Mobile Money Usage: A Comparative Analysis of Burundi with other East African Countries

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Bringing Rigour and Evidence to Economic Policy Making in Africa

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Abstract

This study examines the use of mobile money services in Burundi and compares it with other East African countries to identify areas for improvement. The focus is on the supply side, with the aim of offering practical recommendations for policy makers to enhance the usage of mobile money. We use secondary data to compare mobile money usage and transaction fees across East African Community (EAC) countries. Additionally, the analysis draws on semi-structured interviews with key informants from the National Agency of Regulation and Control of Telecommunications, the Central Bank of Burundi, the Ministry of Finance, and other institutions crucial to the development of mobile money. The information collected during these interviews is organized into four thematic areas: institutional environment and regulation, interoperability, government's role, and the impact on smallholder farmers. The findings indicate that mobile money usage in Burundi is relatively low, standing at 11%, in comparison to other EAC countries. Although higher than South Sudan's usage rate of 1%, it falls far behind Tanzania (45%), Uganda (54%), and Kenya (69%). The cost of sending US$ 10 varies between 0.2% and 10.8% across EAC countries, with the lowest fees observed in Kenya and the highest in Tanzania. Interviews with experts highlighted the need for supply-side actors to recognize the country's low mobile money usage rate and fully realize the potential benefits of this technology. The study contributes to the limited literature on mobile money and digital finance in Burundi and offers some policy recommendations to address the issue.

Keywords: *Mobile Money; Comparative Analysis; Burundi; East African Community*

1. Introduction

Mobile money, commonly defined as a medium of exchange and store of value accessible through a mobile phone and linked to a mobile phone subscription (Bazarbash et al., 2020), offers the possibility to make payments, to transfer, to save and more recently to obtain loans. Despite the numerous benefits associated with mobile money, its usage is still very low in Burundi compared to neighbouring countries. The percentage of respondents who report to personally use a mobile money service in the country was last estimated at 11% in 2020 (INSBU, 2021) in comparison to 69% in Kenya, 54% in Uganda, 45% in Tanzania and 1% in South Sudan as measured in 2021 (Demirgüç-Kunt et al., 2022).

Due to inaccessibility of the traditional banking system to most of the population, especially in rural areas, mobile money is becoming an important solution for bridging the financial inclusion gap in the East African Community (EAC). As the International Finance Corporation (2018) points out, traditional bank intermediaries do not reach rural populations, and the cost of their services is most of the time prohibitive for low-income households and small businesses.

This research is primarily a comparative study seeking to compare Burundi and other EAC countries with respect to mobile money usage and to identify areas for improvement. Specifically, the research aims to identify the key factors that hinder the widespread usage of mobile money services in Burundi. To achieve this goal, the study employs a mixed-methods approach, which incorporates secondary quantitative data and qualitative data collected through in-depth interviews with key informants. We organize the qualitative information in thematic sections, which are guided by the literature. The study concentrates on the supply-side of the mobile money ecosystem, with a particular focus on providing practical recommendations to regulatory bodies.

Although mobile money usage is relatively low in Burundi, the research findings indicate that transaction fees charged in the country fall within the range of fees applied in the East African region, where the lowest fees are observed in Kenya and the highest in Tanzania. Furthermore, the demographics of users, notably gender composition, rural or urban area of residence, age and education are like those of other EAC countries. Despite the fact that economists and policy makers widely view mobile money as having the potential to expand financial access, increase savings, reduce corruption in government services, promote financial inclusion of women and other economic benefits, the interviews we conducted showed that the key supply-side actors are not strongly sensitized about its benefits, which notably transpire in the fact that mobile money is not given a special focus in the national financial inclusion strategy, or in the absence of regular survey data on access to and use of the technology.

The study contributes to the limited literature on mobile money in Burundi and adds to previous research which identified a range of factors that influence the success of mobile money. In a similar comparative approach, Lal and Sachdev (2015) compared the deployment of mobile money in ten countries and found that the success of mobile money was influenced by country context. Other studies have highlighted different factors behind the success of mobile money. For example, regulation has been identified as a key factor (Madise, 2019). Jenkins (2008) emphasized the role of the government in promoting mobile money. Additionally, Mas and Ng'weno (2010) found that pricing strategies that encourage customers to experiment with the service could be effective, while Mas and Morawczynski (2009) identified simplicity and transparency of pricing, free deposit, and other features as factors influencing success. More recently, Osakwe et al. (2022) investigated the role of trust in mobile money deployments, and Mansour (2022) examined the impact of the COVID-19 pandemic on digital payments. Despite the extensive research on mobile money, it is unlikely that a fixed set of characteristics will consistently predict mobile money adoption and usage in different countries (Khan and Blumenstock, 2016). This calls for country-specific analyses to identify the factors that are unique to each country's context.

The paper provides several recommendations to improve mobile money usage in Burundi, including improving the institutional environment and regulation, promoting interoperability among mobile money providers, enhancing the role of the government in promoting mobile money, developing enabling infrastructure and focusing on smallholder farmers. More specifically, the study suggests that policy makers should establish a regulatory framework that fosters competition and innovation, develop guidelines for the implementation of interoperability, leverage existing government payment systems to promote mobile money, and explore opportunities to integrate mobile money into agricultural value chains. Additionally, we recommend investing in electricity infrastructure, improvement in access to mobile phones and promotion of urbanization and digital literacy programmes.

The rest of the paper is organized as follows. In section 2, we review the previous literature on mobile money usage, with a focus on factors and challenges influencing its success. In section 3, we present the methodology. In section 4, we present the mobile money ecosystem in Burundi and present some key statistics on the use of mobile money in the country. We compare mobile money usage in Burundi and other EAC countries in section 5. Section 6 compares transaction fees in Burundi and other EAC countries. Section 7 discusses the institutional environment and regulation of mobile money in Burundi. In section 8, we discuss the current implementation process of interoperability and its challenges. In section 9, we discuss the role of the government in developing mobile money usage. In section 10, we focus on smallholder farmers. We discuss policy recommendations in section 11 before we conclude in section 12.

2. Literature review

The success of mobile money is influenced by various factors. Lal and Sachdev (2015) compared the deployment of mobile money in ten countries, revealing that country context was a crucial factor in determining the success of mobile money. They identified five successful deployments in Somalia, Sri Lanka, Zimbabwe, and the Philippines, and five less successful ones in South Africa, Uganda, India, Nigeria, and Brazil. The study indicates that while mobile money has the potential to transform the financial sector in various countries, the success of the innovation is context-specific and may vary depending on various factors such as culture, regulation, and economic environment.

Regulation is a key factor that has been identified in promoting the success of mobile money. Madise (2019) notes that a favourable regulatory environment is important in promoting the use of mobile money by consumers and increasing the number of providers offering mobile money services. However, even though light-touch regulation has been the favoured model, the author argues that responsive regulation is a more suitable approach. For Jenkins (2008), the development of mobile money ecosystems relies heavily on the role of government regulators in providing an enabling environment. Regulators are responsible for creating space for experimentation and developing policy frameworks to support further growth. The need for stability and innovation requires regulators to balance competing objectives. While mobile money providers require regulatory certainty to reduce investment risk, too much rigidity could stifle investment and innovation. Compliance challenges such as Know Your Customer (KYC) requirements can also affect mobile money expansion, particularly in reaching low-income subscribers. Striking a balance between stability and innovation is complicated by the involvement of multiple regulatory domains, including banking and telecommunications, each with its own authorities. As such, there is a risk of coordination failure in policy making. To address this, regulators could adopt an incremental approach to regulation, weigh potential gains against potential damages, and engage in collaborative dialogue with mobile money providers, other companies, research institutions, and development agencies.

Mas and Ng'weno (2010) discuss how M-Pesa in Kenya was able to overcome several common hurdles faced by new electronic payment systems. One major hurdle was establishing trust among users, particularly around the idea of using a payment system operated by a mobile operator, accessing accounts through a mobile phone,

and using non-bank retail outlets for cash in/cash out needs.[1] Another challenge was the "chicken-and-egg trap", where M-Pesa needed to attract both customers and retail stores simultaneously in order to grow. This is because it is hard to convince stores to sign up when there are few customers, and vice versa. Additionally, M-Pesa faced the challenge of the network effect, where the value of a payment system depends on the number of people using it, making it difficult to attract early adopters when there are few users.

M-Pesa overcame these challenges through strong branding, effective channel management, and attractive pricing for customers and stores. Cognizant that onboarding customers is only half the battle, Safaricom built a strong service brand for M-Pesa, which helped to establish trust and credibility with customers. Safaricom also leveraged its extensive network of airtime resellers to create a reliable and consistent network of retail agents for cash in/cash out services. Additionally, Safaricom designed a pricing scheme that provided incentives for both customers and stores to join M-Pesa early on, which helped drive customer and store acquisition. By addressing these key factors, M-Pesa was able to create enough traction with both customers and retail stores, building trust and overcoming the adverse network effects that afflict new payment systems.[2]

A combination of meticulous market research and careful pilot testing played a role in the widespread adoption of M-Pesa. Before its inception, a thorough market research phase was undertaken (Cracknell, 2012), which was kick-started with a pilot test, co-sponsored by the UK's Department for International Development, involving major stakeholders such as Safaricom, Vodafone, and several financial institutions. The pilot underscored the need for a user-friendly interface, highlighted key training and integration challenges for agents and microfinance programmes, pinpointed crucial operational concerns, and ensured top management at Safaricom fully endorsed the platform. This informed approach allowed M-Pesa to tailor its services in a way that resonated deeply with potential users, ensuring the platform was not just another banking tool but a solution crafted with the Kenyan population in mind.

More recently, Osakwe et al. (2022) investigated the factors that contribute to initial trust in mobile money and explored how this trust can affect users' perceived value, usage, and willingness to recommend the service. One of the key challenges to mobile money usage is the lack of trust and confidence in the system. This challenge is particularly prevalent in developing countries where there is a low level of financial literacy and a high level of mistrust in financial institutions. Osakwe and co-authors argue that factors such as perceived firm reputation and communicability are crucial in building initial trust in mobile money.

Regarding the COVID-19 pandemic's impact, Mansour (2022) examines its effect on government policies towards promoting digital means of payment as a means of stimulating economic activity and increasing financial inclusion. The results show that low and lower-middle-income countries have responded significantly to the need for digital payment methods during the pandemic compared to their high-income and upper-middle-income counterparts. Additionally, government effectiveness and the

number of commercial banks were found to be significant predictors of government policy response.

While the literature on mobile money provides an extensive list of the factors influencing mobile money success, it is unlikely that a fixed set of characteristics will consistently predict mobile money adoption and usage in different countries (Khan and Blumenstock, 2016). This highlights the importance of country-specific analyses to identify the factors that are unique to each country's context. By focusing on Burundi, this paper contributes to the limited literature that is available on digital finance in the country. Furthermore, by comparing broad country situations, this study distinguishes itself from previous research, which has focused on factors that can help mobile money operators develop their operations.

3. Methodology

This study uses a mixed methods research design. For the quantitative part, we use data from the Global Findex Database of the World Bank, which we reference in the rest of the text as Demirgüç-Kunt et al. (2022). The Global Findex Database is a recognized reference on global access to financial services. For data on Burundi, which is not available in the later database, we use a nationally representative survey data on 21,565 Burundians aged 15 and above, obtained from the national statistics institute (*Institut national de la statistique du Burundi* – INSBU). The INSBU data was collected from 2019-2020 with technical and financial support from the World Bank. We also use data obtained from the national agency of regulation and control of telecommunications (*Agence de Régulation et de Contrôle des Télécommunications* - ARCT), and the International Monetary Fund (IMF). While the World Bank and the INSBU data were collected using surveys, the ARCT data was collected directly from telecom companies and the IMF data was obtained from financial regulators.

For the qualitative part, we conducted semi-structured interviews with key informants from the following institutions: the Central Bank of Burundi (*Banque de la République du Burundi* – BRB), the finance ministry (*Ministère des Finances, du Budget et de la Planification Economique*), ARCT, the office in charge of providing technical support to public organizations, non-governmental organizations and the private sector in the implementation of the national ICT development policy (*Secrétariat Exécutif des Technologies de l'Information et de la Communication* – SETIC) and the office in charge of interoperability, clearing and security of electronic transactions (B-Switch). Interview guidelines and questionnaires are in the Appendix. Interviews with Econet Leo and Lumitel, the telecom companies behind the main mobile money services in Burundi (Ecocash and Lumicash, respectively), were not obtained. It was expected, given the circumstances, as there have been speculations that Ecocash, the second largest mobile money operator in the country might have to discontinue its operations due to tax-related problems (Jimbere, 2023).

4. Mobile money ecosystem in Burundi

There are currently two mobile money operators in Burundi: Ecocash, Lumicash which are present in Burundi since 2010 and 2016,[3] respectively. The two operators concentrate 99% of users (World Bank, 2021) with a network of more than 150,000 agents (ARCT, 2021)[4]. However, on 24th January 2023, the Burundian Revenue Office-OBR summoned banks and microfinance institutions to transfer all account balances of Econet Leo, the mother company of Ecocash and the second largest mobile money operator, to an account lodged at the Central Bank of Burundi as a reimbursement of tax arrears (Jimbere, 2023). Should Econet Leo close, there would only be one player in the market, which would reduce competition and stifle innovation. This happens after another mobile money operator, Smart Burundi, closed its doors in August 2022 for non-payment of taxes.

The range of services offered by mobile money operators includes money transfer from person to person (P2P), payment for goods and services (person to business - P2B), business to person (B2P) transfer, person to government (P2G) payment (notably payments to the tax authority) and vice versa. Person-to-bank and bank-to-person transfer services are also offered, as are microcredit services. Mobile money services are regulated by ARCT and the central bank.

Contrary to the general perception of the authorities we interviewed, the latest national survey on mobile money shows that its usage is very low in the country. Table 1 shows that over the period 2019 to 2020, only 11.4% of Burundians report that they used their phone to pay, send or receive money. The most recent data from ARCT (2021) shows that in the first quarter of 2022, there were 1,822,249 active mobile money subscriptions,[5] which represent approximately 28% of the adult population. However, the number of active mobile money *subscriptions* should be interpreted with caution as it may not correspond to the number of mobile money users. The number of users may be lower because people typically use multiple mobile money services, but the number of users may also be higher if many people share an account.

Table 1: Mobile money usage in Burundi for the period (2020)

In the past 12 months, have you used a phone to pay, send or receive money?	Frequency	Proportion
Yes, to pay	27	0.1%
Yes, to send	281	1.0%
Yes, to receive	1 044	4.5%
Yes, to receive and send	1 446	4.8%
Yes, to pay, send and receive	335	1.0%
No	18 236	87.7%
Do not know	192	0.9%
Total	21 561	100%

Source: INSBU (2021)

Given these dismal numbers on mobile money usage, it is not clear why there is an impression in the country that mobile money usage is high. The World Bank survey of 2018 on mobile money might have created this impression (World Bank, 2020). The latter survey found that half of the people who were surveyed used mobile money. However, the World Bank itself acknowledges that "the survey results are not representative of the Burundian population and cannot be interpreted as a national estimate of the use of digital financial services in Burundi."[6] Thus, the rest of the paper refers to the INSBU data when discussing mobile money usage in Burundi.

Disaggregated data at the province level (Table 2) shows that the most urbanized province, Mairie de Bujumbura, the economic capital of the country, is where most people use mobile money, followed by Gitega, the political capital. The lowest usage of this technology is observed in the southern province of Rutana.

Table 2: Mobile money usage by province: 2020 (% age 15+)

Bubanza	Bujumbura	Bururi	Cankuzo	Cibitoke	Gitega
12%	9%	13%	7%	12%	14%
Karusi	Kanyanza	Kirundo	Makamba	Muramvya	Muyinga
8%	12%	6%	13%	6%	7%
Mwaro	Ngozi	Rutana	Ruyigi	Mairie de Bujumbura	Rumonge
8%	11%	2%	10%	34%	6%

Source: INSBU (2021)
Note: Proportions of users are calculated relative to the population of the province.

In a separate paper, we conduct an econometric analysis of determinants of mobile money usage in Burundi, where we find that mobile money usage in Burundi is explained by age, electricity access, and the well-being level (Ndoricimpa et al., 2023).

5. Mobile money usage in the EAC

In 2014, less than 1% of the adult population (ages 15+) were using mobile money in Burundi while the proportion was 58% in Kenya, 35% in Uganda, 32% in Tanzania and 18% in Rwanda (Demirgüç-Kunt et al., 2022). Table 3 shows that mobile money usage has been growing steadily at the extensive margin in all EAC countries over the period 2014-2021, except for Kenya where it seems to have plateaued since 2017. Trends in the value of mobile money transactions in Figure 1 suggest that the use of the technology is also growing at the intensive margin in EAC countries but at a slow pace in Kenya. Although Kenya has the highest percentage of mobile money users in the region, the value of mobile money transactions relative to GDP is higher in Rwanda and Uganda. This suggests that there is much to learn not only from Kenya, where mobile money is mature, but also from other EAC countries.

Table 3: Mobile money usage in EAC from 2014 to 2021

Country	Mobile money usage (% age 15+)		
	2014	**2017**	**2021**
Burundi	0.7		11.4a
Kenya	58.4	72.9	68.7
Rwanda	18.1	31.1	
South Sudan			0.9
Tanzania	32.4	38.5	44.6
Uganda	35.1	50.6	53.8

Source: INSBU (2021) for Burundi in 2021 and Demirgüç-Kunt et al. (2022) for other country-years

It is estimated that mobile money transactions in Burundi represented 9% of GDP[7] in 2019 (World Bank, 2020). This is the most recent data we were able to obtain. All EAC countries in Table 4 had a much higher percentage in 2019.

Figure 1: Evolution of the value of mobile money transactions in EAC: 2010-2021 (in % of GDP)
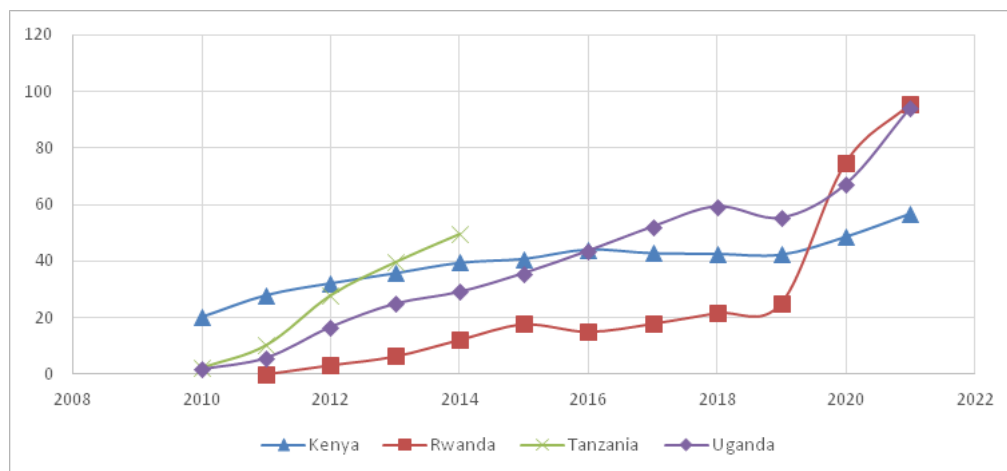
Source: IMF (2022)

Data shows that men use mobile money services more than women in Burundi and in other EAC countries (Table 4). However, the gender gap is least pronounced in Uganda followed by Kenya. Table 4 further shows that mobile money usage is more prevalent in urban areas in Burundi and in other EAC countries. However, in the case of Burundi where we have access to disaggregated data, we observe that the number of users is highest in rural areas, which offers room for growth in financial inclusion among this segment of the population.

Table 4: Mobile money usage by gender, residential area and age in EAC (2020-2021)

Country	Gender		Rural/Urban		Age	
	Female (% age 15+)	Male (% age 15+)	Rural (% age 15+)	Urban (% age 15+)	Young (% ages 15-24)	Older (% age 25+)
Burundi	8.0	15.6	8.7	30.5	7.6	13.2
Uganda	53.2	54.5	50.3	59.4	51.7	55.2
Kenya	66.0	71.4	64.5	78.9	70.3	68.0
Tanzania	40.3	49.2	39.3	54.1	42.1	45.9
South Sudan	0.4	1.4	0.6	2.7	0.9	0.8

Source: INSBU (2021) for Burundi and Demirgüç-Kunt et al. (2022) for other EAC countries

Regarding age, the data shows that mobile money users tend to be above 25 years rather than below that age (except in Kenya), which is consistent with mobile money being mostly used by working aged people.

Mobile money is more frequently used by the more educated (Figure 2). This finding is consistent across all countries in our sample. This result suggests that increasing general education promotes financial inclusion.

Figure 2: Mobile money usage by level of education in EAC (2020–2021)
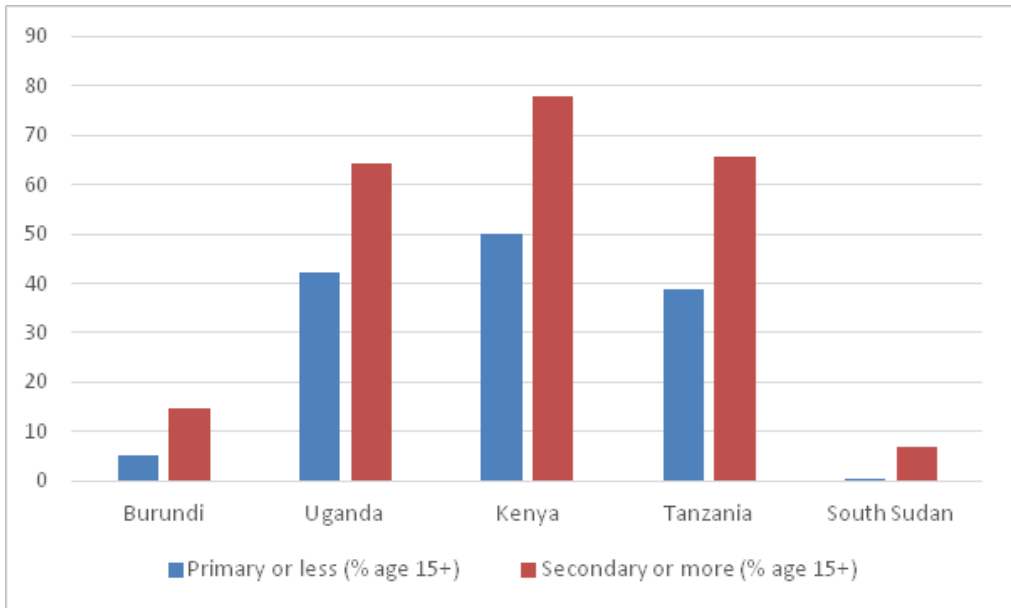
Source: INSBU (2021) for Burundi and Demirgüç-Kunt et al. (2022) for other EAC countries

Since the use of mobile money is conditional on the availability of mobile phones and electricity, we compare these indicators (Figure 3 and 4). As expected, mobile phone ownership and access to electricity are highly correlated with mobile money usage. The country with the highest proportion of mobile money users, Kenya, is also the country with the highest percentage of people who own a mobile phone (85%) and who have access to electricity (71%). In the case of Burundi, the data shows that the percentage of people who have a mobile phone (30%) exceeds the percentage of mobile money users (11%),[8] which suggests that a good number of people have a mobile phone but do not use mobile money on it (19%).[9] The gap between mobile phone ownership and mobile money usage indicates that there is some room for mobile money to grow.

The data further shows that access to electricity (11.7%) is almost equal to mobile money usage, which indicates that the use of the technology could remain low as long as the electricity deficit is not reduced. Indeed, Burundi has a lot of catching up to do in terms of access to electricity. Apart from South Sudan, access to electricity is higher in other EAC countries and approximately six (6) times higher in Kenya (Figure 4). While access to electricity has an impact on mobile money usage, the reverse is also true. By facilitating payments for electricity, mobile money solutions have increased access to off-grid pay-as-you-go solar power in other East African countries. In fact, payments for solar energy have proven to be transformational use cases in Uganda, Rwanda, Benin, Côte d'Ivoire, and Zambia (GSMA, 2020). Thus, mobile money offers the potential to enhance access to electricity in Burundi, which has already seen a more than twofold increase over the past decade (Figure 5).

Figure 3: Mobile phone ownership in EAC: 2020-2021 (% age 15+)
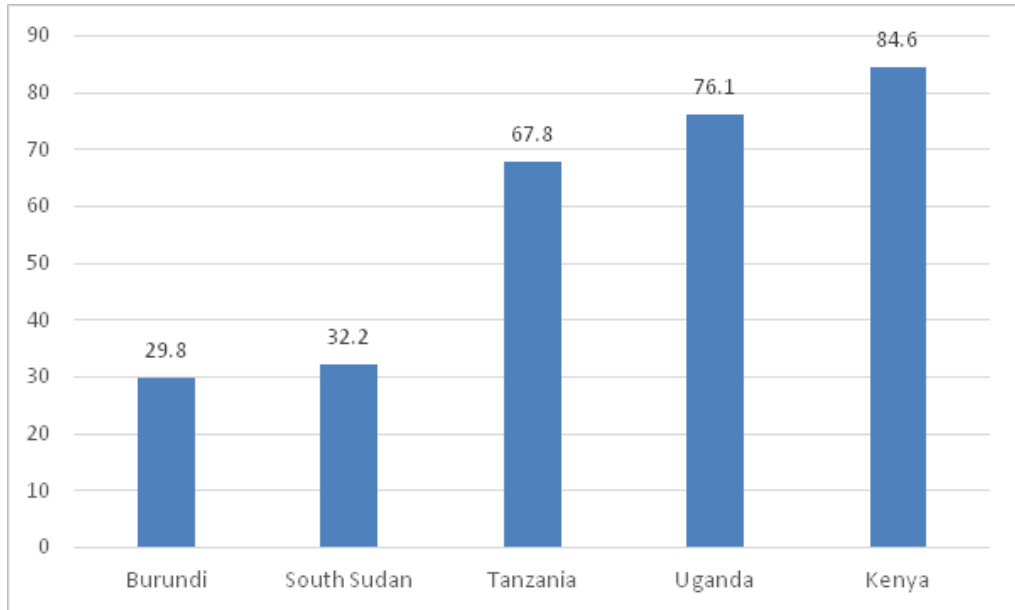
Source: World Bank (2022) and INSBU (2021) for mobile phone ownership in Burundi.

Burundi's urbanization rate of 14%, the lowest in the region, is likely to have a negative impact on both access to electricity and mobile money usage. In other EAC countries, the urban population represents, respectively, 18%, 21%, 26%, 28%, 36% and 46% of the total population in Rwanda, South Sudan, Uganda, Kenya, Tanzania, and DRC (World Bank, 2022). Urbanization may positively affect the use of mobile money for at least two reasons. First, urbanization is positively correlated with access to electricity (Liddle, 2017). Second, the more the population is urbanized, the easier it is for the network of mobile money agents to serve individuals.

Figure 5: Access to electricity in EAC (2020-2021)
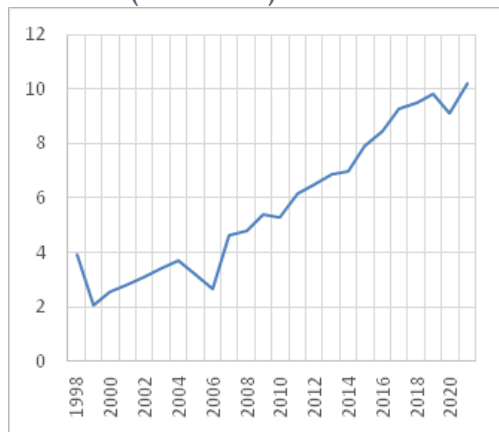
Source: World Bank (2022)

Figure 4: Access to electricity in Burundi (1998-2021)
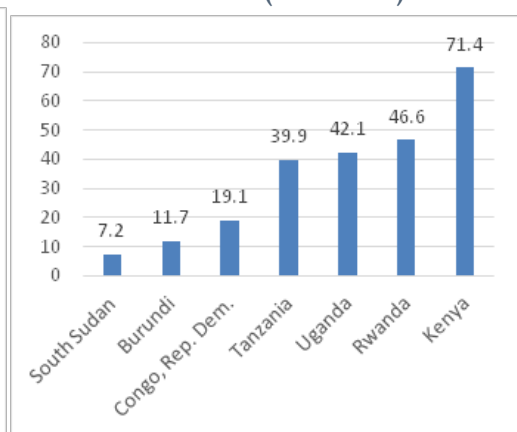
Source: World Bank (2022)

The limited access to terminals is linked to poverty. The minimum cost of a mobile phone is about US$ 10, which is a lot of money to put on a phone for the average Burundian. In fact, there is a positive relationship between income and mobile money usage in Burundi. Table 8 shows that mobile money usage goes from 4% among the very poor to 25% among the richest. We observe a similar distribution of mobile money usage according to wealth in other EAC countries (Figure 5).

Table 5: Mobile money usage by wealth in Burundi (2020)

Wealth	Poorest	Poor	Middle	Rich	Richest
Proportion of mobile money users (% age 15+)	3.7	4.8	7.9	11.6	25.3

Source: INSBU (2021)

Figure 6: Mobile money usage by income in EAC (2021)
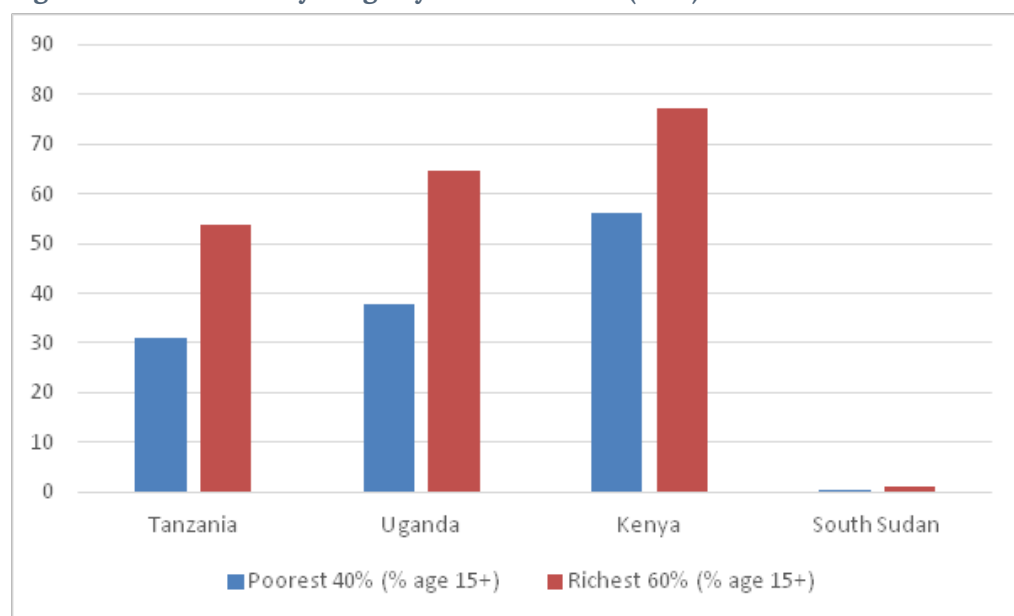
Source : Demirgüç-Kunt et al. (2022)

6. Transactions fees

Comparing mobile money transaction fees across the East African Community (EAC) countries is essential for understanding the level of use of mobile money services in the region. Transaction costs are a critical factor influencing the adoption and usage of mobile money services. A notable example of this can be observed in Rwanda, where the number of transactions increased fivefold following a decision by the Central Bank of Rwanda to suppress all mobile money transaction fees in March 2020 for three months during the COVID-19 pandemic (Figure 1).[10]

To compare mobile money transaction fees across EAC countries, we collected tariffs data from the official websites of mobile money operators in the different countries. Table 6 shows the cost of sending and withdrawing US$ 10 from an agent across the EAC countries. In Burundi, two mobile money operators, Lumicash and Ecocash, were identified. In Rwanda, tariffs data were collected from MTN (Momo) and Airtel Money. For Kenya, tariffs were collected from M-Pesa, Airtel Money, and T-Kash. In Tanzania, tariffs were collected from M-Pesa, Airtel Money, and Ezy Pesa. In the DRC, tariffs were collected from M-Pesa, Airtel Money, Afrimoney, and Orange Money. We did not find tariffs for NilePay and m-Gurush in South Sudan and for Tigo Pesa in Tanzania.

Table 6: P2P transfer fees for 10 US$ sent to the same network in December 2022 (in US$)

	Burundi	Rwanda	Kenya	Tanzania	Uganda	DRC	Average
Transfer fee (Send + Receive)	0.75	0.29-0.56	0.20-0.41	0.91-1.47	0.47	0.72-1.08	0.67

Source: Websites of mobile money operators and central banks of respective countries
Note: When fees differ by mobile money operator, we provide the minimum and the maximum. The fees are based on the following exchange rates, applicable on 18th December 2022, obtained from national central banks: 2,061 BIF per US$, 1,065 FRw per US$, 123 Kenyan Shillings per US$, 2,309 Tanzanian Shillings per US$, 2,033 Congolese francs per US$.

The findings show that the cost of sending US$ 10 is between 2% and 10.8% across EAC countries, with the lowest fees observed in Kenya and the highest in Tanzania. Fees in Burundi are higher compared to the regional average, but only when using official exchange rates. When using black market rates, transaction fees in Burundi are the same as those in Rwanda, Kenya, and Uganda, implying that mobile money

operators are charging relatively more if they can obtain US$ from the central bank. However, if they cannot exchange their FBUs in dollars at the official rate and must buy them at the higher black-market rate, it means that they are applying tariffs that are lower than the average of other mobile money operators in the region.

It is important to note that this comparison is simply indicative since there can be agent overcharges and additional costs in terms of the time it takes to send or withdraw money. Additionally, transaction tariffs vary by the amount involved, and tariffs for payments vary according to parties involved, whether business or government, or according to the type of service or good concerned.

7. Institutional environment and regulation

The Government of Burundi, through the Ministry of Finance, Budget, and Economic Planning, launched a national financial inclusion strategy (NFIS) in 2014 for the period 2015-2020, which touches very briefly on mobile money. A new strategy is currently being developed. The 2015-2020 strategy was a six-year cross-cutting plan developed through a participatory process with financial support from the Bill and Melinda Gates Foundation through the Alliance for Financial Inclusion. The strategy is based on the World Bank's Financial Inclusion Strategies Framework. The NFIS specifically targeted rural populations, women, youth, and micro and small entrepreneurs. The focus of the NFIS was on expanding the supply of financial services by microfinance institutions. It recognized that the challenge of financial inclusion is not only about the availability of financial services but also about their use.

However, the strategy's objectives hardly included points related to mobile money (or even digital financial inclusion), whether it be transfer, payment or savings services via mobile phone (or Internet). Only one of the strategy's sub-objectives talks directly about mobile money: the country seeks to "develop financial services and products through mobile phones and other financial technologies." The NFIS aimed to grow the number of mobile phone financial transactions from 600,000 to 1,791,590 from 2014 to 2020; i.e., a multiplication of the number of transactions by about three times over the period. In the second quarter of 2023, the average monthly number of transactions was 19 102 069 (ARCT, 2023) which represents an annualized number of transactions of 229 224 828. Therefore, the target of the number of transactions was exceeded. Nevertheless, the number of users and the value of transactions remain very low (see sections 4 and 5). Therefore, the next NFIS could be reinforced by a greater emphasis on mobile money and should include targets related to the number of users and the value of transactions as a percentage of GDP.

Regarding taxation, the government introduced for the 2022-2023 fiscal year a tax rate of 1% on commissions received by intermediaries in mobile money operations. This new tax could increase the cost of transactions for users, which may discourage the use of mobile money and limit financial inclusion. A study on the impact of this tax would be important for policy. Similar studies conducted in Uganda and Tanzania have highlighted several detrimental effects of mobile money taxation. A UNCDF study on the impact of a 2018 0.5% tax on mobile money withdrawals in Uganda found that after tax introduction, many people shifted to agent banking, which does not have

similar withdrawal taxes. However, lower-income individuals, who have limited access to agent banking, felt the tax's brunt more, indicating that the tax disproportionately affects the economically disadvantaged (UNCDF, 2021). Similarly, in a report analyzing the impact of a new levy on mobile money transactions in Tanzania covering the first six months' period after the introduction of the levy, from July to December 2021, resulting in significant transaction fee hikes of up to 369%, findings indicated that mobile money usage declined sharply as consumers reverted to cash transactions, undoing progress towards a cashless economy. P2P transfers dropped by 38%, and cash-out transactions fell by 25% per month between June and September. Despite an immediate government revenue boost from the levy, the broader economic impact predicted a potential loss of up to 2% of GDP over five years and an annual loss of TZS 700 billion by 2025. The policy disproportionately affected the poorest, threatening Tanzania's gains in financial and digital inclusion (GSMA, 2021).

Another key institution for the development of mobile money in Burundi is the central bank. The Central Bank of Burundi has adopted several regulations to accompany the development of mobile money to increase financial inclusion in Burundi. The bank's strategy is to avoid regulation that would be detrimental to innovation in this area. For example, Ecocash was allowed to operate in 2012, in partnership with the commercial bank Finbank, without a specific legal framework for this activity and a 2017 law on payment services and activities of payment institutions allowed the use of commercial agents, a practice that already existed. The 2017 regulatory framework also requires telecoms to legally separate themselves from mobile money activities. Thus, Ecocash, marketed by Cassava Fintech Burundi, was separated from the cell phone operator Econet Leo and similarly Lumicash was separated from Lumitel.

For regulation purposes, lack of biometric identification of individuals is a problem. One person can easily open several accounts under different names. This prevents the development of credit through mobile money. However, for the BRB, it is important not to adopt very restrictive conditions for opening a mobile money account, at a time when people are still experimenting with this technology. For now, the information required to open an account does not seem stringent.[11] Furthermore, individuals handling less than the equivalent of approximately US$ 50 do not have to provide an identification card, which encourages experimentation with the service.

However, B-Switch, the company in charge of interoperability, has expressed the need for the Central Bank of Burundi to be more specific with respect to handling cases of transfer mistakes, fraud and other conflicts that may arise during mobile money operations. The organizations in charge of regulation of telecommunications and implementing the ICT development policy, ARCT and SETIC respectively, have also expressed the need to reinforce the legal framework for mobile money operations as the current environment may prevent people from putting large amounts of money into their accounts. Regional integration of Burundi into the East African Community could provide an impetus for reforms in this sector.

8. Interoperability

The value of transactions flowing between banks and mobile money at the global level has doubled since 2019 (GSMA, 2022). The persistent increase in the volume of such transactions validates the crucial role of mobile money in the financial ecosystem. In this context, regulators have recently been pushing for the industry to link up with centralized instant payment systems or switches to supplement existing bilateral agreements.

Interoperability involves not only linking banks with mobile money operators but also connecting mobile money operators with each other. Despite the absence of empirical evidence on the advantages of centralized instant payment platforms over bilateral agreements, theoretical justifications exist to support a proposition that interoperability can be beneficial for financial inclusion. Overall, interoperability increases convenience and expands the reach of interconnected services. Interoperability among mobile money services may simplify the business model of agents by decreasing the quantity of reserves they must maintain to meet customer demands, potentially increasing the network of active agents and enhancing customer satisfaction by providing mobile money services in closer proximity.

There are currently three countries in the EAC with a functioning centralized payment system: B-Switch in Burundi, R-Switch in Rwanda, and TIPS (Tanzania Instant Payment System) in Tanzania (GSMA, 2022). B-Switch introduced a centralized interoperability in Burundi in May 2021 with the interconnection of four banks (Bancobu, Interbank, CRDB and Ecobank). One year later, several other banks and microfinance institutions were added to the list, but only offering the possibility to withdraw money from various ATMs. The interconnection of mobile money services, Lumicash and Ecocash, officially started in 2023 but has been having technical problems since its inception. The interoperability of these services is being implemented in a context where Lumicash is widely used in rural areas and most of its transactions involve transfers from the capital to rural areas. Ecocash has prioritized partnerships with institutions that make bulk payments, such as the World Bank, World Vision, One Acre Fund, and the United Nations agencies such as the World Food Programme and the United Nations High Commissioner for Refugees (UNHCR). However, this means that Lumicash has a dominant position in the rural part of the country, which could pose a challenge with respect to interoperability. Drawing from the Kenyan experience, where Safaricom is the dominant MNO, such a monopoly could lead to market distortions. The dominant

MNO can control access, set pricing, and restrict competitors, effectively limiting consumer choice (Njuguna, 2021). In the context of Burundi, there is a risk of Lumicash resisting interoperability as it may have more to gain in protecting its investment in the rural part of Burundi than opening it up to competitors. Without interoperability, consumer freedom to switch from Lumicash to Ecocash and vice versa may be limited.

While the central bank of Burundi (the BRB) laid out the legal framework for interoperability in the 2017 regulation on payments, its actions to guide and facilitate its implementation remain limited. A stronger involvement of the BRB is necessary because of fears of capital losses by large mobile money service providers following the implementation of interoperability by B-Switch. It is also important for the central bank of Burundi to closely accompany the implementation of interoperability to ensure that costs remain affordable for customers so that interconnection is financially attractive for both service providers and customers. The fact that there are bilateral interoperability initiatives by banks and microfinance institutions that allow transactions between their accounts and mobile money accounts may slow down B-Switch's work as it involves sharing fees among three players instead of two.

9. Government-to-Person (G2P) and Person-to-Government (P2G) payments

We explore in this section how the government can contribute to the dynamism of mobile money. Indeed, the expansion of G2P and P2G payments could be an important entry point for the development of mobile money services.

Mobile money services are currently available for some government payments. Lumicash and Ecocash offer mobile payment solutions for tax payments. This innovation has allowed taxpayers to save time and to avoid traveling with huge amounts of cash, while reducing operating costs of the tax collection office. Both service providers also offer the possibility to pay Bujumbura city hall services. However, the option to pay city hall services is not used in practice because the city hall's workflow has not adapted to this new method of payment. City hall's agents still ask for paper proof of payment and do not accept an electronic one.

Mobile money has also been used to pay for government services in agriculture. The Ministry of Environment, Agriculture and Livestock offers an option to farmers to pay for government-subsidized chemical fertilizers using Lumicash. This has reduced the distance farmers travel to pay for fertilizer. Prior to this, farmers had to pay at formal financial institutions, which are in main towns.

A major government cash transfer programme funded by the World Bank for a total amount of US$ 40 million, the *Merankabandi* project, is being executed using mobile money technology. Households registered in the project receive a mobile money transfer of BIF 20,000 (equivalent to US$ 12) per household, twice per month, for 30 months. The payment is received on a cellphone given free of charge to the beneficiaries, and the project covers transfer and withdrawal fees.

The Government of Burundi could further take inspiration from the region. For instance, the Government of Rwanda offers the option to make P2G or B2G payments for a large array of administrative services[12] through a platform called "Irembo". Burundi could also draw inspiration from Kenya where the government strongly encourages the use of digital payment services, especially since the COVID-19 pandemic when certain charges were reduced and transaction limits increased (CBK, 2021, Box 6), which sets the stage for the proliferation of digital-only payment services in the country.

10. Smallholder farmers

Mobile money services are viewed as a powerful tool for extending financial services to previously underserved segments of the population, particularly smallholder farmers in rural areas of developing countries. By leveraging mobile phone technology, mobile money operators can offer a range of services, including savings accounts, credit, insurance, and payment services. Services such as humanitarian cash transfers, digital agricultural credit and pay-as-you-go solar home systems have the potential to provide farmers with greater financial stability, reduce their vulnerability to shocks, such as crop failure or illness, and promote the diversification of rural activities. In addition, mobile money services can enable rural communities to connect with urban centres, facilitating trade and promoting economic growth.

Research has highlighted the benefits of mobile money services for farmers. For example, Munyegera and Matsumoto (2018) have demonstrated that mobile money services increase the likelihood of saving, borrowing, and receiving remittances among farmers in Uganda. Other studies have shown that mobile money can contribute to higher household income and consumption (Sekabira and Qaim, 2017) and increased investment in human capital (Abiona and Koppensteiner, 2022).

Moreover, the integration of mobile money in agricultural digital financial services is driving investment in agriculture, which is still lacking private investors. Kenya is attracting a significant portion of venture capital and private equity investment in agritech, with mobile money serving as a vital platform for digital fund transfers, benefiting not only farmers but also agribusinesses, cooperatives, and farmer groups (GSMA, 2022). In this way, the complementary relationship between banks and the mobile money industry is driving innovation and investment in the agricultural sector, thus promoting financial inclusion.

Although theoretically compelling, the effect of mobile money service in agriculture is challenged. Data from Kenya reveals that while over 80% of farmers use mobile money, only 15% use it for agricultural transactions, and less than 1% for agricultural loans (Parlasca et al., 2022). These rates are slightly higher for farmers in modern supply chains but remain limited compared to traditional banking. Despite Kenya being at the forefront of mobile money in Africa, its impact on smallholder farming is currently less transformative than anticipated, an observation which may also apply to other African countries.

Burundian case

According to INSBU (2021), the rural part of Burundi is home to 89% of its population, where agriculture is the primary source of economic activity. Despite this, a significant portion of the agricultural production is not commercialized, indicating the prevalence of subsistence agriculture in the region. Traditional financial institutions have not been able to address the specific needs of this segment of the population, which is crucial for achieving financial inclusion. Smallholder farmers are hesitant to take out loans to invest in their businesses due to the risk of becoming insolvent if they have a poor harvest. Moreover, the low level of education and the absence of a reliable information base to assess the solvency of the population operating in the informal sector makes it difficult for banks to establish contact with rural customers. Consequently, despite the increase in the number of service points, credit has not seen significant growth in rural areas.

From this perspective, mobile money service providers are adapted to smallholder farmers operating in the informal sector. Mobile money transactions could form an informational base that service providers can use to provide small loans. The added security of saving money in a mobile phone rather than in the home where it can get stolen may provide an incentive to save more as it was shown in the context of Uganda (Munyegera and Matsumoto, 2018).

However, there are challenges that come with encouraging the use of mobile money in rural areas, the first one being the literacy rate of users. Be that as it may, the steps involved in making payments, transfers, deposits and withdrawals seem simple enough for people that have difficulties reading and writing to be able to use them. Other challenges are the availability of mobile phones and electricity. With only 19% of Burundians over the age of 14 owning a mobile phone and 12% with access to electricity, mobile money will remain constrained at low levels of usage. Furthermore, a culture shift is needed because, given the lack of familiarity and trust in digital tools, many smallholder farmers prefer paper confirmation or receipts when conducting digital transactions (World Bank, 2021).

Nonetheless, financial inclusion initiatives such as the one of a Belgian social enterprise called AuxFin should be encouraged. AuxFin seeks to increase rural financial inclusion by offering, among other things, mobile money payment services for crop sales, while targeting key value chains and focusing on smallholder farming clubs.[13] Another example is One Acre Fund, a non-governmental organization (NGO) that supports smallholder farmers by providing agricultural inputs on credit and offering training on agricultural practices.[14] Part of its transactions with customers are executed with mobile money.

11. Policy recommendations

Mobile money services can increase financial inclusion and provide basic financial services to underserved populations, helping reduce poverty. However, key supply-side actors are not sufficiently sensitized about the value of mobile money, and there are various challenges that need to be addressed to increase its usage. In this context, this section presents a set of policy recommendations aimed at increasing mobile money usage in Burundi. Starting with foundational conditions, the recommendations include measures to increase awareness, improve access to infrastructure, promote interoperability, target specific populations, and collect better data.

Increase awareness of policy makers of the importance of mobile money

Awareness can be increased by campaigns that highlight the benefits of mobile money, such as greater financial inclusion and poverty reduction. More awareness of policy makers of the importance of mobile money would transpire in the prioritization of mobile money as a key component of its financial inclusion strategy, with clear targets related to the number of users, the value of national and international transactions, among others.

A more active role of the government in promoting mobile money usage

One way to achieve this is by expanding the range of government administrative services payable by mobile money, which can provide a strong incentive for people to adopt and use mobile money services. Encouraging government partners to use mobile money payment solutions can also have a positive spillover effect on adoption and active usage of mobile money among the population. By taking a more active role, the government can play a key role in boosting financial inclusion and reducing corruption in the provision of its services.

Increase access to electricity

With only 12% of Burundians with access to electricity, this situation is a major barrier to the use of mobile money. Policy makers need to prioritize the expansion of electricity infrastructure to support financial inclusion and other uses. It could be helpful to introduce Pay-as-you-go (PAYG) solar businesses, which allow customers to pay for solar energy using mobile money. PayG solar has been shown to drive adoption and use of mobile money by giving customers a regular and essential use case (GSMA, 2020).

Increase access to mobile phones

Mobile phones are still expensive for the average Burundian, which is a significant barrier to the use of mobile money. To increase the number of mobile money users, policy makers could consider initiatives that make mobile phones more affordable, such as tax exemptions on imported phones, or subsidies for low-income individuals to purchase phones.

Fast-track interoperability

Although interoperability of mobile money services officially started in early 2023, the system is not performing optimally, a few months after its inception. The government should encourage fast-tracking effective implementation of interoperability to make it easier for customers to transact across different mobile money platforms, and it is important for the central bank of Burundi to closely follow the implementation process to ensure that transaction costs remain affordable for customers. This will ensure that customers can easily and affordably transact across different mobile money platforms.

Increase urbanization

Policy makers should push for urbanization in Burundi. This can help the development of mobile money by facilitating access to agents. When people live in densely populated urban areas, it is easier to set up agent networks, as agents can serve more people in a smaller area. This can help increase the number of mobile money users, as it will be easier for people to access mobile money services.

Special focus on smallholder farmers

Smallholder farmers are a particularly important segment of the population that needs special attention for them to adopt mobile money. They represent most of the population and have low literacy rates, are poor, have a lower trust for such technology

and a strong preference for paper. Policy makers should prioritize initiatives that focus on educating smallholder farmers about the benefits of mobile money and help them overcome these barriers to adoption.

Increase market competition

Market competition drives innovation, which can help increase the adoption and use of mobile money. There are currently two mobile money operators in Burundi, Lumicash and Ecocash, with the latter facing the possibility of closing. The government should create policies that encourage the entry of new mobile money operators into the market and prevent the dominance of any one operator. This will ensure that customers have access to a wider range of mobile money services and options. This may help lower the cost of transactions.

Raise population awareness about the benefits of mobile money

Awareness of the benefits of mobile money is essential for adoption. Many people in Burundi have heard of the concept of mobile money but may not understand how it can benefit them. Education campaigns and training programmes could help increase awareness and understanding, especially among smallholder farmers and other underserved populations.

Make the use of mobile money mandatory for certain payments

Mandatory mobile money payment of certain services could help drive adoption. For example, the government could make it mandatory to use mobile money for obtaining certain official documents such as passports, criminal records, and birth certificates. This would not only increase mobile money usage but also reduce corruption in these areas.

Improve security and trust in mobile money

Security and trust in the mobile money system is essential to increase usage. Many people are wary of using mobile money due to concerns about fraud and security breaches. To address these concerns, mobile money providers should ensure the security of transactions and build trust in the system through a transparent and reliable service. Biometric identification systems, such as fingerprint or facial recognition technology, can help reduce fraud and increase trust and confidence in the system.

Collect better data

Good data is crucial for developing effective policies. Accurate and comprehensive data on mobile money usage can help identify areas where usage is low and target interventions to improve it. Additionally, data on the specific needs and preferences of different user groups can help tailor services and marketing strategies to increase adoption.

Overall, a comprehensive strategy that includes a combination of these recommendations can help increase mobile money usage in Burundi and improve financial inclusion for underserved populations.

12. Conclusion

The success of mobile money varies across countries, with some countries experiencing high uptake and usage while others have experienced limited success. In the context of Burundi, the supply of mobile money services is diversified and of standard quality, and the regulatory framework does not appear to hinder the development of these services. However, mobile money was only used by 11% of the population in 2020 compared to 69% in Kenya, 54% in Uganda, 45% in Tanzania and 1% in South Sudan in 2021.

This research investigated why uptake is low in the country. Using information collected from local policy makers and secondary sources, we analyzed Burundi's mobile money usage and compared it with other EAC countries. The research focused on transaction costs, the institutional environment and regulation, interoperability, the role of the government and smallholder farmers. The study shows that mobile money transaction fees in Burundi are high compared to the regional average when using official exchange rates but not when black market rates are applied. At present, transaction fees are within acceptable levels and do not raise special concerns. However, it is important to conduct regular comparative analyses of mobile money transaction costs in the region to ensure that consumers are not being overcharged, given the limited level of competition in the market.

With respect to the other areas of focus, the study suggested that the government should prioritize mobile money in their financial inclusion strategy. Interoperability between different mobile money services should also be closely monitored by the central bank to ensure that transaction costs remain affordable. Additionally, policy makers should focus on increasing urbanization, access to electricity, and mobile phones. Special attention should also be given to smallholder farmers, who represent most of the population and have unique needs. The study also suggested collecting better data, increasing population awareness of the benefits of mobile money through education and training programmes, improving security and trust in the system, and making the use of mobile money mandatory for certain payments. By implementing these recommendations, mobile money usage can be increased in Burundi, contributing to financial inclusion and poverty reduction.

Notes

1. Safaricom took several steps to include trust in the system, including address book entry, *456* reverse transactions, confirmations in the process, confirmation SMS, information on pricing of transaction, information at agent locations, pull payments and push.

2. Mas and Morawczynski (2009) noted other factors that influence mobile money deployment from M-Pesa's experience, notably an easy and quick customer registration, no minimum balance requirement, free deposits, ability to send money to non-customers and withdrawal of cash from ATMs.

3. http://www.m.igihe.bi/Lumitel-introduit-un-nouveau.html (Visited on 10th October 2022). Lumitel is a communication company owned by Vietel Global JSC, a multinational headquartered in Vietnam.

4. Including active and non-active agents. In comparison, Kenya, with almost five times the population of Burundi, recorded 310,450 active mobile money agents in August 2022. https://www.centralbank.go.ke/national-payments-system/mobile-payments/ (visited on 22nd October 2022). Therefore, many mobile money agents in Burundi are probably not active.

5. Following ARCT (2021), this figure only considers the subscriptions of the two main mobile money service providers: Lumicash and Ecocash.

6. Verbatim translation from World Bank (2021: 88).

7. Numbers on mobile money transactions are provided to ARCT by mobile money service providers and hence may suffer from under-reporting.

8. We observe the same in all EAC countries.

9. Approximately 1,212,419 individuals aged 15 and above.

10. See this article by The Economist: https://www.economist.com/middle-east-and-africa/2020/05/28/the-covid-19-crisis-is-boosting-mobile-money.

11.   The 2017 law requires the following information from a new subscriber: the name and surname of the client; the identity card, passport or driver's license of the customer; date and place of birth of the customer; customer's address; any information deemed useful to better know the customer.

12.   Including services related to immigration, police, health, education, transport and foreign media accreditation (See: https://irembo.gov.rw/home/citizen/all_services).

13.   https://www.auxfin.com/about-us (Visited on 23rd October 2022).

14.   https://oneacrefund.org/ (Visited on 23rd October 2022).

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Appendix

KEY INFORMANT INTERVIEWS GUIDELINES AND QUESTIONNAIRE

Interview guidelines

After each interview, the research team members are expected to prepare a report summarizing the take ways points from the interview.

These notes will be the basis for our analysis of the overall interviews.

A report is required for each interview.

One team member will lead the discussions and the other will take notes in as much detail as possible. If face-to-face interviews are not possible, they will be conducted via email or zoom.

The questions below should be used to kick off the conversion. Other questions may be added by the researcher who will be conducting the interview. The interviewee will be given the time they want to think through their answers.

Note for the interviewee

We would like to thank you for your participation in the study on the role of mobile money in financial inclusion in Burundi. The study is being carried out by researchers of the *Centre Universitaire de Recherche pour le Développement Économique et Social* (CURDES) of the University of Burundi on behalf of the African Economic Research Consortium (AERC). The information gathered will be used to author a research paper on mobile money in Burundi. Your name will not be used in any document based on this interview.

Information on the interviewee

Name	
Organization	
Role	
Contact(s)	• Telephone:
	• Email:
How was the interview conducted?	• Face to face
	• Over zoom
	• Via email

Questions to ask all interviewees

	QUESTION	RESPONSE
1.	What do you think inhibits the use of mobile money in Burundi?	
2.	What do you suggest to boost the use of mobile money in Burundi?	
3.	What are your thoughts on the role of the public sector in mobile money?	

Specific questions for the finance ministry

	QUESTION	RESPONSE
1.	Comments on the next financial inclusion strategy? When will it be released? How is the mobile money being treated?	
2.	Comments on taxation of mobile money transactions?	

Specific questions for the central bank

	QUESTION	RESPONSE
3.	Comments on the role of the central bank as a regulator?	
4.	Importance of interoperability?	

Specific questions for ARCT

	QUESTION	RESPONSE
1.	How do you obtain the data on the number of mobile money accounts and transaction amounts? Do you collect it yourself or do you ask the service providers?	
2.	Relationship of ARCT with mobile money providers.	
3.	Comments on the Law on the regulation of electronic transactions.	
4.	Comments on taxation of mobile money transactions.	

Specific questions for B-Switch

	QUESTION	RESPONSE
1.	Status of interoperability (Banks to mobile money and between mobile money operators)	
2.	What are the challenges to interoperability?	
3.	What solutions do you propose?	
4.	There are private initiatives to overcome the lack of interoperability. How will B-Switch's work affect these platforms? Is there complementarity or substitution?	

Mission

To strengthen local capacity for conducting independent,
rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

Bringing Rigour and Evidence to Economic Policy Making in Africa

- Improve quality.
- Ensure Sustainability.
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