



The Potential of Micro-Takaful in Improving Financial Inclusion among Low-income Households in Ethiopia

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Abstract

In Africa, informal insurance societies are still active and have historically served as the major options for low-income households seeking financial and non-financial risk protection services. Low-income households have not had access to mainstream financial services despite the existence of these arrangements because of their numerous drawbacks. This study aims to determine whether micro-Takaful adoption has the potential to increase Islamic financial inclusion among low-income households of informal risk-sharing services users in Ethiopia. The Theory of Change (ToC) was employed in this study to understand how adoption of micro-Takaful affects financial inclusion. A mixed method design was employed to achieve the objective, and primary data was collected from 654 members of informal risk-sharing arrangements through a survey. Besides, qualitative interviews were also conducted with different stakeholders. The study found that adopting micro-Takaful has a significant impact in enhancing financial inclusion by improving financial usage and financial quality but otherwise for financial access. The findings of this research will have theoretical and practical implications.

Keywords: Micro-takaful, Theory of Change, Informal risk-sharing, Financial inclusion, Ethiopia

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1. Introduction

The concept of financial inclusion has gained popularity and dominated various finance conferences. Developing nations have also been working to design policies and take appropriate actions to give their population access to the financial system. Even though there is no single, widely acknowledged definition of financial inclusion (Tita and Aziakpono, 2017), World Bank (2018) offers one of the most often-used definitions. According to this definition, financial inclusion means "... people and businesses have access to practical and reasonably priced financial products and services that meet their needs - transactions, payments, savings, credit, and insurance - delivered responsibly and sustainably." Abel et al. (2018, p.1) define financial inclusion as "the process of bringing the weaker and vulnerable members of society into the ambit of an organized financial system, which ensures that they access timely and adequate credit and other financial products at affordable price."

Financial access requires carefully thought-out processes or tried-and-true methods. Indeed, some factors could boost financial access, including but not limited to digital finance (Ozili, 2018), a person's income, education, and use of communications devices (Wang and Guan, 2017), and usage of mobile money through the moderating influence of social networks (Okello et al., 2016).

However, more discussion is required about the methods or tools that promote financial inclusion than about those that enhance it. In order to discuss what impedes or promotes it, financial inclusion should first come up in the lives of low-income residents. To this effect, researchers have concentrated on the informal financial sector since they believe it is one of the excellent options available in order to achieve financial

inclusion among low-income households in developing countries. In developing nations, the informal financial sector will probably continue to play a significant role in terms of financial access. This is true for Ethiopia, a developing nation in the Horn of Africa.

According to the most recent census in Ethiopia, which was held in 2007, over 34% of the country's population is Muslim (Central Statistical Agency, 2007)¹. The World Bank's estimate reveals that the population of Ethiopia was 120,283,026 in 2021, with a per capita income of \$925.10/year². Nonetheless, a Shari'ah compliant insurance service like Islamic micro-insurance (micro-Takaful) is currently scarcely available to this group since the country's Islamic finance sector is in its infancy.

In addition to the need for more availability of Shari'ah compliant insurance services, the high insurance cost is a serious problem. Tens of millions of people are excluded from formal risk mitigation services since the majority of Ethiopians are living in poverty (Abera and Asfaw, 2019). So, for low-income persons below the poverty line, informal risk-sharing arrangements (IRSA) are still a feasible choice and a means of promoting financial inclusion.

One of Ethiopia's most well-known IRSAs, locally named *iddir*, is a cost-effective risk-sharing arrangement. It embraces millions of low-income members, and it can be found in the nation's rural and urban areas. This IRSA remains the only available choice for regular group insurance for low-income Ethiopians who cannot pay for formal insurance services. This indigenous institution was formed to support one another to share risks of members against unforeseen losses, primarily the death of a family member. It also offers in-kind and monetary aid in times of adversity with no to low-interest rates (Wossen et al., 2015).

Despite IRSA's exceptional promise as an alternative source of risk mitigation, the severe effects of global warming, traffic accidents, drought, unemployment, and infectious and non-communicable diseases at a national or pandemic level are much beyond the capabilities of these arrangements. This left low-income households vulnerable to the effects of such risks. Additionally, scholars in previous studies have noted flaws in these arrangements, such as a lack of horizontal expansion and limited risk coverage (Aredo, 2010); a lack of capital (Teshome et al., 2014); and corruption and embezzlements by the leaders (Bazezew and Chanie, 2015).

Given the rising Muslim population in Ethiopia, the limits of these IRSAs, and the start of Islamic financial services in Ethiopia, it is essential to introduce a Shari'ah compliant insurance like a micro-Takaful model, which research shows has facilitated financial inclusion (see, for examples; Sadiq and Musthaq, 2015; Rusydiana and Devi, 2017; Puad, 2017; Hassan, 2016). As a result, this research seeks to find how adopting micro-Takaful will affect financial inclusion among these low-income households. Although other researchers have looked at how micro-Takaful affects financial inclusion, this study is unique since it targets low-income IRSA users in Africa and uses the Theory of Change (ToC) as its research framework.

2. Literature Review

Two of the numerous factors that keep people in poverty are a lack of access to financial services and improper management of the risk of natural catastrophes (Zuliani and Ab Rahman, 2018). According to Sadiq and Mushtaq (2015), access to financial services for low-income is crucial for reducing poverty in conjunction with sustainable development. According to Haroun and Yusoff (2019), who concur, there are several approaches to eradicating poverty, but financial inclusion may be the most effective because it empowers people to escape poverty independently.

Islam places a strong emphasis on social justice, diversity, and the fair distribution of resources. According to Hassan (2016), social responsibility and working for the common good are the key characteristics of Islamic economics and finance that set it apart from its conventional equivalent. Islamic finance approaches the problem of financial inclusion from two angles: 1) by advocating risk-sharing contracts as a potential alternative to conventional debt-based financing, and 2) by using particular tools for wealth redistribution within the community (Mohieldin et al., 2011). The Islamic financial system as a whole is based on the principle of social justice, which calls for an equitable distribution of wealth among members of the society in order to foster both social and financial inclusion (Hassan, 2016).

¹Retrieved from <http://www.statsethiopia.gov.et/census-2007-2/> on September 12/ 2020

²data.worldbank.org/indicator/SP.POP.TOTL?end=2021&locations=ET&start=2006 accessed on March 19/2023

In light of these and other considerations, Shari'ah-compliant microfinance is the most logical way to provide inclusive finance, and these Islamic microfinance institutions are essential for creating long-lasting channels for inclusive finance (Sadiq and Musthaq, 2015).

Micro-takaful is growing in popularity among low-income Muslims as an alternative to conventional microfinance. It serves as a tool to meet the needs of those with lower incomes to give access to affordable protection (Bakhtiari, 2013). Khan (2009) describes micro-takaful as "A mechanism to provide Shari'ah-based protection to the blue-collar, underprivileged individuals at an affordable cost." However, a more comprehensive definition provided by Islamic Financial Services Board (IFSB) (2015) is: -

Micro-Takaful service exists in both Family and General forms. It is a joint-guarantee scheme whereby a group of participants agrees to help one another jointly for losses resulting from certain risks under the guiding principles of Tabarru' (donation), Taawun (mutual assistance), and prohibition of Riba (usury). The low-income and underprivileged demographic segment is offered micro-takaful services by various entities regulated and supervised by regulatory and supervisory authorities under the national laws of any jurisdiction.

According to Ya'u (2012), the main goal of micro-Takaful is to bring the concerns of individuals and micro-businesses into one basket. These institutions are operating for sustainability, particularly in developing countries where there may not be sufficient economic stabilizers and relief funds to cushion against the unwanted calamities that may befall. The need for Shari'ah compliant microfinance is increasing, which becomes an excellent opportunity for micro-Takaful establishments. According to Rusydiana and Devi (2017), micro-Takaful should be adopted because it has proven to offer 'win-win-win' solutions to the following:

- a) The low-income households; providing them insurance protection services that they never experienced before.
- b) Microfinance Institutions; since the group's partner can provide better services to their clients with lower risks; and
- c) Insurance companies; can reach new market niches through microfinance institutions which were difficult to approach.

In agreement with (a) above, Puad (2017) adds how crucial it is for households to have access to micro-Takaful as an additional or alternative coping strategy because some households may require additional protection beyond the purview of such programs or may not be covered at all by existing social protection programs. According to Htay et al. (2015), introducing micro-Takaful in Malaysia could increase competition in the Takaful sector as Takaful operators currently concentrate on Takaful goods that are only accessible to middle- to high-income groups. Ahmad (2007) also notes that providing micro-Takaful to low-income groups expands the Takaful companies' product range, encourages the true risk-sharing idea, and makes the sector competitive with traditional insurance.

Bank Negara Malaysia emphasizes that micro-Takaful functions, including reducing poverty and fostering social mobility, primarily fall under the purview of structural economic policies and state social safety programs. According to the World Bank (2017), micro-takaful is a socially responsible strategy that strives to combat poverty, aid the vulnerable, and support the underserved by promoting financial inclusion and pooling resources and risks among villages or communities. In his study, Hassan (2016) discovers opportunities to improve the economic standing of low-income Muslim communities through creative approaches in designing and delivering Islamic micro-financial products suitable for the poor. For the general economic growth of the community in non-Muslim countries as well, Puad (2017) contends that the Islamic financial sector must concentrate on microfinance and micro-Takaful due to the significant number of Muslims who live in poverty in these nations.

The other factor for the adoption of micro-Takaful is the promotion of the use of insurance or Takaful by financial institutions as a guarantee for credit. As per the World Bank (2017), this is crucial in developing nations as low-income people generally have low liquidity and little ability to pledge other sorts of guarantees acceptable to formal banking requirements.

Many scholars have studied the potential of micro-Takaful and discovered that it has enormous potential to increase financial access. According to Ahmed (2016), Takaful insurance is one of the economic service

sectors that most Muslim and Arab nations anticipate would develop exponentially between 20 and 25 percent over the next few years. For instance, [Zuliani and Ab Rahman \(2018\)](#) concluded that micro-Takaful might be delivered in Indonesia if the country's low-income and underprivileged populations' demands were met. [Hasim \(2014\)](#) also confirms that Iraq has to implement at least life and accident insurance and foster an insurance culture in the low-income market. According to [Mokhtar et al. \(2012\)](#), micro-Takaful can be successful even in markets with little prior Takaful experience so long as the products, processes, and policies are straightforward, the premiums are modest, the administration is effective, and the distribution methods are creative.

As per the literature review, underdeveloped nations should think about creating micro-Takaful products for low-income households for several reasons, the most important of which is financial inclusion. The current study also aims to identify the impact of micro-Takaful adoption on financial inclusion using the Theory of Change (different framework from the existing literature) among low-income informal risk-sharing users in Ethiopia (new study area).

Desired outcomes of financial inclusion

One way of evaluating the desired outcomes of the financial inclusion framework is through its dimensions; access, usage, and quality ([World Bank, 2012](#)). The current study uses these desired outcomes to measure financial inclusion. Each of the dimensions is briefly explained below.

Financial Access – is the capacity that financial institutions have to provide financial services and products, and access indicators reflect the depth of outreach of financial services. Indicators of access include penetration of bank and insurance branches.

Financial Usage – how clients use financial services, including how frequently and long they use them over time. Average savings balances, number of transactions, and number of payments made are considered indicators of financial usage.

Financial Quality - is the ability of the financial service or product to meet the consumer's needs. There are some indicators of financial quality as a proxy for convenience, product fit, transparency, safety, consumer protection, and financial literacy.

The financial inclusion framework of Bank Negara Malaysia (BNM) also explains the vision of the financial inclusion framework, which is to develop an inclusive financial system that best serves all members of society, especially the underserved, by enabling them to have access to and usage of affordable, quality, and essential financial services to meet their needs. The approach effectively considers the standard metrics of access, usage, and quality.

Theoretical framework

The Theory of Change (ToC), which emerged in the 1990s as a methodological model and framework for evaluating comprehensive community initiatives, explains the need to define strategic, long-term goals by stakeholders as a precondition for change and then working backward to identify the conditions prior to achieving the desired change. The theory of change postulates that a series of short and medium-term successes set the foundation for obtaining long-term benefits, as [Anderson \(2005\)](#) explained. A ToC is a logical flow of actions that charts a program's mechanism as it produces particular results.

Theory of Change (ToC) comprehensively explains how and why a desired change is anticipated in a particular context ([UNDAF, 2017](#))³. It is mainly concerned with defining or "filling in" what has been referred to as the "missing middle" between what a program or change initiative does (its activities or interventions) and how this contributes to the attainment of the intended goal. In order to do this, it first determines the desired long-term goals. Then it works backward from these to identify all essential conditions (outcomes) and how these were causally related to one another for the goals to actualize.

ToC's perspective originates in various academic fields and organizational development ([Prochaska et al., 1992](#); [Burke, 2017](#)). According to scholars ([Martin-Baró, 1994](#); [Prilleltensky, 2008](#)), change activities should

³Theory of Change: <https://unsdg.un.org/resources/theory-change-undaf-companion-guidance>. Accessed on July 15, 2021

concentrate on the structures that support the laws and practices that marginalize individuals and communities. The ToC is founded on the premise that social change is complicated and requires a complete study of the underlying elements that contribute to it (Kania and Kramer, 2011). The framework entails defining the desired results, outlining the actions required to accomplish those results, and determining the resources and activities needed to carry out those processes.

Several scholars examined the application of ToC in many contexts, including social programs (Connolly and Seymour, 2015), educational programs (Lusk et al., 2016), and social work (Broussard and Joseph, 2013). In order to map out the procedures required to attain the desired goals, the researchers developed a program using the ToC framework and selected the desired outcomes. The ToC offers a helpful framework for comprehending intricate societal issues and creating workable solutions. Organizations can design targeted interventions that are more likely to result in positive social change by identifying the desired goals and outlining the activities required to achieve those outcomes.

In this study, a ToC helps to articulate how adopting micro-Takaful (intervention) will lead to financial inclusion (intended outcome). Figure 1 shows how the ToC applies to this study, and Figure 2 shows the research framework of the study, respectively.

Figure 1: Change process

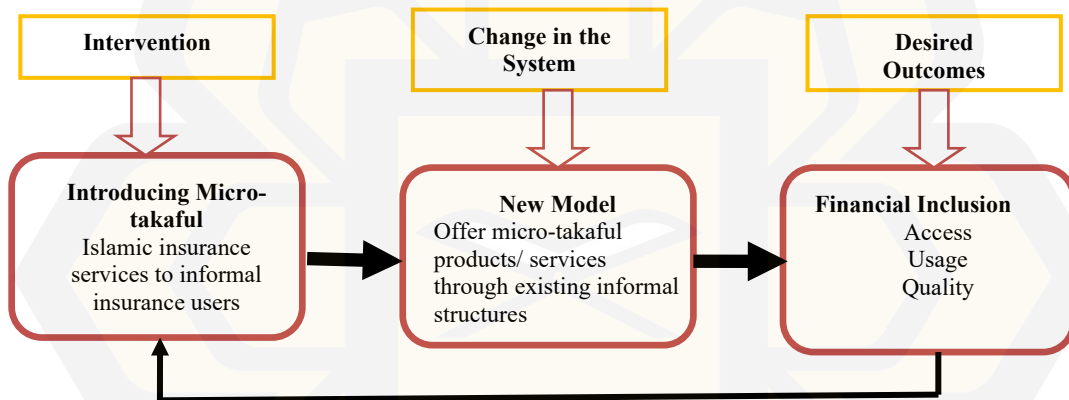
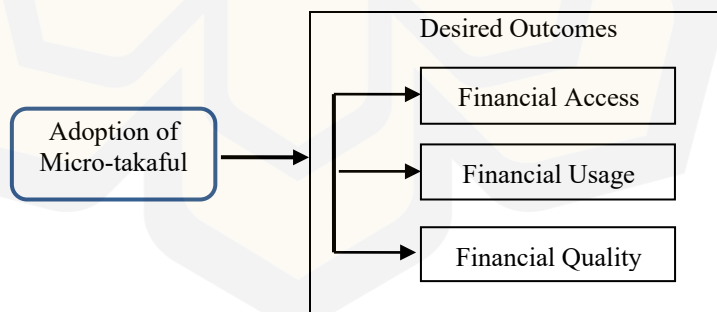


Figure 2: Research framework based on TOC (Modified from BNM)



This study uses the ToC to explain how the adoption of micro-Takaful brings about the desired outcomes of access, usage, and quality to explain financial inclusion. Thus, the following hypotheses are suggested to predict the impact of micro-Takaful in improving financial inclusion.

H1 - Adoption of micro-Takaful positively and significantly influences access to finance by informal risk-sharing services users.

H2 - Adoption of micro-Takaful positively and significantly influences usage of finance by informal risk-sharing services users.

H3 - Adoption of micro-Takaful positively and significantly influences quality of finance by informal risk-sharing services users.

3. Research Methodology

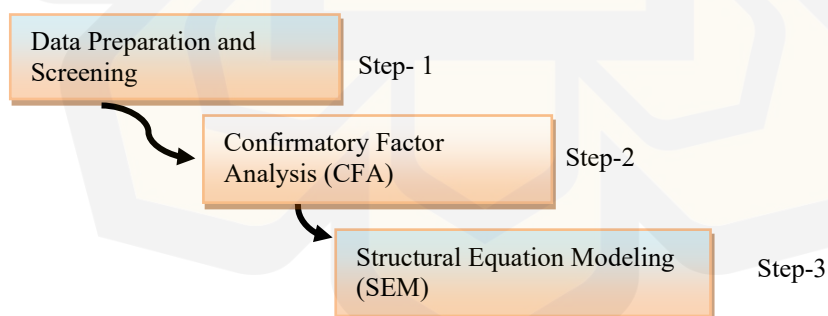
The objective of this research is best achieved by combining quantitative and qualitative methods. Hence a mixed method "dominant/less dominant" design was used. Using mixed methods entails mixing or integrating quantitative and qualitative methods and data (Creswell, 2018). Similarly, Johnson and Onwuegbuzie (2004, p. 21) state that the mixed method approach is a rich field because with the mixed methods design, "words, pictures, and narrative can be used to add meaning to numbers," which allows research results to be generalized for subsequent studies and examinations. Even though the quantitative approach was dominant in this study, the qualitative data were also very relevant to enhance some of the quantitative findings.

This study covered three regions (states) and one city administration in Ethiopia. It was conducted in five (5) cities, including the capital, Addis Ababa. The regions were selected based on the size of their population and location convenience. A survey method was used to collect quantitative data. The data collection instrument (i.e., the questionnaire) was prepared in such a way that respondents were asked about their degree of agreement at the 1-5 level, where "Definitely" is represented by 5 and "Definitely Not" is represented by 1. On the other hand, the researcher used semi-structured interviews to collect qualitative data from different stakeholders to understand the topic under investigation.

The population of this study includes low-income members of IRSA (for quantitative survey) and Islamic finance experts, insurance experts, and heads of IRSA (for qualitative interview). Since the number of these arrangements, especially the Islamic ones is unknown, it was difficult to determine the sample size. Hence, the researcher used the guideline of (Comrey and Lee, 1992) suggested to determine the sample size. The authors state that a sample size of 50 is believed to be very poor; 100 as poor; 200 as fair; 300 as good; 500 as very good; and 1,000 as excellent. This study is expected to achieve a sample size of seven hundred (700) respondents for members of IRSAs, as Comrey and Lee (1992) suggested, as more than very good. In addition, six respondents were selected, two from each profession or position of Islamic finance, insurance, and IRSA.

The quantitative analysis of this study followed three steps, as depicted in Figure 3, whereas thematic analysis was employed to analyse the qualitative data.

Figure 3: Steps for the quantitative analysis



4. Results and Discussions

The demographic information of respondents is explained in terms of gender, age, education, occupation, and basic financial literacy of the 654 respondents. Initially, the questionnaires filled were 700, however, only 654 of them were found to be usable for further analysis. Table 1 presents the demographic information of the respondents.

Table 1: Demography of respondents

Demographic Information	Frequency	Percentage
Gender		
Male	405	62
Female	149	38
Age		
18-35	287	44
36-55	327	50
55-75	26	4
66-75	14	2
75 and above	0	0
Education		
No Formal Education	32	5
Primary - High school	399	61
Certificate/College Degree	223	34
Occupation		
Government Sector	105	16
Private Sector	72	11
Self-Employed	379	58
Others	98	15
Basic Financial Literacy		
Yes	451	69
No	203	31

Data screening

Data screening involves identifying and correcting inconsistencies or errors and several steps, such as identifying missing values, outliers, duplicates, and other errors. In this study, 25 missing values were identified, representing 4.0%. The missing values were found to be random with no special pattern. Researchers (such as; [Tabachnick and Fidell, 2019](#); [Raymond, 1986](#)) agree that missing values of 5% or less are insignificant and can be replaced by mean substitution. Hence, the 25 missing values identified in this study were replaced using their respective mean values.

Outliers must also be identified and addressed since they can affect the statistical analysis results. In this study, the Mahalanobis Distance was used to identify outliers, hence p-value of less than 0.003 was considered a different score from the others; thus, 18 observations were deleted from the data set (See [Appendix A](#)).

Multicollinearity analysis

One of the necessary preliminary analyses in regression analysis is evaluating multicollinearity. Independent variables are expected to be correlated with the dependent variable in statistical analysis ([Hair et al., 2010](#)). According to [Field \(2013\)](#) and [Montgomery et al. \(2021\)](#), multicollinearity issue occurs when one independent variable is highly correlated with one or more other independent variables. Multicollinearity can be evaluated by examining the Variance Inflation Factor (VIF) and tolerance value. A tolerance value of less than 0.20 and a VIF value of 5 or higher indicate multicollinearity ([Hair et al, 2010](#); [Tabachnick and Fidell, 2019](#)). Table 2 below shows no multicollinearity issue in the data as VIF is less than 5 and tolerance values are higher than 0.20.

Table 2: Assessment of multicollinearity

Model	Collinearity Statistics	
	Tolerance	VIF
Access	.995	1.005
Usage	.894	1.118
Quality	.892	1.122

Normality testing

Testing for normality is a critical assumption when conducting multivariate analysis (Hair et al., 2010). The normality assumption is met if the skewness and kurtosis values are no more than 3.0 and 10.0, respectively (McDonald and Ho, 2002). The researcher conducted a normality test for 20 items, as illustrated in Appendix B. The normality testing confirmed that the skewness and kurtosis coefficients are within the normal range; thus, normality has been achieved for this study.

Reliability analysis

The Cronbach's Alpha coefficient (α) is a commonly used measure of internal consistency, especially when using Likert scales (Taherdoost, 2016). Most scholars generally accept a minimum coefficient of 0.70 for measuring internal consistency (Whitley, 2002). Table 3 illustrates the reliability analysis of the data in this study.

Table 3: Reliability analysis

Variables	Cronbach's Alpha (α)	No. of Items
Adoption	0.858	6
Access	0.879	4
Usage	0.818	5
Quality	0.812	5
Overall - TOC	0.853	20

The Cronbach's alpha (α) of each variable as well as the overall alpha, displayed a sufficient internal consistency as it met the requirement of the minimum coefficient, 0.70.

Confirmatory Factor Analysis (CFA)

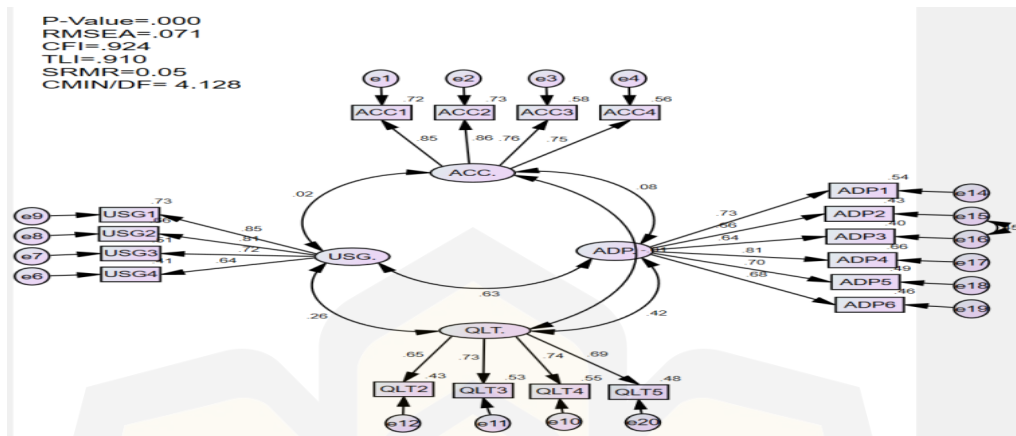
The validity of the model is a crucial consideration when applying structural equation modeling (SEM). This is typically assessed using a Confirmatory Factor Analysis (CFA). The link between a set of observed variables and their underlying constructs can be tested using a statistical approach called CFA. CFA and construct validity are closely related since it enables researchers to assess how well a group of observed variables capture the intended concept or constructs.

CFA determines how well the observed data matches the proposed model. Various fit indices, such as chi-square, Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI), are used to compare the observed data to the model in this process. Low values for chi-square, RMSEA, standardized root mean square residual (SRMR), and high values for CFI and TLI signify good model fit. Five distinct types of indicators were utilized in this study to assess the model's goodness-of-fit.

Measurement model

The measurement model comprises the four latent constructs as explained in the research framework, namely, micro-Takaful adoption (ADD), financial access (ACC), financial usage (USG), and financial quality (QLT). Figure 4 shows the measurement model.

Figure 4: Measurement model



The fit indices of the measurement model met the required threshold as presented in Table 4 after some modifications have been made on the initial measurement model.

Table 4: Fit indices for the measurement model

Fit Indices	Measurement Model	Threshold
RMSEA	0.071	< 0.08 (Browne & Cudek, 1993)
SRMR	0.05	< 0.05 good (Byrne, 1998)
CFI	0.924	> 0.90 good fit (Hu & Bentler, 1999)
TLI	0.910	> 0.90 good fit (Tucker & Lewis, 1973)
Chisq/df	4.128	< 5 acceptable (Hu & Bentler, 1999)

Reliability and validity

Besides the fit indices, the CFA analysis incorporates reliability, convergent validity, and discriminant validity in this study. Besides Cronbach’s alpha, composite reliability is also a statistical measure used to assess the validity of CFA. It refers to the internal consistency of the latent construct and is calculated by estimating the reliability of the composite score of all items that measure the construct (Raykov, 1997). Composite reliability values range from 0 to 1, with higher values indicating greater internal consistency. As per Nunnally and Bernstein (1994), a commonly accepted threshold for composite reliability is 0.70 or higher.

Another statistical measure used to assess CFA's validity is convergent validity. Convergent validity refers to the degree to which different measures of the same construct are related. Average Variance Extracted (AVE) is commonly used to examine the convergent validity among item measures (Hair et al., 2010). The authors state a factor loading of 0.50 or higher is accepted for convergent validity.

To evaluate discriminant validity, the Heterotrait-Monotrait ratio of correlations (HTMT) is used in this study. The HTMT ratio was introduced by Henseler et al. (2015) as a new criterion to evaluate discriminant validity. The authors claim that in comparison with traditional approaches, the HTMT criterion is a more conservative assessment, hence, offers a more reliable test of discriminant validity. The authors argued that because HTMT explicitly considers the association between various constructs and the variety of their indicators, it provides a more accurate measure of discriminant validity. An HTMT ratio of less than 0.9 is often accepted.

This research uses Cronbach’s alpha (α) and composite reliability (CR) to test the reliability, AVE to assess convergent validity, as illustrated in Table 5.

Table 5: Reliability and convergent validity

Constructs	Cronbach's Alpha	Composite Reliability	AVE
Adoption	0.858	0.855	0.50
Fin. Access	0.879	0.880	0.65
Fin. Usage	0.841	0.844	0.58
Fin. Quality	0.797	0.797	0.50
Statistics	Suggested		
Composite Reliability	> 0.60		
Cronbach's Alpha	> 0.70		
Convergent Validity	AVE ≥ 0.50		

It can be referred from Table 5 that all constructs achieved the required value of 0.70 for Cronbach's alpha, 0.60 for composite reliability, and 0.50 for average variance extracted (AVE). Hence, we can conclude that reliability and convergent validity have been established for this study.

As explained above, the HTMT ratio was used for the discriminant validity test. From the information presented in Table 6, it can be referred that the HTMT ratio for all the constructs is below 0.90. Thus, discriminant validity has also been established. Therefore, the researcher moved on to the next step of the analysis, which was testing the structural model.

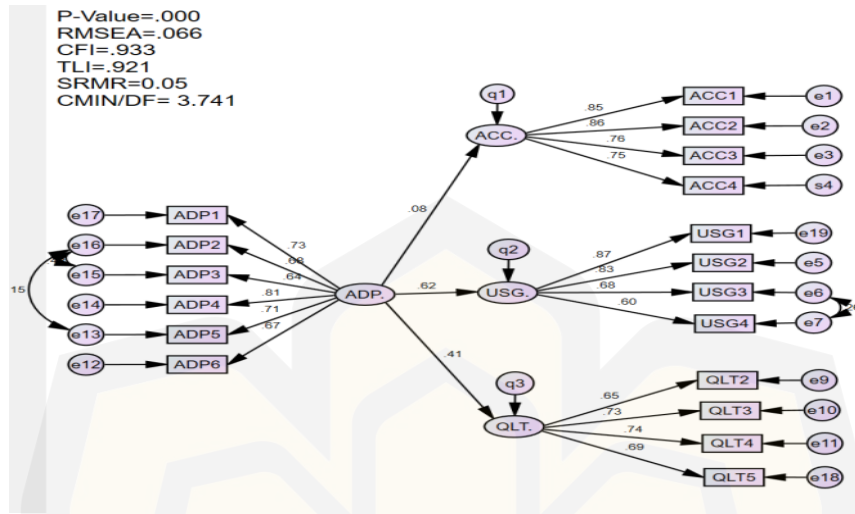
Table 6: Discriminant validity

MONOTRAIT				
	Access	Usage	Quality	Adoption
	0.6438	0.5688	0.4948	0.5109
HETEROTRAIT				
	Access	Usage	Quality	Adoption
ACCESS				
USAGE	0.0145			
QUALITY	-0.0043	0.1407		
ADOPTION	0.0445	0.3334	0.2069	
HTMT RATIO				
	Access	Usage	Quality	Adoption
ACCESS				
USAGE	0.0240			
QUALITY	-0.0075	0.2652		
ADOPTION	0.0775	0.6184	0.4115	

Structural model

According to Kline (2015), SEM is a flexible and effective tool that enables researchers to evaluate complex models that contain numerous independent and dependent variables. Latent variables, which are not immediately observable but may be inferred from the observed data, can be compared using the SEM method. In this study, *p*-values from the structural model were used to test the hypothesis of the suggested conceptual model. The structural model is displayed in Figure 5.

Figure 5: Structural model



The structural model illustrated above confirmed that the goodness-of-fit has been achieved as the fit indices of the structural model met the required threshold, as presented in Table 7.

Table 7: Fit Indices for the measurement model

Fit Indices	Structural Model	Threshold
RMSEA	0.066	< 0.08
SRMR	0.05	< 0.05
CFI	0.933	> 0.90
TLI	0.921	> 0.90
Chisq/df	3.741	<5

Estimation of the result

Table 8 shows the statistical result based on maximum likelihood estimation and shows that two of the three hypotheses were supported as they were found to be statistically significant.

Table 8: Path statistical result

Hypothesized Path	Estimate	S.E.	P	Decision
H1 Adoption (ADP) → (ACC)	0.118	0.069	0.088	ADP and ACC are +vely related but not significant. (<i>Not Supported</i>)
H2 Adoption (ADP) → (USG)	0.829	0.066	***	ADP and USP are +vely related and significant. (<i>Supported</i>)
H3 Adoption (ADP) → (QLT)	0.057	0.057	***	ADP and USP are +vely related and significant. (<i>Supported</i>)

Note: *** Significant at p < 0.001

As per the quantitative results, IRSA members/users believe that adopting micro-Takaful increases financial access, but the result also shows that the impact is not that significant. The insignificance impact may be attributable to IRSAs prevalence throughout the county. Hence, the members do not expect the micro-Takaful services to be as reachable as the IRSA services. IRSA members also know the challenges formal institutions face in expanding to different territories. Thus, they may think accessibility is possible but not easy.

Adoption of micro-Takaful has a significant and positive impact on financial usage and quality, unlike financial access. As explained earlier, IRSAs can be found everywhere and in different forms; however, their financial capacity is limited. It seems vital for the members to look for what they cannot benefit from their current institutions. As per the findings, members believe the adoption of micro-Takaful increases the quality of protection services and the flexibility and range of products.

Qualitative analysis and discussion

For the qualitative data, two insurance experts, two Islamic finance experts and two IRSA heads (six in total) agreed to be interviewed. Table 9 presents respondents profile, and they are represented by IN1 and IN2 (insurance experts); IS1 and IS2 (Islamic finance experts); and IH1 and IH2 (heads of IRSA).

Table 9: Profile of respondents

Resp.	Qualification	Gender	Religion	Position	Experience
IN1	Masters	M	Islam	Branch Manager (Insurance Co.)	10 years
IN2	Masters	M	Islam	Senior Expert (Insurance Co.)	7.5 years
IS1	Masters	M	Islam	Expert (Takaful)	2 (current) 7 in total
IS2	Masters	M	Islam	Assistant Manager (Takaful)	2 (current) 9 in total
IH1	*Bachelor's	M	Islam	Self-employed	30 years
IH2	**Diploma	M	Islam	Government employee	24 years

* has served 2 years as an Islamic IRSA

** has served 6 years as an Islamic IRSA

The main questions for the interview include:

1. What is your opinion about offering other financial protection services for low-income people?
2. Is it a viable option to adopt/introduce micro-Takaful in Ethiopia? Why/why not?
3. Is micro-Takaful a suitable option to enhance financial inclusion? How?
4. It is known that there are similarities between IRSAs and micro-Takaful. What is your opinion of providing these services with IRSAs?
5. What features do you propose if micro-Takaful services are provided along with IRSAs?

A thematic analysis was employed for the qualitative analysis and based on this; three themes emerged from the interview responses.

Theme One: Essentiality of Shari'ah compliant low-fee risk mitigation alternative

The respondents agreed on the essentiality of alternative risk protection coverage for the low-income citizens. For instance, IN1 stressed on the need for alternative solution as:

The insurance service in Ethiopia serves high-income and middle-income earning people. The poor people need to get these services. Besides, micro-insurance services are not widely available. The most famous micro-insurance service available is the government-provided community health insurance which is limited to health care coverage to a certain limited amount of coverage. No time shall be spent if alternative solutions are available.

As per IS1, an alternative structure is welcome for the Muslim population. It is a known fact that majority of the Muslim population is low-income earning. He explained how important devising of a mechanism as:

Half of the population in Ethiopia are Muslims. Nearly all the population of Somali and Afar regions are Muslims, and their livelihood depends on pastoralism and agro-pastoralism. In these two regions I mentioned, and in other regions, most of the Muslim population lives in poverty. Alternative Shari'ah compliant risk mitigation mechanisms besides IRSAs, money transfers from relatives, or contributions from the community, when perils occur are mandatory.

Most of the respondents also stressed the affordability of an alternative risk mitigation strategy if it is to be introduced. More specifically, IN2 elaborated:

Insurance products are expensive in our country, making them a non-feasible option for low-income households. I do not expect these services will be cheaper anytime soon. Since most of the population is categorized as low-income, there is no doubt about the need for cheaper financial protection mechanisms. The only financial structures available are these arrangements and the government community health insurance, which has limited capacity. What is more important than alternative risk protection strategies for low-income people?

From the perspective of the heads of IRSA too, finding an alternative risk protection coverage for the poor is a noble task. IH2 mentioned:

An alternative means of protection for people with low incomes is not a choice but mandatory. Product-wise, such services also are less diversified. Take iddir, for instance. It has very limited services. How about life, illness, injury/accident coverages? Where can they get all these with affordable fees? There is none. If a low-fee risk mitigation mechanism with diversified products is introduced, it will be a great relief for the low-income households.

From the responses, all respondents stated that an alternative strategy, service, product, or model is compulsory for low-income people to access this financial service. There is no difference in their opinions regarding the necessity of devising an alternative risk-sharing mechanism for the low-income households.

Theme Two: Cheaper fees, availability of customized and variety of products

Respondents were asked what features they propose for the micro-Takaful model to be offered. Most of them mentioned similar features. For instance, IS2 stated:

The micro-Takaful model should have good governance and administration structure if governance is taken as a feature. This is important for its sustainability. Besides, it must be managed by experts with a basic knowledge of Islamic finance, especially micro-finance.

Likewise, IN2 proposed provision of variety of products and customization as good features by stating:

Low-income households must be lucky enough to access different risk protection mechanisms. For the new model to succeed, various products should be offered. Customization of products is also essential.

IH1 also mentioned:

It is better to remember that IRSAs' services are affordable to low-income households. Hence, the micro-Takaful institutions should consider their pricing for these groups of society who may be unable to afford pricey products.

The second theme that emerged was the specific features proposed by respondents. The insurance experts emphasized the pricing of the products and the availability of various products. At the same time, the Islamic finance experts focused on the need for experts and good governance.

Theme Three: Micro-Takaful has the potential to promote inclusive finance

The respondents have the same opinion on the possibility of achieving inclusive finance through micro-Takaful. They mentioned different grounds to strengthen their opinions. IH1; for instance, expected the financially excluded low-income community would get the chance to access various products offered by micro-Takaful. He said:

The different products availed by the micro-takaful model have attractive features. The low-income community is excluded from accessing the very basic protection coverages such as accidents, injuries, and property losses. In my opinion, the availability of these services will incredibly promote inclusive finance.

In agreement with this, IN2 explained that micro and small enterprises will also get the chance to get covered for their properties. These enterprises have been out of any form of risk mitigation mechanisms including IRSAs. He stated:

It is not just individuals only but micro and small businesses (MSEs) also will have the opportunity to access affordable insurance services for their properties and stocks. Thus, the establishment of micro-takaful is not only beneficial for households but also for MSEs. This promotes financial inclusion among the MSE owners too.

Another interesting remark came from IH2 who stated that non-IRSA members will also get the chance of accessing risk coverages. He explained this as:

IRSA members enjoy some financial and non-financial benefits should peril occur. Due to different reasons, there are many low-income households who are not IRSA members and miss any kind of opportunity to get risk protection. I hope that if micro-takaful is introduced, it will have the capacity to attract these people to include them in the risk protection/coverage.

Two respondents linked the low-fee structure of micro-Takaful to its suitability of enhancing financial inclusion. For instance, IN1 is convinced with the fact that micro-Takaful is a low-fee model designed for the poor which can also serve the non-Muslim low-income community. He said:

Insurance services and takaful products are beyond the financial capacity of low-income people. Micro-Takaful model is designed for low-income people. Thus, these households can have the chance to access some of the risk coverage products. This opportunity is not just for the Muslim community. The non-Muslim community will also get the chance to access these products.

It is also a well-known fact that the Muslim community has been waiting for a Shari'ah compliant product or service. Its availability will attract those excluded as per IS1. He mentioned:

The Muslim community in Ethiopia has long awaited Shari'ah-compliant financial products, including takaful services. Muslims were excluded from financial services for decades for fear of non-Shari'ah compliance. Apart from the variety of products and the low fees, the Shari'ah compliance of the micro-takaful model will attract many people who were excluded from financial services.

Interestingly, the different modalities and customization of the micro-Takaful were mentioned by IS2 as good features to reach out to the excluded. His words included:

The low contribution is an essential feature of a micro-takaful model. This by itself attracts many low-income households. Besides, the micro-takaful can be offered in different modalities such as the Mudarabah, Wakalah, or Waqf models. It can also be customized to fit the Ethiopian market or low-income peoples' needs. The different modalities will make micro-takaful a suitable model for the people, which will assist in reaching out to those in need of its services.

The third theme that came into view was the possibility of micro-Takaful in encouraging financial inclusion. From the fee structure to customization, from its convenient modality to Shari'ah compliance, from the variety of products to convenience to MSEs were discussed by the respondents to support their opinions towards the prospect of micro-Takaful in promoting inclusive finance. The insurance experts focused on the fees to be paid by participants, which are low relative to the insurance and its accessibility by micro and small enterprises.

The Islamic finance experts pointed out the Shari'ah compliance of micro-Takaful and its low fee structure. In contrast, the heads of *iddirs* emphasized the availability of various products and the possibility of including non-*iddir* members.

5. Conclusion and Recommendation

The results ascertained the adoption of micro-Takaful will promote inclusive finance among the excluded class. Three dimensions, access, usage, and quality were used to measure financial inclusion, and it was found that adoption of micro-Takaful will have a significant and positive impact in increasing financial usage and quality among low-income households. The exception is financial access; although it is not significant, if micro-Takaful is adopted and its services are offered, there is a chance that financial access will increase. The findings from qualitative interviews also confirmed the potential of micro-Takaful in boosting inclusive finance. The findings pointed towards the prospect of micro-Takaful in promoting financial inclusion and contribute in updating the development of Islamic financial inclusion programs in Ethiopia. Besides, users of this research can update their knowledge of financial inclusion or apply the findings.

Despite its theoretical and practical contributions, this research has its limitations. Future research may include rural locations, as this study focuses on cities. The respondents in this research were restricted to low-income IRSA members. However, future researchers may include low-income households who are not users of any form of risk-sharing services and households from the middle-income category to strengthen the analysis and make the findings more comprehensive.

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Appendix A: Mahalanobis Distance

Observation Number	Mahalanobis d-squared	p-value
27	105.5921	0.0000
53	104.0395	0.0000
9	102.5793	0.0000
61	100.8833	0.0000
359	99.3245	0.0000
181	99.127	0.0000
146	98.9539	0.0000
259	97.6845	0.0000
47	97.0129	0.0000
26	96.9558	0.0000
25	96.7381	0.0004
32	96.3766	0.0006
5	95.8242	0.0009
52	94.4657	0.0012
8	94.3253	0.0017
2	93.9543	0.0024
70	93.2145	0.0025
35	92.994	0.0026
11	92.6507	0.0033
48	92.4321	0.0038
4	91.752	0.0039
42	91.7155	0.0040
28	91.4533	0.0043
19	91.3857	0.0048
73	90.6268	0.0063
69	90.4272	0.0065
14	90.1601	0.0069
12	89.6789	0.0080
10	89.187	0.0083
3	89.1857	0.0089
13	88.9428	0.0092
18	88.896	0.0105
7	88.7556	0.0106
1	88.7436	0.0111
15	88.6664	0.0112

17	88.5723	0.0129
23	88.4759	0.0134
16	88.2809	0.0140
62	88.0705	0.0153
38	87.9944	0.0167
43	87.8359	0.0167
21	87.7641	0.0174
84	86.6076	0.0175
50	86.4337	0.0180
24	86.3987	0.0180

Appendix B: Normality Assessment

Code	Items	Skewness	Kurtosis
ADP1	Adoption_Consider it as a viable option	-1.205	1.284
ADP2	Adoption_Willingness to use MT is high	-.522	-.516
ADP3	Adoption_Likelihood of using MT is high	-.407	-.161
ADP4	Adoption_Forse potential of MT services	-.914	.850
ADP5	Adoption_Take up MT within the <i>iddir</i> system	-1.216	1.530
ADP6	Adoption_Willing to use MT even if provided outside of the <i>iddir</i> system	-.814	.411
ACC1	Access_Risk protection coverage will increase	-.737	-.437
ACC2	Access_Easy access to MT agents	-.666	-.630
ACC3	Access_E-service access to MT	-.918	1.588
ACC4	Access_Various products will be available	-.653	.472
USG1	Usage_Enhance participation	-.491	-.200
USG2	Usage_More than one MT service	-.472	.053
USG3	Usage_Facilitate use of MT with <i>iddir</i>	-.484	-.759
USG4	Usage_Encourage other members	-.337	-.344
USG5	Usage_Flexibility of contribution	-.728	-.082
QLT1	Quality_Provided according to preference	-.167	-.485
QLT2	Quality_Prompt MT Service	-.404	-.141
QLT3	Quality_Provided by experts	-.748	.327
QLT4	Quality_Professional facilities will be available	-.662	-.077
QLT5	Quality_Individualized attention will be given	-.404	-.283