# Financial Inclusion through the Adoption of FinTechs: An Analysis for Determining Factors among People with Disabilities in Cameroon

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**Abstract:** Financial inclusion is an important global policy issue that is of concern to many international agencies, the public and private sectors. The number of people excluded from financial circuits remains considerable and represents almost a third of the world's adult population (Global Findex, 2021). Despite the efforts made towards more inclusive finance in African countries, poor people and/or people with disabilities constitute the group that suffers the most financial exclusion from FinTechs. This does not corroborate the terms of the 2008 United Nations Convention that advocates the equality of FinTechs among people with disabilities in Cameroon. These factors were estimated using a binary logistic regression analysis on a panel of 78 people. The results show that the technological factors linked to the training of FinTech users and the technological factors linked to taking disabilities into account in the design of technologies have a significant effect on financial inclusion. The study highlights the need for financial regulation to protect the rights of people with disabilities in Cameroon.

**Keyword:** Financial inclusion, FinTechs, Determining factors, People with disabilities.

## 1. INTRODUCTION

It is becoming increasingly clear to public authorities and businesses that access to and use of formal financial services is not only beneficial to customers and households, but that by promoting their diffusion and sustainability, they can have a greater impact on economic development at the national level, helping to reduce transaction costs, manage risks and even reduce financial and social exclusion. In other words, facilitating access to a full range of practical and appropriate financial products and services. This is what the 2030 Agenda for Sustainable Development promotes in its first goal (target 4): "... all men and women, especially the poor and vulnerable, have equal rights to economic resources and access to new technologies and appropriate financial services, including microfinance". Like several other countries, Cameroon is committed to promoting financial inclusion. In 2015, this led to the adoption of the National Strategy for Inclusive Finance (NSIF), the first strategic area of which is entitled "Improving the quality and availability of financial services in order to sustainably meet people's need for financial services".

In recent years, financial inclusion through technologies known as FinTechs has attracted growing interest from players in the financial banking system. These FinTechs, com monly referred to as online banking services, have revolutionized the financial services sector by enabling anyone to access banking services anytime, anywhere, whenever they need them, faster and at lower cost. For banks, FinTechs represent an effective solution to the problem of financial exclusion. As said by Lanto (2015) and Poushter (2016), bank customers are increasingly inclined to use electronic transaction systems, even in developing countries. This is partly due to the increase in banking services based on financial technologies. Since the introduction of the GIMACPAY ecosystem, there has been a significant and steady increase in mobile transactions, transfers and cards. In 2022, more than 10 million transactions (i.e. FCFA 395 billion) were made through this system. Mobile flows and transfers accounted for 73% of activity, while card activity represented 27%. In the same year, 44% of traditional transfers were carried out, compared to 21% of instant e-money transfers. Based on a study conducted between 2017 and 2021 by Demirgüç-Kunt *et al.* (2022), financial inclusion rates are often higher in developed countries (95% on average) than in developing countries (63% to 71%). In these countries, 18% of bill payments are made using a digital account, and the proportion of adults making or receiving digital payments will increase from 35% in 2014 to 57% in 2021. More specifically, in sub-Saharan Africa, 55% of adults have an account, and 33% will have a digital bank account in 2021.

As stated by BEAC (2022), the majority of transactions are carried out in Cameroon (71% or 1.7 billion operations and 55% or 59,003 billion CFA francs), followed by Congo (15% by number) and Gabon (15% by value).With regard to

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mobile money, more than 96% of transactions (2.3 billion operations) in the CEMAC zone were carried out through this service, while only 2% of transactions (48. 3 million operations) were made using traditional bank transfers and cards (BEAC, 2022).The acceptance rate for ATMs is around 36% (GIMAC, 2021).The internet penetration rate for mobile banking FinTechs is around 45.6% and the mobile phone penetration rate is 84% (ART, 2023).These data show a deviation from the information provided by the IMF and AfDB between 2018 and 2019 for Cameroon. According to these two institutions, five out of fourteen banks have developed a mobile application and only 2% of customers use mobile banking. Although investments in FinTechs such as ATMs and mobile or online banking are on the rise, there are certain difficulties in their use in Cameroon by customers in general and people with disabilities in particular. Conferring to the National Statistics Institute, the use of mobile money services has increased significantly, from 29.9% in 2017 to 42.7% in 2022 for the entire population aged 15 and over, representing an increase of 12.8% (ECAM 5, 2024).

The problem of financial inclusion is more acute in developing countries, particularly in Africa (Ardic, 2019). Only 55% of adults have an account with a financial institution, compared to 71% in developing countries. Women are most affected, as only 49% of them have access, compared to 61% of men (Global Findex, 2021).The victims of exclusion are mainly poor people whose daily income is less than $3.65 (25%) or $6.85 (47%), women (more than 60%) and vulnerable or disabled people. Along with the United Nations Convention on the Rights of Persons with Disabilities, persons with disabilities are those who "have long-term physical, mental, intellectual or sensory impairments which, in interaction with various barriers, may hinder their full and effective participation in society"[1]. This definition includes people with temporary disabilities or who have had disabilities in the past. Since the concept of "disability" changes consistent with social attitudes, the Convention has chosen to adopt a dynamic approach that adapts to the spatial and temporal context. A person may be perceived as disabled in one society or context, but not in another.

In financial institutions, a significant proportion of customers with disabilities do not benefit from banking services (microcredit), almost as much as people without disabilities (Simanowitz, 2007). People with disabilities often face barriers in accessing or using traditional and online banking services due to sometimes strict banking regulations in some countries (Abd El Aziz, et al., 2018; Wentz, et al., 2017).These users generally rely on family, friends or third parties to manage their online bank accounts or carry out other operations. The same is true for visually impaired people who, when handling a photo online, cannot check that it does not contain private content before sharing it (Tilse et al., 2007; Venkatesh and Sykes, 2013). On the other hand, sighted people are able to monitor their environment to protect themselves from threats to their privacy. For the Ministry of Social Affairs, 12% of the population in Cameroon will be disabled by 2024. The law of 13 April 2010 on the

protection and promotion of persons with disabilities in Cameroon defines disability as "any limitation of the possibilities of full participation of a person with an impairment in an activity in a given environment" and a disabled person as "any person who is unable to ensure by himself or herself all or part of the necessities of an individual or social life, due to a physical or mental impairment, congenital or not". The law above distinguishes between physical disabilities (motor and sensory disabilities), mental disabilities and multiple disabilities. The most common categories[2] are deaf (38.8%), lower motor (15%), dumb (14.3%) and blind (10.9%).

The search for a response to the problem of exclusion and its many facets has led to the emergence of more inclusive finance and the rapid expansion of FinTechs. The development of FinTechs in the banking sector has profoundly changed basic financial services, encouraging banks to constantly innovate in order to meet their customers' expectations. This has given consumers greater access to quality services. FinTechs are therefore emerging as a miracle solution to the problem of financial exclusion for people with disabilities. With the emergence of FinTechs, inclusion is booming, but it faces some challenges due to unforeseen factors. There are many studies on financial inclusion (Donovan, 2012; Tchouassi, 2012; Sukumaran, 2015; Adeola and Evans, 2017; Abessolo and Timbi, 2019; Madjou Tatsing et al. (2020), Tangakou Soh, 2019; Tchouassi et al, 2022, Mohe and Fokam, 2024). Most of this research has focused on the use of FinTechs, the impact of financial inclusion on the growth and development of the banking sector, bancarisation and financial exclusion, without giving a special place to the factors of inclusion by FinTechs. In fact, there are few studies that examine the specific factors of financial inclusion through FinTechs, even in the case of people with disabilities. Consequently, the aim of this paper is to fill this gap by providing some answers to the following question: "What are the determinants of financial inclusion through the adoption of FinTechs by people with disabilities in Cameroon?" To estimate these factors, we used the binary logistic regression analysis method. This research is divided into three parts. The first, devoted to a literature review on the determinants of financial inclusion of people with disabilities, also presents the theoretical framework. The second part is dedicated to the methodological approach and tools. The final section presents the results of the study and some discursive analysis.

## 2. REVIEW OF THE LITERATURE

### 2.1. Conceptual Framework of the Study

#### 2.1.1. Concepts and Dimensions of Financial Inclusion

Financial inclusion, also known as inclusive finance, is generally perceived as the opposite of financial exclusion, which in the literature is seen as a customer selection process that limits access to and use of basic financial services (Eber, 2000; Gloukoviezoff, 2009). People with disabilities are often victims of financial exclusion for a variety of reasons,

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[1] United Nations Convention on the Rights of Persons with Disabilities (2006)

[2] NIS, Demographic Health Survey with Multiple Indicators (DHS-MICS), 2011.

such as their lack of protection, the inappropriate and sometimes expensive nature of the services available to them (Gloukoviezoff, 2009; Lazarus, 2009), the unequal location and geographical distribution of banking and financial infrastructure and institutions (Leyshon and Thrift, 1995), and the psychological and emotional barriers they face (Kempson et al., 2000). When exclusion is at its lowest, a financial system is said to be inclusive - in other words, it is freely accessible and meets the needs of all social classes.

Numerous studies have been carried out on financial inclusion with different theories, but without resolving the controversy over its definition. In line with some authors, it is the possibility of access to or use of financial services by a broad public. Financial inclusion is therefore seen as a process or an outcome. Other authors use cost as a measure of financial inclusion. It is seen as a measure of social and economic justice in favor of people experiencing poverty or disability, as well as of the diversity of financial services and products and their responsiveness to people's needs. The different approaches outlined below are in line with these basic principles.

In relation to the definition of financial exclusion provided by Gloukoviezoff (2007), "it is a process whereby a person encounters such difficulties in accessing and/or using banking services that he or she is unable to lead a normal social life in his or her own society". It refers to the provision of basic financial and banking services (payments, savings, credit, insurance) at low cost, specifically targeted at people who are disadvantaged, in financial difficulty and/or excluded from the traditional banking circuit. According to Sarma and Pais (2011), and Iyer (2015), financial inclusion aims to ensure access, availability and use of the financial system formally at an affordable price for all economic agents. Thus, this process has a threefold objective: to reduce barriers to access to a range of financial services to which all economic actors (households, businesses) are entitled, as well as to the availability and use of these services. For CGAP3 and the World Bank (2009), financial inclusion means the possibility of access to financial services by different categories of people. This means that individuals and businesses can benefit from a range of financial products and services4 that are not only affordable and relevant, but also tailored to their needs, and offered by trusted providers who act responsibly (World Bank, 2021). Access to financial services does not require that all those who are eligible use them, but that they have the opportunity to do so if they so wish (UNCDF, 2006)5.This definition is consistent with that of the UN (2006), as both emphasise the availability of financial services and the ability to choose them. In the terms of AFI (2010), financial inclusion is defined as "accessibility to financial services in terms of cost and proximity, the quality of the products and services offered which must meet needs, the effectiveness of products and services offered in

terms of improving the economic conditions of beneficiaries, and the actual use made of them by customers". The Committee on Financial Inclusion in India defines it as follows: "the process of ensuring access to financial services, such as credit, in a timely and adequate manner when needed by vulnerable groups such as low-income groups, at an affordable cost. Due to its complexity, financial inclusion is seen as an essential element of social inclusion, which allows populations to have sustainable access to essential social services such as health, education and employment (Vo et al., 2021). Indeed, financial inclusion promotes economic growth, mobilizes public savings, increases the income of economic actors, increases social spending (health, education, etc.) and, ultimately, reduces poverty and inequalities, thus guaranteeing sustainable and sustained development.

The issue of financial inclusion appears to be more complex in developing countries because of the low level of banking penetration and the obstacles to access to credit. However, it is the real international goal for the financial sectors in these countries (Lensink et al., 2022). Through financial inclusion, inclusive growth is promoted and economic agents can make consumption decisions, invest for the long term and participate in productive activities. In keeping with Arun and Kamath (2015), inclusion is essential for optimal participation of the population in economic and social life and plays a key role in seven of the seventeen Sustainable Development Goals. Financial inclusion in sub-Saharan Africa is defined as "people's consistent access to a variety of appropriate financial products and services, at affordable prices and used effectively, efficiently and effectively". Along with Moore et al. (2019), households and businesses that benefit from financial services are better protected from financial shocks than those that do not have access to them. Vulnerable social groups that benefit from inclusion can increase their income, finance education, start businesses and empower women (Demirgüç-Kunt and Klapper, 2012b; Duvendack and Mader, 2020).

The concept of financial inclusion encompasses different facets such as access, quality, use and well-being related to financial services. These different perspectives converge towards a consensus that financial inclusion goes beyond the mere provision of services and must take into account their accessibility, relevance, effectiveness and positive impact on individuals and businesses. This leads us to consider financial inclusion as a process aimed at extending access to financial services to businesses, households and individuals excluded from the traditional banking system, in order to ensure their real economic participation and their ability to meet their needs and improve their living conditions. It is the permanent access of populations to a variety of suitable financial products and services, at affordable prices, and used effectively, efficiently and economically.

The various definitions of financial inclusion mentioned above highlight several aspects of this concept, which we can summaries below:

- Easy or expanded access to financial services;

- The availability of services;

- The effective, efficient and relevant use of financial services;

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[3] The Consultative Group to Assist the Poor (CGAP) is a global multi-donor partnership dedicated to promoting inclusion.
[4] Payments, savings, short, medium and long-term credits, insurance, national and international transfers, mortgages and pensions.

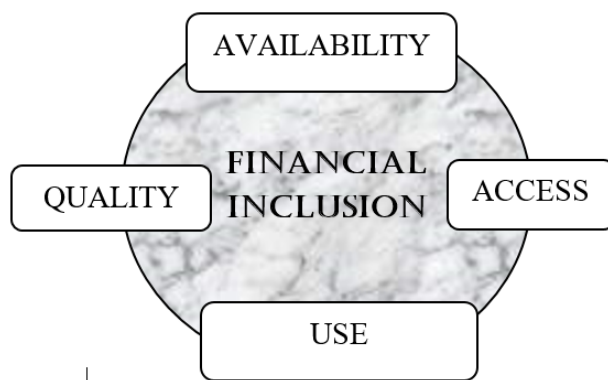[5] United Nations Capital Development Fund

**Fig. (1).** Dimensions of Financial Inclusion.

Access implies physical proximity, affordability and ease of use.

Use of financial services must be effective, regular, efficient and relevant.

Availability is the quality of what can be used.

Quality refers to adapting to people's needs and meeting those needs responsibly.

- The cost of accessing services.
- Meeting people's needs and improving their living conditions;
- Participation in economic and social activities.

Financial education has been identified in the empirical literature as a factor influencing the financial inclusion of disadvantaged or disabled people. According to Ben David-Hadar (2018) and Marx et al. (2010), the lack of financial education affects the social and economic well-being of the population. Conversely, individuals who have received financial education are more likely to select financial products and services that are appropriate for them and to make informed financial decisions. For the purposes of this research, financial inclusion can be defined as "a process that enables easy access to, and effective, efficient and effective use of, financial services at an affordable cost to meet the needs of people who are in difficulty and excluded from traditional financial systems". The authors highlight the fact that the development of financial technologies has promoted financial inclusion by offering innovative solutions that facilitate access to and use of financial services. These often more affordable and flexible solutions, known as 'FinTechs', are presented in the following section.

### 2.1.2. The concept of FinTech: Definition and Typology

The financial crisis of 2008[6] led to the emergence of new players in the financial sector. They are known by the acronym "FinTechs", which is a contraction of "Financial Technology" and refers to technologies related to the financial sector or to start-ups in the banking and financial sector that combine digital technologies with financial activities. The term is therefore an offshoot of information technology and has evolved from its origins to the present day. The term "FinTech" first appeared in academic literature after the financial crisis (1980-1990). As said by Schueffel (2016), it was first used in an article by Abraham Léon Bettinger, vice-president of the Manufacturers Hanover Trust Bank. The article discusses how the bank successfully implemented

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[6] It revealed significant risk-taking by banks. the Basel III reform adopted in 2010 by the eponymous Committee, introduces stricter rules with regard to the quality and quantity required of banks' own funds. It aims to strengthen micro and macro prudential policy with a view to making the banking and financial sector more resilient in the event of a crisis.

models to analyse and solve problems that arose on a daily basis. He defines the term "FinTech" as an acronym that combines banking expertise with modern techniques of management science and the use of computers (Wilke, 1972). Some sources attest that the evolution of FinTech experienced a decisive turning point in the early 1990s, due to the Financial Services Technology project, a consortium set up by Citicorp (Hochstein, 2015). From 2014, FinTech began to position itself as an innovative business model (Gimpel et al., 2018). These are new financing approaches based on technological progress, also called non-banking (Mariage and Pendeven, 2015).

#### 2.1.2.1. Evolution of FinTech

In recent years, FinTech has demonstrated its immense growth potential through the use of innovative and connected technologies, so that some authors consider it a particular "financial innovation". The emergence of FinTech is generally considered to be the result of the interaction between financial institutions, consumers and markets. Four major periods of evolution of FinTechs can be identified (Arner et al., 2015; BPI France, 2017). The first, known as FinTech 1.0, concerns the transition from analog to digital. The next period, which continues until 2008, represents the shift to digitalization and globalization of financial services, known as FinTech 2.0. The third, described as FinTech 3.0, saw the development of new start-ups and technology companies in the financial services sector. FinTech 4.0 is developing from 2018 and concerns disruptive technologies.

#### 2.1.2.2. Definition of FinTech

FinTechs refer to young non-financial companies that exploit innovative technologies in order to review the business model associated with financial services. The aim is to make these services simpler, more efficient, more accessible and less expensive for populations, in order to no longer have to resort to the intermediation of banks. Despite the fact that the word FinTech has been overused for around fifty years, its definition is still a subject of debate. A comparison of definitions from scientific literature and international institutions allows us to conclude that the FinTech concept is a diptych referring to (i) the phenomenon of financial innovation based on technology, aimed at offering innovative and/or designed services or products. according to innovative processes and, (ii) to entities which exclusively offer innovative financial services or products based on technological

innovations. The tables below present a summary of the literature following this division, we then highlight some particularities.

**Table 1. FinTech as financial technology based on innovation.**

| Authors | Definitions |
|---|---|
| Phillipon (2014) | "FinTech refers to the use of technology to deliver new and improved financial services". |
| Arner et al. (2015) | "FinTech is a technology application that supports the process of delivering financial solutions. It is not limited to specific sectors (such as banking) or a specific business model (such as peer-to-peer lending), but covers all financial services and products in the traditional sense". |
| L'Organisation Internationale des Commissions de Valeurs (OICV, 2016) | "Variety of innovative business models and emerging technologies that have the potential to transform the financial services industry or the use of information and communication technologies to deliver financial services". |
| Pushmann (2017) | "The act of creating and popularising new financial instruments, technologies, institutions and markets" |
| Nakashima et al. (2018) | "FinTech is a technology that uses NICTs and the Internet in the financial world. The term FinTech therefore refers to new technological solutions that will initiate a revolutionary transformation in the world of finance." |
| Conseil de Stabilité Financière (2018) | "It is financial innovation based on technology, which can manifest itself in new business models, applications, processes and services or products that have an impact on financial markets, financial institutions and the provision of financial services." |
| Goo et Heo (2020) | "FinTech is the provision of traditional financial services in new forms using information and communication technologies (ICT)." |
| Natarajan et Saal (2021) | "FinTech is a technology that has the potential to transform the delivery of financial services, stimulate the creation of new business models, innovative applications, processes and products, as well as generate gains for consumers." |
| The World Economic Forum/Davos (2022) | "FinTech refers to the application of technology to provide financial services to individuals and businesses" |

**Source:** Authors, from a summary of literature review.

**Table 2. FinTech as a young technology company or business sector.**

| AUTHORS | DEFINITIONS |
|---|---|
| HUANG (2015) | "'FinTech is a business that uses technology in a variety of areas: banking, payments, data analytics, capital markets and financial management". |
| KIM ET CHOI (2016) | "FinTech is a service sector that uses mobile-centric computing technology to improve the efficiency of financial services". |
| DANKER (2016) | "FinTechs are commonly thought of as start-ups that use technology systems to deliver specialised and particularly customer-focused financial services". |
| MICU ET MICU (2016) | "FinTechs are a new sector of the financial industry that encompasses the entire plethora of technologies used in finance to facilitate transactions, business operations or interactions and services provided to consumers". |
| VARGA (2017) | "FinTech refers to unregulated or not fully regulated companies dedicated to developing innovative, value-added technology-based financial services that will transform current financial practices". |
| SHIN ET LEE (2017) | "FinTech is an ecosystem made up of five major players: startups, technology developers and providers, governments and financial market regulators, customers and traditional financial players. Together, these elements contribute to innovation, stimulate the economy, facilitate collaboration and competition in the financial sector and benefit consumers in the sector. |
| WOJCIEHOWSKI ET AL. (2018) | "FinTech refers to an industry that includes new, growing and mature companies, including those that provide non-financial services. FinTech entities focus their attention on two aspects: understanding customer needs and using technology in innovative and unique ways." |
| BANQUE CENTRALE EUROPÉENNE (2018) | 'An entity with a business model in which the production and provision of banking products and services is based on innovation of a technological nature'. |
| AUTORITÉ DE CONTRÔLE PRUDENTIEL ET DE RÉSOLUTION (2021) | "A start-up combining (i) a high degree of innovation and (ii) a service offering in one or more of the financial areas covered by the ACPR. The innovation may be a product, process, marketing or organisational innovation based on the use of new technologies." |

**Source:** authors, from a summary of literature review.

The definitions in tables 1 and 2 highlight the disagreement surrounding the definition of FinTech. Some authors identify it as a service or technological innovation, while others describe it as a specific entity or sector of activity. The definition of the acronym FinTech therefore requires a certain complementarity of the different meanings, as stated by Sarhan, H. (2020): "FinTech means on the one hand technology-driven innovation occurring in the financial services industry, and on the other hand companies (new or start-ups) that are involved in the development of new technologies and their applications'. In view of this duality, our definition of FinTech is as follows: 'Innovative financial technology that optimises financial services and/or any entity (start-up) that offers financial services based on new technologies".

### *2.1.2.3. Types of FinTech*

Based on the broad definition provided by the Financial Stability Board, the Basel Committee has divided innovations into two categories: (i) a set of three product segments related to core banking services (credit, deposits and capital raising; payments, clearing and settlement; and asset man-

agement) and (ii) a set of market support services related to innovations and technologies that are not specific to the financial sector, but which play a crucial role in the evolution of FinTech. Drawing up a typology or taxonomy of FinTech is particularly useful as there is no consensus on the definition of this concept. In the scientific literature, several authors have proposed a typology of FinTech (Solarz, 2017; Gimpel et al., 2018; Ratecka, 2020). Most of them retain two approaches and six classification criteria: (i) the approach of FinTech as a company, the criteria being: duration, customer focus, scope of activity, business model; (ii) the approach of FinTech as a service, the criteria being: service provision and business sector. According to the above criteria, a variety of FinTechs can be distinguished:

- By *duration*: a distinction is made between **innovative start-ups** (unregulated, early-stage entities) and **mature entities or financial institutions** (regulated entities, banks, insurance companies, investment funds, etc.).

- By *customer focus*: a distinction is made between **retail entities** (financial services for retail customers), **SMEs** (financial services in the SME segment) and **institutional borrowers or investors** (capital market players, selling and trading securities, making current account deposits and managing assets).

- Depending on the *field of activity*: **global digital platforms**, such as BigTech entities or GAFA (Google, Amazon, Facebook, Apple); **international entities**, which provide technological and financial services in two or more countries; **local entities**, which operate in a single country.

- Depending on the *business model*: **entities providing financing** for a specific activity or project (participative financing, participative lending, microcredit, factoring); **entities providing innovative payment solutions** (mobile payment systems, electronic wallets, cryptocurrency); **asset managers** providing automated financial advisory services (robo-advisors), social trading, wealth management services, personal finance management applications or software; **insurance**, which are entities that receive contributions to cover risks (P2P insurance) and entities providing risk management services; **Loyalty programmes**, which are FinTech entities that analyse large amounts of data (Big Data) in order to provide customer loyalty programmes, working closely with payment institutions; **risk management entities**, which provide risk management services and support in the financial assessment of debtors; **stock exchange service providers**, which provide capital market services (securities trading, derivatives and other financial instruments); **regulatory technology platforms**, which automatically collect and analyse a wide range of data that can be sent in real time to regulators or supervisors via a distributed system, depending on regulatory requirements, to regulators or supervisors via a distributed system; **entities that offer training, innovative solutions and business models** to investors or other FinTech entities.

- Depending on the *service provision*: **entities that manage interactions** between FinTech and the customer in several areas (personalisation, information exchange, types of interaction, user network, role of IT, distribution channel strategies for hybrid services); **entities that handle data** (data source, time horizon, use and type of data); **monetization entities** that evaluate in-currency activities based on payment schedule, user currency, partner currency, and business cooperation.

- Depending on the *business sectors*: FinTech services can be provided in different business sectors, such as the **banking sector** and **banking operations** (deposits and loans, private equity, payments), the **capital investment sector** and **stock exchange services**, the **insurance sector** (property insurance, life insurance, peer-to-peer (P2P)[7] insurance, insurance operations), or the real estate market (production and promotion of property, buying and selling, property management)

Three characteristic features of FinTech emerge from a study of its historical development and the definitions and typologies examined above. These are their status (company, technological innovation or service), their sector of activity (banking, capital investment, insurance, real estate) and their scope (global, international, local). The rapid growth of financial technologies over the last few decades has led to major transformations in the financial sector. FinTech startups have become key players in financial inclusion and economic development. In this typological analysis, we will present the theoretical framework of the research.

## 2.2. Theoretical Framework for Financial Inclusion

The vulnerable groups theory of financial inclusion, developed by Ozili (2020), is rightly highlighted in this study. As stated by this general theory of financial inclusion, the beneficiaries of inclusion are mainly poor people (Bhandari, 2018), women (Demirguc-Kunt et al., 2013; Ghosh and Vinod, 2017) and the financial system (Swamy, 2014; Kim et al., 2018; Mehrotra and Yetman, 2015; Özili, 2018). To conduct this research, we mobilised a dual theoretical framework that not only explains the situation of disability, but also links it to financial inclusion through FinTechs.

### 2.2.1. Critical Theory and the Social Model of Disability

Critical disability theory has three historical foundations: the Critical Legal Studies movement, identity politics and the relationship between language and critical theory. Critical disability theory can be traced back to the Critical Legal Studies movement, which initially drew on the work of Max Horkheimer's Critical Theory of 1972. According to this movement, it is established that political and social elements can exert a significant influence on judicial decisions, the law being perceived as a tool of social control and favouring the continuity of domination and oppression. Proponents of

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[7] Assurance entre particuliers ou désintermédiation financière. En fait, prêteurs et emprunteurs sont directement mis en relation, le plus souvent via une plateforme en ligne (Drummer et al., 2015).

this movement therefore seek to deconstruct the law to show how it represents the interests of the dominant classes and maintains unequal power relations in society. For Hosking (2008), the aim is to maximise human freedom and put an end to the domination of certain groups over others. Critical theories also accept the idea that 'the language used to talk about an object of study is not neutral'. The choice of a term to designate something (or someone) underpins ideological conceptions and has, in essence, a political significance, particularly through the preconceptions and positive or negative images conveyed. This explains the opposition between the terms 'disabled person' and 'person with a disability'. The latter gives a better account of the particular dynamics that create disability and does not focus on the person's impairment, but rather on the inadequacy of their environment in the face of their difference. The theory is based on a fundamental premise: 'individuals with a disability are more likely to experience social exclusion and marginalisation' (Minich, 2016; Hall, 2019).  Instead of focusing on disability, this theory questions social norms, barriers and attitudes. The 'hierarchy of differences' must therefore be abolished, in order to guarantee all disabled people genuine equal benefits. It is only under these conditions that an approach based on the concept of 'citizenship' for people with disabilities can be put in place.

In reality, disability is not an inconvenience to be corrected or a person-related problem to be eliminated. Rather, it is a condition created by social attitudes and difficulties (Hall, 2019; Devlin and Pothier, 2006). While people with disabilities may experience functional difficulties, the major problem lies in a reluctant society that refuses to accept, modify or abandon erroneous conceptions of normality. Critical disability theory therefore focuses on an in-depth analysis of ableism, a form of discrimination that has an impact on people with disabilities (Hall, 2019; Linton, 1998). Consistent with this discriminatory behaviour, disabled individuals are presented as less important than non-disabled individuals. For proponents of ableism, people with disabilities are often perceived as obstacles to society and should receive special support (Friedman, 2018). These prejudices lead to their exclusion in various life situations. The social model of disability examines the social structures that pose difficulties for people with and without disabilities and seeks to move towards an inclusive society accessible to all (Di Stefano et al., 2015; Devlin and Pothier, 2006). It places great importance on inclusive environments and structures, non-discriminatory policies and laws, and services (Hall, 2019).

### 2.2.2. *The Unified Theory of Technology Acceptance and Use (UTTAU)*

According to Venkatesh *et al* (2012), this theory has been developed from different research that argues that the factors that influence the adoption or use of a technology are the following four elements: performance expectancy, effort expectancy, social impact and enabling conditions. Three additional elements can be added to an extended version of the theory: hedonic motivation or pleasure derived from use, price value or utility, and perceived value and habit. TUAUT incorporates concepts from eight theoretical models: the theory of reasoned action (Ajzen and Fishbein, 1970), the technology acceptance model (Davis, 1989), the motivation model (Davis et al.,), the PC use model (Thompson et al., 1991), the diffusion of innovations theory (Rogers, 1995) and social cognition approaches (Bandura, 1986). The elements of TUAUT highlight the links between technology, cognition and social behaviour. We have used it in this study to understand the factors that influence financial inclusion through the adoption of FinTechs.

### 2.3. Empirical Framework for Financial Inclusion

### 2.3.1. *Empirical Review of the General Determinants of Financial Inclusion*

The factors influencing the demand for financial services depend on the purchasing power of agents, as well as non-economic factors stemming from personal preferences. Using data from Global Findex (2014), Benyacoub (2021) assessed financial inclusion in Sub-Saharan Africa and found that lower income levels were associated with lower levels of access to bank accounts. Along with Sarma and Pais (2011), income, income disparities, telephone use, internet access and adult literacy play a crucial role in a country's financial inclusion. In India, the factors that influence financial inclusion are income, population and literacy (Chithra and Selvam, 2013). Considering variables such as education and income, Tuesta et al. (2015) reached the same result in research conducted in Argentina. Fungacova and Weill (2015) demonstrated that higher levels of education and income promoted the use of formal accounts and credit in China. Gross domestic product per capita is also thought to affect financial inclusion (Okoroafor et al., 2018).  In a quantitative study in Peru, Clamara et al. (2014) analysed the influence of household socio-economic factors (age, gender, education and income level) on financial inclusion. Hoyos et al (2014) also identify education as an important determinant of financial inclusion in Mexico.

When we look at the supply side of the equation, we see that there are a number of factors that make it more expensive for people to access financial services. These include bank charges, the distance between banking establishments, religious concerns and the size of the informal sector. Ayadi et al (2015) summarised two groups of factors that hinder financial inclusion: structural factors (population size and density, per capita income, high level of economic informality) and political factors (macroeconomic stability and economic environment). As said by Nacéra and Abdelkader (2022), there is a negative relationship between the cost of customer services and customer satisfaction. Improving the level of customer satisfaction is associated with costs that could potentially prevent low-income people from accessing financial services.  There is evidence that countries with competitive banking systems have high levels of financial inclusion, with increasing numbers of businesses accessing loans and overdrafts. The main determinants of financial inclusion are therefore the availability of information about banks, income levels, financial infrastructure and financial sector regulation (Zins and Weill, 2016). In the countries of the Central African Economic and Monetary Community (CEMAC), collateral is a real constraint on access to credit for both small and medium-sized enterprises and low-income individuals (Avom and Bobo, 2014). The main challenges to financial inclusion in Ethiopia are the documentation re-

quired and the distance between where people live and banks (Baza *et al*., 2017). As Honohan and King (2012) show, in a study conducted in some African countries, location in terms of urban or rural residence plays an important role.

With regard to institutional factors, Djankov et al (2009) conducted research on private credit in 129 countries and found that credit protection rights, the availability of institutions and the dissemination of information contribute to inclusive financial growth. According to UNCTAD (2014), the absence of adequate regulation and asymmetric information could result in insufficient credit supply for a given population group. As shown by NEPAD and the OECD (2009), financial intermediation has evolved in countries with solid legal institutions, while in other countries it is still in its infancy despite the major reforms that have been put in place with the aim of greater liberalisation. To promote financial inclusion, it is necessary to reduce market imperfections and increase transparency in the flow of information (Demirgüç-Kunt et al., 2013).

### 2.3.2. Empirical Review of Financial Inclusion Through FinTech Adoption Factors

Empirical studies that have examined the factors that influence financial inclusion through the use of FinTechs have yielded mixed results, as non-use varies considerably from country to country and as stated by specific factors. While some work has concluded that there is a significant and differential effect of adoption factors on the level of financial inclusion, others have found that there is no effect. However, there is little or no research on the financial inclusion of people with disabilities through FinTech adoption factors. Below is a brief review of the literature on this issue.

❖ **The effect of personal adoption factors**

Personal adoption factors refer to concepts such as demographic characteristics, habit of use, motivation, behavioural intention, attitude and confidence. In the financial literature, some studies have linked hedonic motivation to the advent of FinTechs (Hasan et al., 2021; Voros et al., 2021), while others (Baudier et al., 2019; Oliveira et al., 2016) find no significant effect. In relation to the results of a cross-national study conducted by Chopdar et al. (2018); Baudier *et al.* (2019), the adoption of mobile shopping applications has a positive impact on behavioural intention and consumer behaviour. Mobile money has become a convenient way to access faster, cheaper and more affordable financial services. In this way, repeated transactions with mobile money services can become a habit for the majority of individuals, which in the long run can have a positive impact on their behavioural intention and true use of technology (Demirgüç-Kunt *et al*., 2018).

Trust would also have a positive impact on the adoption of FinTech (Ali *et al*., 2021; Bin Nashwan, 2020) and in particular mobile money (Wang *et al*., 2019). Trust comprises two variables: psychological and behavioural. Attitude is often used as an independent variable to assess an individual's actual behaviour (Verkijika, 2018), and intention to use a technology (Hemchand, 2016) or mobile payment services such as the mobile wallet (Schierz *et al*., 2010). In the field of microfinance, Cramm and Finkenflugel (2008) and Martinelli and Mersland (2010) note that financial services are not

very accessible to people with disabilities. This is because most MFIs consider people with disabilities to be a 'financial risk' and are prejudiced against them (Lee, 2012). However, obtaining credit enables disabled people to build up assets, but also to improve their self-confidence and their acceptance by society (Lewis, 2004).

❖ **The effect of environmental adoption factors**

Previous research (Jang *et al*., 2016; Oliveira et al., 2016) on the use of technology has highlighted the influence of the social environment in the adoption of an innovation. Oliveira (2016) found a positive effect of the social environment on users' intention to use mobile payments. Social influence is measured by a customer's perception of the importance of certain people, such as family and friends, in the adoption of a new technology (Lule *et al*., 2012). Consumers are also influenced by culture and social contagion in their adoption decision. Consumers from a more autonomous culture are more likely to adopt radical new products. Those from a more interdependent culture adopt a new product gradually.

Government support is associated with infrastructure improvements, legislation and regulation that promote the growth of the FinTech industry and ensure connection to the network. It promotes the evolution of FinTechs (Chinnasamy et al., 2021; Hua and Huang, 2021; Kennedy et al., 2020). In the Technology Acceptance Model (TAM), several authors include social influence and highlight the role of peers, family, friends and media (television) on the user to adopt mobile technologies and banking services (Lu *et al*., 2005; Chong et al., 2010; Riquelme and Rios, 2010). According to Handicap International (2006), environmental obstacles are mainly related to behavioural and architectural barriers. Technical barriers include lack of skills, financial product design, weekly repayments, compulsory savings and credit history. Lang and Upah (2008) also highlight physical and cultural barriers. Titumir and Hossain (2005) analyse the consequences of stigmatisation and discrimination on the part of bank staff and other institutions who doubt the abilities and skills of people with disabilities.

❖ **Effect of technological adoption factors**

Several research studies have identified factors that determine the financial inclusion of digital financial services: ATM withdrawals, card payments or mobile banking (Hassan and Meer hamza, 2020; Alalwan and Dwivedi, 2014). These factors stem from the perceived usefulness of digital banking (Mufarih *et al*., 2020), the perceived difficulty of using FinTech (Agyei *et al*., 2020; Chawla and Joshi 2020; Abdul-Halim *et al*., 2022; Jain and Chowdhary, 2021), as well as the perceived risk regarding the use of mobile payments (Liebana-Cabanillas *et al*., 2019) and mobile apps (Chopdar *et al*., 2019). Consumers' decision to use or not to use banking services has been examined in mobile banking by several studies (Amin *et al*., 2008; Koenig-Lewis et al., 2010; Riquelme and Rios, 2010; Sripalawat *et al*., 2011; Al-Jabri and Sohai, 2012). In general, this decision depends on utility, sometimes high associated costs, risk and mobile applications (Chopdar *et al.*, 2018).

Baganzi and Lau (2017), investigated the importance of perceived risks regarding mobile money services, focusing on regulatory and operational risks. Since the level of trust
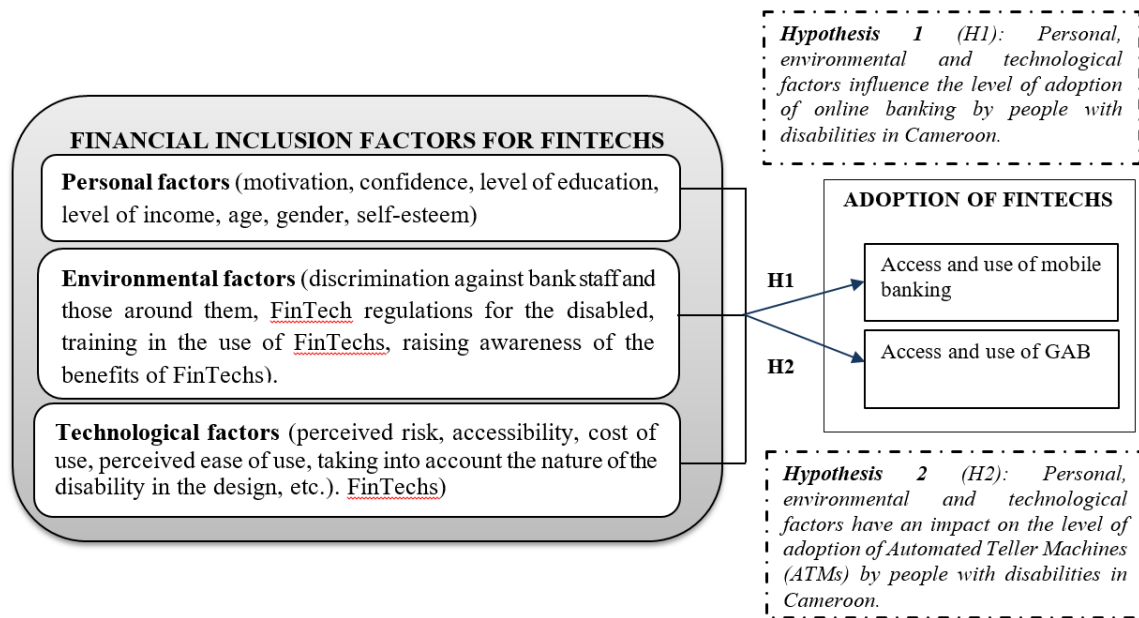
**Fig. (2).** Theoretical model of research.
**Source:** Authors' design.

that individuals place in a technology and its providers is influenced by perceived risk, it is crucial to understand the underlying elements of inclusion/exclusion mechanisms. Along with Tan and Leby (2016), there is a reluctance among individuals to adopt technologies such as the mobile wallet due to insecurity and uncertainty. The presence of enabling conditions that influence the willingness to use technologies such as mobile payment services (Oliveira et al., 2016), shopping apps (Chopdar et al., 2018) and ICTs (Macedo, 2017), mitigates this reluctance.

From the above, three main groups of determinants emerge from the literature: personal, environmental and technological determinants. We postulate that these determinants influence the level of financial inclusion by FinTechs among people with disabilities. Consequently, we propose the following research model:

## 3. METHODOLOGICAL APPROACH

### 3.1. Methodological Approach and Procedure

The coexistence and/or complementarity of qualitative and quantitative approaches generally requires a choice to be made. Grawitz (1996), Wacheux (1996), Baumard and Ibert, (1999), emphasise the need to overcome any opposition between these two approaches in the analysis of social phenomena. With regard to our research problem, the choice of

a quantitative approach and a deductive approach are fully justified. Statistical tools are used to test postulated relationships (hypotheses) on a sample, and to report on the presumed effect.

### 3.2. Sample Design and Data Collection

The sampling plan provides a precise description of the population, the sampling frame, the survey units, the sample size and the sampling method. According to MINAS (2024), the population is estimated at 3,487,200 people with disabilities, i.e. 348,720 children, 697,440 women and 2,441,040 men. In the absence of an official sampling frame, random quota sampling was used. The questionnaire was distributed via Google Survey to a sample of 78 people with disabilities, all of whom had a bank account and/or had already obtained a bank loan.

### 3.3. Data Measurements and Model Specification

The survey questionnaire includes financial inclusion factors (personal, environmental and technological) and variables that measure the level of financial inclusion by FinTechs among people with disabilities (access to and/or use of mobile banking (AUBM) and access to and/or use of ATMs (AUGAB). Since the dependent variables are binary qualitative, the logistic regression appears to be quite robust.

**Table 3. Description of model variables.**

| Concepts | Dimensions | Variables | Measures / Items | Abbreviations |
|---|---|---|---|---|
| Inclusion by FinTechs | Inclusion through FinTech: mobile banking | Access to and use of banking services by FinTechs (mobile banking) | 0 = No access and no use of banking services by FinTechs mobile banking 1 = Access and use of banking services by FinTechs mobile banking | AUBM |

| | | | | |
|---|---|---|---|---|
| | Inclusion by FinTechs: ATMs | Access to and use of banking services by FinTechs ('ATMs') | 0 = No access and no use of digital banking services or FinTech 1 = Access and use of digital banking services or FinTech | AUGAB |
| Drivers of financial inclusion | Personal factors | Self-esteem | 0 = Absence of self-esteem 1= Have self-esteem | Estis |
| | | Confidence | 0 = Lack of confidence<br><br>1= Have confiance in FinTechs | Conft |
| | | Income level | 0= Less than 45 000f<br><br>1= Between 45 001f et 150 000f<br><br>2 = Between 150 001f et 400 000f<br><br>3 = Above 400 000f | Nivre |
| | | Level of education | 0 = Not educated 1= Primary<br><br>2= Secondary 3= Higher or more | Nived |
| | | Gender | Binary variable (Male or Female) | Gender |
| | | Age | 1=Youth [15-34] 2=Adults [35-60] 3=Elder [61-95] | Age |
| | Environnemental Facteurs | Discrimination against bank staff and their entourage | 0 = Is discriminated by the bank staff<br><br>1= Not discriminated by the bank staff | Dpersb |
| | | Training tailored to FinTechs | 0 = Not trained<br><br>1= Is trained | Forft |
| | | Raising awareness of the importance of FinTechs | 0 = Not sensibilise<br><br>1 = Issensibilise | Sensift |
| | | Existence of financial regulations concerning disabled FinTechs | 0 = No financial regulation for disabled FinTechs<br><br>1 = Existence of financial regulation for disabled FinTechs | Erft |
| | Technological Facteurs | Perceived risk | 0 = High risk 1 = Low risk | Rper |
| | | Accessibility | 0 = No accessibility 1 = Accessibility | Accft |
| | | Costs | 0 = High cost 1 = Low cost | Couft |
| | | Perceived ease of use | 0 = Not easy to use 1 = Easy to use | Fupft |
| | | Consideration of different disabilities in the design of FinTechs. | 0 = FinTechs do not take your disability into account<br><br>1= FinTechs take your disability into account | Pchcft |

**Source:** Authors' design.

Given the large number of variables listed above, we used the factor analysis technique to select only the most significant. For personal factors, the key variables retained were self-esteem and confidence. For environmental factors, the extraction method enabled us to retain three relevant variables: the existence of specific regulations on FinTechs for people with disabilities, appropriate training on the use of FinTechs and awareness of the importance of FinTechs. With regard to technological factors, we retained two variables: consideration of the nature of the disability in the design of FinTechs and perceived ease of use. At the end of the factorial analysis, we retained the following two logistic regression models:

- Inclusion by mobile banking FinTechs: Ln [AUBM =1/X or AUBM = 0/X)] = $\alpha 0$ + $\alpha 1$ESTI + $\alpha 2$CONFT + $\alpha 3$FORFT $\alpha 4$ERFT + $\alpha 5$SENSIFT + $\alpha 6$PCPH + $\alpha 7$FUPFT +$\varepsilon i$
- Inclusion by FinTech of 'ATM': Ln [AUGAB =1/X or AUGAB =0/X)] = $\alpha 0$ + $\alpha 1$ESTI + $\alpha 2$CONFT + $\alpha 3$FORFT $\alpha 4$ERFT + $\alpha 5$SENSIFT + $\alpha 6$PCHCFT + $\alpha 7$FUPFT + $\varepsilon i$

## 4. RESULTS, DISCUSSION AND LEVERS FOR REDUCING THE FINANCIAL EXCLUSION OF PEOPLE WITH DISABILITIES IN CAMEROON

In this paragraph, the results of the statistical analysis of frequencies and the econometric tests for assessing the ex-

planatory factors for the financial inclusion of people with disabilities will be presented.

### 4.1. Caractérisation de l'échantillon

Certain key criteria were used to analyse the characteristics of the sample studied. These are age, gender, type of disability, access to credit and FinTechs.

**Table 4. Characteristics of the sample.**

| Criterial | Items | Fréq | % | Comment |
|---|---|---|---|---|
| Gender | Male | 44 | 56,4 | There were 13% more men than women in the sample. |
| | Female | 34 | 43,6 | |
| Age | Youth (13-34 ans) | 26 | 33 | The most represented age group was adults aged 35 to 60, accounting for 52% of the total. The next largest age group is young people aged 15 to 34. |
| | Adultes (35-65 ans) | 41 | 52 | |
| | Elderly (61-95 ans) | 11 | 15 | |
| Types of handicap | Cécité | 12 | 15 | The locomotor disabled accounted for 57%, more than twice as many as the hearing impaired (28%). |
| | Déficience auditive | 22 | 28 | |
| | Locomotor disability | 44 | 57 | |
| Beneficiaries of formal loans | Male | 18 | 23 | Of the seventy-eight (78) respondents, only twenty-eight (28), i.e. 18 men and 10 women, or 35%, had received formal credit from their banks. |
| | Female | 10 | 13 | |
| Financial technologies (mobile bank- | Accès | 28 | 36 | Fifty people (63%) did not have access to the financial technologies (mobile bank- |
| | Non accès | 50 | 64 | |

| | | | | |
|---|---|---|---|---|
| ing, ATMs) | | | | ing and ATMs) offered by the banks. |
| Utilisation of « ATM » | Youth (13-34 ans) | 13 | 17 | 26 people (30%) in the sample (13 young people, 10 adults and 3 elderly people) use ATMs, compared with 52 who do not. Among the 26 people, there were 13 men and 13 women. Of these, 10 are blind, 8 have low vision, 2 have a hearing impairment and 6 have a locomotor disability. |
| | Adultes (35-65 ans) | 10 | 12 | |
| | Elderly (61-95 ans) | 3 | 3 | |
| Utilisation of mobile Bank | Youth (13-34 ans) | 15 | 17 | 30 people (42%) in our sample (15 young people, 11 adults and 14 elderly people) use mobile banking, compared with 48 (62%) who do not. |
| | Adultes (35-65 ans) | 11 | 13 | |
| | Elderly (61-95 ans) | 4 | 5 | |

**Source:** Results of our surveys.

### 4.2. Résultats des tests de Régressions Logistiques Binaires des Facteurs Explicatifs D'inclusion Financière des Personnes en Situation de Handicap au Cameroun

Based on the principal component factor analyses and the subsequent reduced models, we applied two binary logistic regression tests, the results of which are presented in the following paragraphs.

#### 4.2.1. Test of the Effect of Individual, Environmental and Technological Factors on Access to or Use of Banking Services by Mobile Banking FinTechs

The results of the test of the explanatory power of individual, environmental and technological factors on access to or use of banking services by mobile banking FinTechs are given in the table below.

**Table 5. Binary logistic regression for the test of explanatory factors for financial inclusion by mobile banking FinTechs.**

| AUBM | Coef. (B) | St.Err. | t-value | Sig | [95% Conf Interval] | | Sig |
|---|---|---|---|---|---|---|---|
| Forft | 2,713 | 1,046 | 0,68 | 0,008 | -1,337 | 2,764 | *** |
| Estis | 2,033 | 5,44 | 0,254 | 0,043 | -5,43 | 7,220 | ** |
| Dpersb | 3,849 | 0,801 | 3,56 | 0,213 | 1,279 | 4,420 | |
| Erft | 2,122 | 3,678 | -2,51 | 0,0831 | -6,965 | 2,171 | * |
| Rper | 0.801 | 2.849 | 3.56 | 0,430 | 1.279 | 4,420 | |
| Nived | 1,046 | 0,713 | 0,68 | 0,105 | -1,337 | 2,764 | |
| Couft | 2.366 | 0.962 | 0.41 | 0.684 | -3.674 | 5,599 | |
| nivre | 3,653 | 1,059 | 0,29 | 0,772 | -6,101 | 8,220 | |
| Pchcft | 3,796 | 0.962 | 0,41 | 0,003 | -3,674 | 5,599 | *** |

| conft | 3.653 | 1.059 | 0.29 | 0.772 | -6,101 | 8,220 | |
|---|---|---|---|---|---|---|---|
| accft | -3,124 | 1,677 | -2,51 | 0,555 | -2,965 | 2,171 | |
| Genre | 0,534 | 2.563 | 2.11 | 0,663 | -1.947 | 4.665 | |
| Sensift | 3,153 | -1,274 | -2 ,77 | 0,036 | -2,177 | -0.371 | ** |
| Age | 4,331 | 1,434 | 2,43 | 0,343 | 0,064 | 1,831 | |
| Fupft | 3,102 | 0,461 | -2,77 | 0,091 | -2,177 | -0,371 | * |
| Constant | -31,22 | 8,581 | -2,17 | 0,030 | -35,39 | -1,761 | ** |
| Meandependent var | | | 0,482 | Sd Dependent Var | | | 0,492 |
| Pseudo r-squared | | | 0,8121 | Number Of Obs | | | 78,000 |
| Chi-square | | | 97,871 | Prob> Chi2 | | | 0,000 |
| Akaikecrit. (aic) | | | 62,083 | Bayesiancrit. (Bic) | | | 102,336 |
| ***p<0,01 **p<0,05 *p< 0,1 | | | | | | | |

**Source:** Results of our surveys.

The regression model is globally significant at the $\alpha$ = 5% threshold. In other words, at least one of the estimated parameters is significantly different from zero at this threshold. The Chi-square statistic supports our premises. We obtained a pseudo-$R^2$ of 81.21%, reflecting the fact that the independent variables chosen for this model explain the level of financial inclusion among the people with disabilities studied. We note that two variables (training in FinTechs and consideration of people with disabilities in the design of FinTechs) are highly significant at the 1% threshold. Self-esteem and awareness of the importance of FinTechs are significant at the 5% level. The need for financial regulation for people with disabilities and the ease of use of FinTechs are also significant at the 10% threshold. The results obtained above make it possible to rewrite the regression model for financial inclusion by mobile banking FinTechs as follows: *Ln [AUBM =1/X) or (AUBM) =0/X)] = - 31.22 + 2.033 ESTI + 2.713 FORFT + 2.122 ERFT +3.153 SENSIFT + 3.796 PCHC + 3.102 FUPFT + $\mathcal{E}i$*

The following observations can be made from this regression equation:

➢ The "Self-esteem" variable (ESTI) has a significant and positive coefficient of (+ 2.033). The Odds ratio of 7.63 indicates that an additional unit of self-esteem gives people with disabilities around 8 times more chance of being included.

➢ The variable 'training for people with disabilities in the use of mobile banking FinTechs' (FORFT), is significant at the 1% threshold with a positive coefficient of (+2.713). By calculating the exponential of this coefficient, we obtain an Odds ratio of 15.07. This indicates that a one-unit increase in the level of education makes people with disabilities around 15 times more likely to use the mobile banking FinTech.

➢ The variable representing the "need for FinTech regulation for people with disabilities" (ERFT) is significant at the 5% level. Its positive coefficient (+2.122) means that the presence of financial regu-

lations to protect people with disabilities makes it more likely (around 13 times) that they will use FinTechs.

➢ The variable 'awareness of people with disabilities of the importance of FinTechs', represented in the model by (SENSIFT), is significant at the 5% threshold (+3.153). The Odds indicate that the more people with disabilities are aware of the existence of mobile banking FinTechs, the more likely they are (around 17 times) to use them to carry out their transactions.

➢ The variable 'consideration given to people with disabilities in the design of FinTech products' (PCHC), is significant with a positive coefficient of (+ 3.796). This means, in terms of the Odds ratio of 44.21, that taking people with disabilities into account by one additional unit makes them around 44 times more likely to use FinTechs.

The variable representing 'Perceived ease of use' (FUPFT), has a significant and positive coefficient of (+ 3.102) and an Odds of 23.40. This means that increasing perceived ease of use by one unit increases the likelihood of people with disabilities using mobile banking FinTechs by 20 times.

### 4.2.2. Testing the Effect of Individual, Environmental and Technological Factors on Access to and Use of Banking Services Through ATM Fintech

The results of the binary logistic regression test of the explanatory factors of financial inclusion through access to and use of banking services by ATM FinTech are given in the table below.

The Chi-2 statistic indicates that the model is globally significant at the $\alpha$ = 5% threshold, i.e. at least one of the estimated parameters is significantly different from zero at this threshold. The pseudo-$R^2$ of 77.22% confirms that the factors chosen for this model express the financial inclusion of banking services by ATM FinTech. In total, we observe four variables that have a significant influence on the level of

**Table 6. Binary logistic regression test of explanatory factors for financial inclusion through ATM FinTech.**

| AUGAB | Coef. (B) | St.Err. | t-value | Sig | [95% Conf Interval] | | Sig |
|---|---|---|---|---|---|---|---|
| Forft | 1,713 | 3,112 | 1,42 | 0,004 | -1,047 | 6,615 | *** |
| Estis | 2,033 | 5,44 | 0,254 | 0,823 | -5,43 | 7,220 | |
| Dpersb | -0,214 | 0,771 | 4,56 | 0,223 | 3,279 | 3,420 | |
| Erft | 1,749 | -1,528 | -2,04 | 0,041 | -2,995 | -0,061 | ** |
| Rper | -2.801 | 2.211 | 1.56 | 0,449 | 3.279 | 3,420 | |
| Nived | 3,046 | 1,712 | 0,033 | 0,666 | -5,337 | 5,764 | |
| Couft | 3.066 | 2.662 | 0.555 | 0.884 | -2.675 | 2,566 | |
| nivre | 1,653 | 3,112 | 0,191 | 0,992 | -5,101 | 6,720 | |
| Pchcft | 2,366 | 0.962 | 0,41 | 0,066 | -3,674 | 5,599 | * |
| conft | 4.621 | 5.059 | 2.333 | 0.665 | -6,221 | 5,115 | |
| accft | -2,332 | 2,667 | -2,442 | 0,601 | -2,965 | 2,171 | |
| Genre | 0,534 | 2.563 | 2.11 | 0,663 | -1.947 | 4.665 | |
| Sensift | 3,153 | -1,274 | -2 ,77 | 0,336 | -2,177 | -0.371 | |
| Age | 2,331 | 4,434 | 0,43 | 0,229 | 0,051 | 1,831 | |
| Fupft | 3,451 | 0,947 | 2,10 | 0,006 | 0,064 | 1,831 | *** |
| Constant | 19,60 | 8,581 | -2,17 | 0,030 | -35,39 | -1,761 | ** |
| Mean dependent var | | | 0,385 | Sd Dependent Var | | | 0,532 |
| Pseudo r-squared | | | 0,7722 | Number Of Obs | | | 78,000 |
| Chi-square | | | 98,821 | Prob> Chi2 | | | 0,000 |
| Akaikecrit. (aic) | | | 62,083 | Bayesiancrit. (Bic) | | | 105,336 |
| ***p<0,01 **p<0,05 *p< 0,1 | | | | | | | |

**Source:** Results of our surveys.

financial inclusion through ATM FinTech. These are 'adapted training for people with disabilities in the use of ATM FinTech' and 'ease of use of ATM FinTech', which are significant at the 1% threshold. The variable 'existence of ATM FinTech regulations for people with disabilities' is significant at the 5% level. The variable 'consideration of

people with disabilities in the design of ATM FinTech' is significant at the 10% level. The results obtained allow us to rewrite the regression model as follows: *Ln [AUGAB =1/X or AUGAB =0/X)] = 19.60 + 1.713 FORFT + 1.749 ERFT +2.366 PCHCFT + 3.451 FUPFT + Ɛi*

This equation gives rise to the following observations:

➢ The variable representing the 'training of people with disabilities in the use of ATM FinTech' (FORTFT) has a positive coefficient of (+ 1.713). This means that the more banks train people with disabilities in the use of ATM FinTech, the greater the chances (41 times greater) that these people will use this technology.

➢ The variable 'Existence of regulations regarding the design of ATM FinTech for people with disabilities' (ERFT) is significant with a positive coefficient of (+1.746). This result confirms that the more the design of ATMs is governed by disability-friendly regulations, the more likely they are to use this technology.

➢ The variable (PCHCFT) representing 'Consideration of people with disabilities in the design of ATM FinTech' is significant at the 10% level with an estimated coefficient of (+2.366). This shows that the more disabled people are taken into account in the design of ABM FinTech, the more likely they are (11 times) to use it.

➢ The variable representing 'ease of use of FinTechs by people with disabilities' (FUPFT), is significant with a positive coefficient of (+3.451). The value of the Odds ratio (i.e. 31.66) shows that an increase in the ease of use of ATM FinTech gives people with disabilities around 32 times more chance of using it.

The above results allow us to conclude that the training of people with disabilities in the use of FinTechs, taking into account the different disabilities of bank customers, raising awareness among people with disabilities of the existence and importance of FinTechs, the need for financial regulation of FinTechs for people with disabilities, as well as perceived ease of use, are personal, environmental and technological factors that determine financial inclusion by FinTechs among people with disabilities.

This corroborates the work of Shubham et al (2022), Idalfahim et al (2024), Sripalawat et al (2011), Handicap International (2006) and Lewis (2004), who mention some of these variables, in particular the lack of self-esteem and the fact that financial institutions do not take disabled people into account in the financial inclusion process. Contrary to the work of Crabbe et al (2009) and Lotto (2022) in the Tanzanian context, the results of this study reveal that demographic factors such as age and gender do not have a significant effect on the use of FinTechs by people with disabilities. Fernandes et al (2021) reach the same conclusion regarding mobile banking in Mozambique. Our work also corroborates that carried out in Cameroon by Timba et al (2022), which supports the idea that the use of mobile banking FinTechs is more a function of the information made available to customers and the ease of use. Our results also converge with those of Cardona (2013), Chen and Divanbeigi (2019), who conclude in turn that (1) people with disabilities are limited by their disabilities, which also limit their choice of technologies, (2) young people with disabilities are excluded from technologies because technologies are neither usable nor adapted for them, (3) the low rate of digital adoption in financial operations can also be justified by the quality of regulation. The existence of specific FinTech regulations for people with disabilities increases the level of financial inclusion. Income level would have no effect on the use of FinTechs by people with disabilities, although the work of Kaye et al (2008) and Nsengiyumva et al (2023) points in the opposite direction.

### 4.3. Levers for optimising financial inclusion by mobile banking and ATM FinTechs among people with disabilities in Cameroon

The levers for financial inclusion through the adoption of FinTechs can be considered at three levels: individual, financial institutions and financial authorities as shown in the table below.

**Table 7. Controls for financial inclusion through mobile banking and ATM FinTechs.**

| Levels | Levers of Action |
|---|---|
| Individual | To restore "self-esteem" among people with disabilities, we need to preserve their autonomy and enable them to live as well as possible in the environment of their choice, and facilitate access to FinTech financial services by listening to them and offering FinTech services that take disability profiles into account. |
| Finance institutions | Financial institutions should equip ATMs with voice output, touch-screen navigation, Braille and tactile lettering, which can benefit people with a range of disabilities and those with low literacy or language skills. Online banking services, accessible via websites and web portals, need to be strengthened and take into account the different disability profiles identified.<br><br>Financial institutions can offer several ways of contacting their customer service, including e-mail, IVR (Interactive Voice Response) systems, SMS and telephone relay. Websites can be equipped with screen-reader software that can interrogate the content of a computer screen and transform it into a non-visual form. Carry out in-depth work on raising awareness and training people with disabilities on the importance and use of FinTechs. |
| Financial authorities | A legal framework should be established for the financial inclusion of vulnerable or disabled people. A dedicated legal framework would strengthen the protection of vulnerable consumers through public policies aimed at preventing and eliminating, as far as possible, "the circumstances that accentuate the situation of disability, as well as mitigating their effects". |

**Source**: Authors' conception.

## CONCLUSION

Our main objective was to highlight the factors that explain financial inclusion through the adoption of FinTechs by people with disabilities in Cameroon. Despite the advances in terms of flexibility and ease that financial technologies now offer, vulnerable people remain excluded from the financial system. Indeed, the analysis of the factors of financial inclusion by FinTechs for people with disabilities is based on theories relating to financial innovations and vulnerable people. The factors determining the inclusion of people with disabilities were assessed using two logistic models on a sample of 78 people with disabilities selected using the quota method. The regression results for financial inclusion through the adoption of mobile banking and ATM FinTechs lead to the conclusion that environmental factors and factors specific to the FinTech have a significant effect on the level of financial inclusion of people with disabilities. Contextual variables such as training in the use of FinTechs and the inclusion of people with disabilities in the design of FinTech products showed very high explanatory power. The hypotheses concerning the need for specific regulation for financial inclusion by FinTechs and the adaptation of financial services to different disability profiles were confirmed by this study. However, the socio-demographic factors of age and gender showed no significant effect.

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