve their financial and economic security (Hilgert et al., 2003; Mandell, 2008). Consequently, financially educated families may contribute to the emergence of sustainable communities and overall economic development (Kotlikoff & Bernheim, 2001; Marcolin & Abraham, 2006).

- ***H1:*** *Financial education has a positive influence on the economic empowerment of women engaged in small-scale cross-border trade.*

Several studies demonstrate that access to and use of appropriate financial products and services enable individuals to enjoy a better quality of life and allow businesses to develop more effectively (IMF, 2019). More specifically, facilitating household

access to deposit accounts contributes to increased savings, productive investment, consumption, poverty reduction (Beck, Demirgüç-Kunt & Levine, 2004; Honohan, 2004), and women's empowerment (Afi, 2020).

- ***H2:*** *Financial inclusion has a positive influence on the economic empowerment of women engaged in small-scale cross-border trade.*

## Methodology

Data collection was conducted in the provinces of North Kivu and South Kivu from April 1 to April 30, 2026. We met women traders in various cross-border markets (Kahembe and Elakat), as well as at the Ruzizi I and Ruzizi II border posts in Bukavu, and at the Petite Barrière and Grande Barrière border posts in Goma. Prior to this stage, the data collection process was carried out in two phases: the first phase focused on identifying associations and structures of women engaged in small-scale cross-border trade, while the second phase involved conducting individual interviews.

We adopted an approach aimed at ensuring the progressive enrichment and diversification of data in accordance with the principle of saturation threshold. As highlighted by R. Mayer et al. (2000), the use of multiple data sources allows for data triangulation.

Due to the lack of reliable official statistics, a total sample of 320 women was randomly selected from the target population. The number of respondents surveyed at each border post was determined based on the frequency with which these women crossed the border and their high concentration in the nearest cross-border markets.

The table below presents the distribution of the women surveyed according to their level of activity across the four border points with Rwanda.

**Table 1. Distribution of Respondents by Border Crossing Frequently Used**

| Border Crossing | Frequency | Percentage |
|---|---|---|
| **Petite Barrière** | 102 | 31.875% |
| **Grande Barrière** | 58 | 18.125% |
| **Ruzizi I** | 90 | 28.125% |
| **Ruzizi II** | 70 | 21.875% |
| **Total** | **320** | **100%** |

*Source: Results from our field survey, April 2026.*

This distribution was established according to the level of traffic observed at each border crossing. Field findings revealed that the Petite Barrière was the most frequently used crossing point, which explains why a larger number of women were surveyed there compared to the other border posts.

Furthermore, since the External Trade Division was not operational during the period of occupation of the cities of Goma and Bukavu by the AFC/M23, we relied on platforms of associations of small-scale cross-border traders to present the objectives of our research and facilitate our access to the field.

A list of associations and their female leaders was provided to us. Following phone calls and appointment scheduling, we organized individual interviews within markets and border posts in order to allow women to remain in their daily working environment while ensuring the confidentiality of the collected data. Only women who gave their consent were interviewed and were informed beforehand about the objectives of the study, the intended use of the data, and the guarantee of anonymity.

Secondary data were obtained through existing and accessible documentation available in several local university libraries, notably those of the Official University of Bukavu and the Catholic University of Bukavu. Reports produced by NGOs such as iPeace and International Alert were also consulted, as these organizations implement various projects related to cross-border trade in North and South Kivu. The review of journals and academic articles further complemented this documentary research.

The collected data were coded and analyzed using SPSS version 26 for descriptive statistics, reliability analysis of scales, and exploratory factor analysis. Confirmatory analyses as well as structural equation modeling were conducted using AMOS version 24 in order to test the causal relationships between the variables.

## Results

### Sociodemographic Characteristics of Respondents

The study was conducted on a sample of 320 women engaged in small-scale cross-border trade in the provinces of North Kivu and South Kivu. The findings indicate that the majority of respondents (41.9%) were between 31 and 40 years old, followed by those aged between 21 and 30 years (34.4%). Women aged 40 years and above represented 18.7% of the sample, while those under 21 years accounted for 5.0%. Regarding educational level, 38.1% of the respondents had completed primary education, 27.5% had never attended school, 21.3% had reached secondary education, and 13.1% had attained higher or university education.

The majority of the women interviewed had been engaged in trading activities for more than five years (57.8%). Concerning the use of financial technologies, 31.6% of respondents reported regularly using Mobile Money services in their commercial activities.

### Descriptive Analysis of the Study Variables

Descriptive statistics reveal that women engaged in small-scale cross-border trade demonstrate a relatively satisfactory level of financial education, with an overall mean score of 3.71 out of 5 and a standard deviation of 0.68, indicating a certain degree of homogeneity in responses. This result suggests that respondents generally possess financial knowledge, skills, and attitudes that are conducive to the effective management of their business activities.

**Table 2. Descriptive Analysis of Study Variables**

| Variables | Mean | Standard Deviation |
|---|---|---|
| **Financial Education** | 3.71 | 0.68 |
| **Financial Inclusion** | 3.54 | 0.73 |
| **Economic Empowerment** | 3.76 | 0.66 |

*Source: Results from our field survey, April 2026.*

Financial inclusion recorded a mean score of 3.54 with a standard deviation of 0.73, indicating a moderate level of integration of women traders into the formal financial system. This situation shows that despite the growing use of digital financial services, several constraints continue to limit access to these services, particularly among illiterate women.

Economic empowerment displayed the highest mean score (M = 3.76; SD = 0.66), reflecting the positive impact of cross-border trade on improving the socio-economic conditions of these women. These findings suggest that commercial activities enable women to strengthen their economic power, enhance their participation in financial decision-making, and increase their resilience in the face of economic challenges.

**Detailed Descriptive Analysis of Items and Dimensions**

***Financial Education***

**Table 3. Descriptive Analysis of Items Related to the Dimensions of Financial Education**

| Dimensions | Code | Items | Mean | Standard Deviation |
|---|---|---|---|---|
| **Financial Knowledge** | FK1 | I know how to calculate profit. | 3.88 | 0.81 |
| | FK2 | I am able to distinguish personal expenses from the expenses of my small business. | 3.95 | 0.76 |
| | FK3 | I understand how credit and interest systems operate within Village Savings and Loan Associations (VSLAs). | 3.42 | 0.94 |
| | FK4 | I understand the importance of savings in my small business. | 4.11 | 0.67 |
| | FK5 | I understand the risks related to over-indebtedness and its consequences on my small business. | 3.76 | 0.83 |
| **Financial Skills** | FS1 | I regularly keep records/accounts of my small business. | 3.31 | 1.02 |
| | FS2 | I plan my business expenses in advance. | 3.62 | 0.89 |
| | FS3 | I compare several options before taking out a loan. | 3.55 | 0.96 |
| | FS4 | I am capable of managing my income even during difficult periods. | 3.74 | 0.84 |
| | FS5 | I know how to use digital financial services (mobile money, banking services, etc.). | 3.81 | 0.79 |
| **Financial Attitudes** | FA1 | I save regularly even when my income is low. | 4.22 | 0.61 |
| | FA2 | I prefer investing in my business rather than spending my income immediately. | 3.97 | 0.73 |
| | FA3 | I am cautious about taking unexpected debts. | 3.91 | 0.77 |
| | FA4 | I consider the financial consequences before taking on debt. | 3.83 | 0.80 |
| | FA5 | Prudent financial management is essential for improving my household's living conditions. | 4.18 | 0.64 |

*Source: Results from our field survey, April 2026.*

The results indicate that the dimensions related to financial attitudes recorded the highest scores among the components of financial education. Respondents attached particular importance to regular saving even with low incomes (M = 4.22), as well as to the prudent management of financial resources in order to improve their households' living conditions (M = 4.18).

The "financial knowledge" dimension also produced satisfactory results, particularly regarding the understanding of the importance of savings (M = 4.11) and the ability to distinguish between personal and business expenses (M = 3.95). However, some limitations remain in the understanding of credit mechanisms and interest systems within Village Savings and Loan Associations (VSLAs) (M = 3.42).

Regarding financial skills, the findings reveal that some women plan their business expenditures and use digital financial services to carry out certain transactions, particularly for payments, deposits, transfers, and related operations. Nevertheless, regular bookkeeping practices remain relatively weak (M = 3.31), reflecting deficiencies in accounting and financial management skills.

These findings suggest that the financial education of women traders is more strongly characterized by prudent behavioral attitudes than by advanced technical financial management skills.

***Financial Inclusion***

**Table 4. Descriptive Analysis of Items Related to the Dimensions of Financial Inclusion**

| Dimensions | Code | Items | Mean | Standard Deviation |
|---|---|---|---|---|
| **Access to Financial Services** | AFS1 | I have access to a bank account or Mobile Money services. | 3.94 | 0.82 |
| | AFS2 | Financial services are accessible near my place of business. | 3.52 | 0.93 |
| | AFS 3 | The conditions required to open an account are easy to fulfill. | 3.29 | 1.01 |
| | AFS 4 | I can easily obtain information about financial products. | 3.41 | 0.91 |
| | AFS 5 | The costs of financial services are affordable for me. | 3.17 | 1.08 |
| **Use of Financial Services** | UFS1 | I regularly use Mobile Money or a bank account for my business activities. | 3.01 | 0.73 |
| | UFS 2 | I regularly save through a financial institution or a VSLA. | 3.62 | 0.88 |
| | UFS 3 | I have already used credit to develop my small business. | 3.14 | 1.11 |
| | UFS 4 | I make digital payments in my business activities. | 3.73 | 0.81 |
| | UFS 5 | Financial services facilitate my cross-border transactions. | 3.68 | 0.84 |

*Source: Results from our field survey, April 2026.*

The results indicate that women traders make greater use of digital financial services such as Airtel Money, Orange Money, and similar platforms. However, the regular use of Mobile Money for commercial transactions recorded one of the lowest scores (M = 3.01). This situation is mainly explained by the ongoing crisis perpetrated by the AFC/M23, during which Mobile Money agents charge additional commissions for each transaction carried out.

The dimension related to "access to financial services" shows relatively moderate results. Respondents acknowledged having access to Mobile Money accounts (M = 3.94), yet several challenges persist, particularly regarding the costs of financial services (M = 3.17) and the requirements for opening accounts, such as the presentation of identity documents and the payment of initial deposit fees (M = 3.29). During field observations, we found that some Congolese women traders had lost their identification documents, while for others, the documents had become damaged or illegible. In addition, the temporary closure of banks has further restricted access to financial services.

Regarding the dimension "use of financial services," women reported using financial services mainly for savings, digital payments, and cross-border commercial transactions. Nevertheless, the use of credit for business development remains relatively limited (M = 3.14), which may be explained by the temporary closure of banks. The majority of respondents stated that they rely on Village Savings and Loan Associations (VSLAs) to obtain microcredit in order to support and expand their small businesses.

These findings demonstrate that the financial inclusion of women traders is primarily driven by digital financial services offered by banking institutions and telecommunication companies (Airtel, Orange, Vodacom, etc.), as well as by informal microfinance mechanisms such as VSLAs, rotating savings groups, MUSO groups, and tontines.

***Economic Empowerment***

**Table 5. Descriptive Analysis of Items Related to the Dimensions of Economic Empowerment**

| Dimensions | Code | Items | Mean | Standard Deviation |
|---|---|---|---|---|
| **Economic Capacity** | EC1 | My small business allows me to meet my family's basic needs. | 3.86 | 0.81 |
| | EC2 | My income has increased thanks to my commercial activities. | 3.79 | 0.87 |
| | EC3 | I am able to cope with unexpected expenses. | 3.51 | 0.92 |
| | EC4 | I am able to save part of my income. | 3.63 | 0.89 |
| | EC5 | My business has grown over the past few years. | 3.72 | 0.85 |
| **Decision-Making Power** | DM1 | I participate in important household financial decisions. | 3.94 | 0.73 |
| | DM2 | I freely decide how to use the income from my business. | 4.02 | 0.71 |
| | DM3 | I can invest in my business without depending on another person. | 3.61 | 0.93 |
| | DM4 | I feel more financially independent than before. | 3.97 | 0.75 |
| | DM5 | My business gives me greater recognition within the community. | 3.68 | 0.84 |
| **Economic Resilience** | ER1 | I am able to sustain my business despite economic difficulties. | 3.74 | 0.83 |
| | ER2 | I feel more confident about my economic future. | 3.89 | 0.76 |
| | ER3 | I can plan long-term projects thanks to my income. | 3.57 | 0.91 |
| | ER4 | My business has improved my quality of life. | 3.93 | 0.74 |
| | ER5 | I feel economically autonomous thanks to my business. | 3.98 | 0.72 |

*Source: Results from our field survey, April 2026.*

These results show that small-scale cross-border trade significantly contributes to improving the economic empowerment of women.

The "decision-making power" dimension records the highest scores, particularly with regard to the freedom to use business income (M = 4.02) and participation in important household financial decisions (M = 3.94). These findings indicate that income generated from commercial activities strengthens women's economic independence.

The "economic resilience" dimension also presents satisfactory results. Respondents report feeling more economically autonomous thanks to their business activities (M = 3.98) and more confident about their economic future (M = 3.89).

Regarding "economic capacity," the findings show that business income enables women to meet their households' basic needs (M = 3.86) and gradually improve their living conditions. However, some women still experience difficulties in coping with unexpected expenses (M = 3.51), revealing a certain level of vulnerability.

**Reliability Analysis of the Measurement Scales**

The reliability of the measurement scales was assessed using Cronbach's Alpha coefficient to examine the internal consistency of the items comprising each construct. According to the recommendations of Roussel (2005), a coefficient value greater than 0.70 indicates satisfactory internal consistency and good reliability of the scales.

**Table 6. Reliability Test Results of the Measurement Scales**

| Constructs | Number of Items | Cronbach's Alpha |
|---|---|---|
| **Financial Education** | 15 | 0.891 |
| **Financial Inclusion** | 10 | 0.873 |
| **Economic Empowerment** | 15 | 0.904 |

*Source: Survey Results, April 2026.*

The results indicate that all constructs exhibit Cronbach's Alpha coefficients well above the recommended threshold of 0.70. Economic empowerment recorded the highest reliability coefficient (0.904), followed by financial education (0.891) and financial inclusion (0.873).

These findings confirm the strong internal consistency of the measurement items and the reliability of the instruments used in this study. They also demonstrate that the selected dimensions adequately capture and measure the underlying theoretical constructs under investigation.

**Exploratory Factor Analysis (EFA)**

***Communalities and Factor Loadings***

**Table 7. Factor Loadings of Items After Factor Rotation**

| Constructs | Dimensions | Codes | Factor Loadings |
|---|---|---|---|
| **Financial Education** | Financial Knowledge | FK1 | 0.742 |
| | | FK2 | 0.781 |
| | | FK4 | 0.824 |
| | | FK5 | 0.736 |
| | Financial Skills | FS1 | 0.641 |
| | | FS2 | 0.714 |
| | | FS4 | 0.731 |
| | | FS5 | 0.776 |
| | Financial Attitudes | FA1 | 0.842 |
| | | FA2 | 0.804 |
| | | FA3 | 0.768 |
| | | FA4 | 0.751 |
| | | FA5 | 0.833 |
| **Financial Inclusion** | Access to Financial Services | AFS1 | 0.791 |
| | | AFS2 | 0.714 |
| | Use of Financial Services | UFS1 | 0.826 |
| | | UFS2 | 0.741 |
| | | UFS4 | 0.756 |
| | | UFS5 | 0.738 |
| **Economic Empowerment** | Economic Capacity | EC1 | 0.781 |
| | | EC2 | 0.756 |
| | | EC4 | 0.714 |
| | | EC5 | 0.737 |
| | Decision-Making Power | DM1 | 0.802 |
| | | DM2 | 0.836 |

| | | |
|---|---|---|
| | DM4 | 0.811 |
| | DM5 | 0.724 |
| Economic Resilience | ER1 | 0.742 |
| | ER2 | 0.791 |
| | ER4 | 0.817 |
| | ER5 | 0.829 |

*Source: Survey Results, April 2026.*

The results confirm the existence of construct validity in accordance with the criteria proposed by Claes Fornell and David F. Larcker (1986). Therefore, the measurement scale can be considered both reliable and valid.

All retained items exhibit factor loadings above the recommended threshold of 0.50, indicating that they are strongly associated with their respective dimensions. These findings demonstrate that the selected items adequately represent the underlying constructs and contribute significantly to the measurement of the theoretical concepts examined in this study. Furthermore, the high factor loadings provide evidence of the robustness and appropriateness of the measurement model employed.

***Total Variance Explained***

**Table 8. Analysis of the Internal Consistency of the Study Constructs**

| Factors | Eigenvalues | % of Variance Explained | Cumulative % |
|---|---|---|---|
| **Financial Education** | 9.874 | 31.42 | 31.42 |
| **Financial Inclusion** | 6.215 | 19.84 | 51.26 |
| **Economic Empowerment** | 5.186 | 16.54 | 67.80 |

*Source: Survey Results, April 2026.*

The three extracted factors explain 67.80% of the total variance, which is considered satisfactory according to commonly accepted standards in multivariate analysis. The results indicate that the retained factors capture a substantial proportion of the information contained in the original variables, thereby supporting the adequacy of the factor structure and the construct validity of the measurement model.

**Confirmatory Factor Analysis (CFA)**

Confirmatory Factor Analysis (CFA) was conducted to validate the dimensional structure of the constructs identified through the Exploratory Factor Analysis (EFA). Prior to performing the factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were assessed to determine the suitability of the data for factor analysis.

The results of these tests confirmed that the dataset was appropriate for factor analysis, indicating sufficient correlations among the variables and supporting the use of CFA to evaluate the measurement model and the relationships among the latent constructs.

**Table 9. KMO Measure and Bartlett's Test of Sphericity**

| Indicators | Values |
|---|---|
| KMO | 0.892 |
| Bartlett's Chi-Square ($\chi^2$) | 4217.534 |
| Degrees of Freedom (df) | 480 |
| Significance (p-value) | 0.000 |

*Source: Survey Results, April 2026.*

The Kaiser-Meyer-Olkin (KMO) measure of 0.892 exceeds the minimum recommended threshold of 0.70, indicating excellent sampling adequacy for factor analysis. This result suggests that the correlations among the variables are sufficiently compact and that the data are suitable for identifying underlying factor structures.

Furthermore, Bartlett's Test of Sphericity is statistically significant ($\chi^2 = 4217.534$, $df = 480$, $p < 0.001$), confirming the presence of significant correlations among the variables. This finding rejects the null hypothesis that the correlation matrix is an identity matrix and supports the appropriateness of applying factor analysis.

Overall, these results demonstrate that the collected data are well suited for Exploratory Factor Analysis (EFA) and provide strong evidence for the adequacy of the measurement model used in this study.

***Convergent Validity***

The values of the Average Variance Extracted (AVE) are all above the recommended threshold of 0.50, while the Composite Reliability (CR) values exceed the minimum recommended level of 0.70. These results indicate that the constructs adequately explain the variance of their respective indicators and demonstrate satisfactory internal consistency.

**Table 10. Construct Validity Assessment**

| Constructs | AVE | CR |
|---|---|---|
| **Financial Education** | 0.61 | 0.90 |
| **Financial Inclusion** | 0.58 | 0.88 |
| **Economic Empowerment** | 0.64 | 0.91 |

*Source: Survey Results, April 2026.*

The findings provide strong evidence of convergent validity, as all constructs meet the criteria recommended in the literature. Specifically, the indicators associated with each construct share a high proportion of common variance, confirming that they effectively measure the same underlying concept.

***Model Fit Assessment***

The goodness-of-fit indices were examined to assess the extent to which the measurement model fits the observed data. The results indicate that all fit indices satisfy the commonly accepted thresholds.

**Table 11. Measurement Model Fit Indices**

| Fit Indices | Obtained Values | Recommended Threshold |
|---|---|---|
| Chi-square/df ($\chi^2$/df) | 2.14 | < 3.00 |
| Goodness-of-Fit Index (GFI) | 0.91 | > 0.90 |
| Comparative Fit Index (CFI) | 0.94 | > 0.90 |
| Tucker-Lewis Index (TLI) | 0.93 | > 0.90 |
| Root Mean Square Error of Approximation (RMSEA) | 0.059 | < 0.08 |

**Source:** Survey Results, April 2026.

The results demonstrate that the measurement model exhibits an acceptable and satisfactory fit to the observed data. The $\chi^2$/df ratio is below the recommended maximum value of 3, while the GFI, CFI, and TLI values all exceed the recommended threshold of 0.90, indicating a good overall model fit. In addition, the RMSEA value of 0.059 is below the maximum acceptable limit of 0.08, suggesting a low level of approximation error.

Overall, these findings confirm the adequacy of the measurement model and support its suitability for testing the structural relationships among financial education, financial inclusion, and economic empowerment in this study.

**Correlation Analysis**

The results reveal positive and statistically significant correlations among the study variables.

**Table 12. Correlation Analysis Between the Variables**

| Variables | 1 | 2 | 3 |
|---|---|---|---|
| **1. Financial Education** | 1 | | |
| **2. Financial Inclusion** | 0.648** | 1 | |
| **3. Economic Empowerment** | 0.703** | 0.682** | 1 |

** **p < 0.1**

*Source: Survey Results, April 2026.*

The findings indicate significant positive associations among all variables. In particular, financial education is positively correlated with both financial inclusion ($r = 0.648$, $p < 0.1$) and economic empowerment ($r = 0.703$, $p < 0.1$). Similarly, financial inclusion is positively associated with economic empowerment ($r = 0.682$, $p < 0.1$).

These results suggest that improvements in financial education are likely to enhance financial inclusion and contribute to the economic empowerment of cross-border women traders. Women with higher levels of financial knowledge and skills are more likely to access financial services and make informed economic decisions, thereby strengthening their economic well-being.

**Structural Equation Modeling (SEM) Results**

Structural Equation Modeling (SEM) was employed to test the hypothesized causal relationships among the study variables.

**Table 13. Hypothesis Testing Results**

| Hypotheses | Relationships | β | t-value | p-value | Decision |
|---|---|---|---|---|---|
| **H1** | Financial Education → Economic Empowerment | 0.41 | 6.34 | 0.000 | Accepted |
| **H2** | Financial Inclusion → Economic Empowerment | 0.46 | 7.15 | 0.000 | Accepted |

*Source: Survey Results, April 2026.*

The results indicate that both financial education and financial inclusion exert positive and statistically significant effects on the economic empowerment of cross-border women traders.

Specifically, financial education has a significant positive impact on economic empowerment ($\beta = 0.41$, $t = 6.34$, $p < 0.001$), supporting Hypothesis 1. This finding suggests that women possessing stronger financial knowledge, skills, and attitudes are better able to manage their income, savings, and investment activities, thereby enhancing their economic capacity and decision-making power.

Likewise, financial inclusion significantly influences economic empowerment ($\beta = 0.46$, $t = 7.15$, $p < 0.001$), supporting Hypothesis 2. Access to and effective use of financial services enable women traders to expand their businesses, improve financial management practices, and strengthen their economic resilience in the face of market uncertainties.

Overall, the findings confirm that both financial education and financial inclusion are key determinants of economic empowerment among cross-border women traders.

**Mediating Effect of Financial Inclusion**

This analysis examined whether financial inclusion mediates the relationship between financial education and economic empowerment.

**Table 14. Mediating Effect of Financial Inclusion**

| Indirect Relationship | Indirect Effect | p-value |
|---|---|---|
| **Financial Education → Financial Inclusion → Economic Empowerment** | 0.285 | 0.000 |

*Source: Survey Results, April 2026.*

The results demonstrate that financial inclusion plays a significant partial mediating role in the relationship between financial education and economic empowerment. The indirect effect is positive and statistically significant ($\beta = 0.285$, $p < 0.001$).

These findings suggest that a substantial portion of the impact of financial education on economic empowerment operates through enhanced access to and utilization of financial services. In other words, financial education not only directly improves women's economic empowerment but also indirectly strengthens it by increasing their participation in the formal financial system.

The evidence highlights the complementary nature of financial education and financial inclusion policies. Efforts aimed at improving women's financial literacy are likely to generate greater empowerment outcomes when accompanied by initiatives that facilitate access to affordable and appropriate financial services. Such an integrated approach can significantly contribute to the sustainable economic empowerment of cross-border women traders in the Democratic Republic of Congo.

## Discussion

The findings of this study confirm that financial education constitutes a key driver of both financial inclusion and economic empowerment among women engaged in small-scale cross-border trade in North and South Kivu. From a theoretical perspective, this relationship can be explained by the fact that financial education strengthens individuals' cognitive, analytical, and behavioral capacities in managing financial resources (Beal & Delpachitra, 2003; Campbell, 2006). Consistent with the progressive transformation framework proposed by Naila Kabeer (2003), the acquisition of financial knowledge enables women who initially face limitations in their economic choices to gradually expand their agency and decision-making power in managing both their commercial activities and household finances.

The results also corroborate the findings of Jeanne M. Hogarth, Hilgert et al. (2003), and Annamaria Lusardi (2008), who argue that individuals with higher levels of financial literacy tend to adopt more rational financial behaviors, thereby improving their economic security and resilience to shocks. In the context of cross-border women traders, such competencies are reflected in improved savings management and a clearer distinction between household expenditures and business-related expenses.

Furthermore, the study confirms the conclusions of Asli Demirgüç-Kunt et al. (2013) and the broader financial inclusion literature, which highlights significant disparities in access to formal financial services, particularly among women in developing countries. In this regard, financial inclusion extends beyond mere physical access to banking services and encompasses their effective utilization and appropriation by vulnerable populations (Gloukoviezoff, 2004; Brunet et al., 2004). Field findings reveal that, despite the rapid expansion of Mobile Money and other digital financial services, structural barriers remain, including access costs, limited financial infrastructure, and socio-economic constraints.

Within the theoretical framework of financial inclusion, these findings reinforce the argument that access to and use of financial services constitute essential mechanisms for economic transformation (Beck, Demirgüç-Kunt, & Levine, 2004; Honohan, 2008). Indeed, the use of digital financial services and informal savings mechanisms enables cross-border women traders to improve their investment capacity, stabilize their income streams, and strengthen their economic autonomy.

From this perspective, despite facing structural constraints, cross-border women traders develop progressive forms of

empowerment through their participation in household economic decisions and their independent management of income. This process reflects the gradual transformation of intra-household bargaining power described by Sathar and Kazi (1997), whereby access to and control over financial resources translate into greater influence in family economic decision-making.

Finally, within the specific context of North and South Kivu provinces, access to digital financial services such as Mobile Money and informal savings and credit mechanisms, including Village Savings and Loan Associations (VSLAs), Mutual Solidarity Groups (MUSOs), and rotating savings schemes (tontines), appears to represent an adaptive response to the temporary absence or limited availability of formal financial institutions.

**Implications and Future Research Directions**

The findings of this study provide important insights for the various stakeholders involved in the small-scale cross-border trade sector.

First, they highlight the need for cross-border women traders to accelerate the adoption and use of digital financial services offered by banking institutions and telecommunications companies, particularly in the current context characterized by the closure or reduced operation of banks in North and South Kivu provinces. In this regard, financial education initiatives implemented by non-governmental organizations such as iPeace and Alert International play a crucial role in strengthening financial inclusion and enhancing women traders' financial management capabilities.

Second, to effectively contribute to the economic empowerment of Congolese women engaged in cross-border trade, it is essential to promote simplified account-opening mechanisms tailored to the socio-economic realities of this category of economic actors. Furthermore, Congolese public authorities should consider implementing policies that encourage the adoption of electronic money and digital payment systems as a gradual substitute for cash-based transactions, particularly in light of the prevailing security and economic challenges affecting North and South Kivu.

Moreover, future research could extend the present study by incorporating additional determinants that may influence women's economic empowerment, including informal microfinance mechanisms focused on microcredit provision, digital literacy, and access to technological and financial infrastructure.

Finally, expanding the sample to include other socio-professional groups and geographical areas would enhance the analytical scope and generalizability of the findings. Such an approach would also provide opportunities to explore additional dimensions of economic empowerment that were beyond the scope of the present study.

## Conclusion

This study, conducted among 320 women engaged in small-scale cross-border trade in the provinces of North Kivu and South Kivu, highlights the central role of financial education and financial inclusion in strengthening the economic empowerment of women traders. The findings reveal that the majority of respondents, primarily aged between 21 and 40 years and engaged in trading activities for more than five years, demonstrate a relatively satisfactory level of financial education. This level is characterized more by prudent financial attitudes than by advanced technical skills in accounting and financial management. The women place considerable importance on saving, the rational management of financial resources, and the separation of personal and business expenditures. However, some limitations remain regarding the understanding of credit mechanisms and the regular maintenance of financial records.

The study also reveals a high level of adoption of digital financial services, particularly Mobile Money, which is regularly used by a large majority of respondents for payments, transfers, and cross-border business transactions. This trend confirms the growing importance of digital financial solutions offered by financial institutions and telecommunications companies in a context characterized by inadequate conventional banking infrastructure and persistent security challenges in the eastern part of the Democratic Republic of the Congo.

Nevertheless, several challenges continue to hinder full financial inclusion, including the costs associated with financial services, administrative requirements for opening accounts, and limited access to formal credit. Faced with these constraints, many women rely on informal financial mechanisms such as Village Savings and Loan Associations (VSLAs), Mutual Solidarity Groups, and rotating savings and credit associations (tontines) to access microcredit and support their small businesses.

Furthermore, the high statistical reliability coefficients obtained for the different constructs confirm the internal consistency and robustness of the measurement instruments used in this research. These findings underscore the need for public authorities, financial institutions, and development support organizations to strengthen financial education programs, simplify access requirements for financial services, and promote policies that encourage digital payments and financial inclusion among women traders.

Finally, future research should incorporate additional explanatory variables, such as digital literacy and informal microfinance mechanisms, while expanding the study to include other categories of women and broader geographical areas. Such efforts would enhance the generalizability of the findings and provide a more comprehensive understanding of the factors influencing women's economic empowerment in developing-country contexts.

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