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Heterogeneous effects of mobile money on multidimensional poverty in Sub-Saharan Africa: Role of remittances

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***Abstract*---**This article examines the effect of mobile money on multidimensional poverty in 35 Sub-Saharan African (SSA) countries over the period 2006–2020. Contrary to previous work, this article shows that SSA countries may follow different poverty groups and that the effect of mobile money may vary across these groups. Using the finite mixture model (FMM), the results show that SSA countries can be classified into two groups. In the first group, mobile money reduces multidimensional poverty, whereas in the second group, it has no significant effect. They also indicate that higher remittances amplify the effect of mobile money on reducing multidimensional poverty, allowing countries in group 2 to move to group 1. These results call on policymakers to encourage remittances and stimulate mobile money in order to reduce multidimensional poverty in SSA. These policies must be accompanied by educational policies to facilitate the adoption of mobile money among the population.

***Keywords*---**Mobile money, multidimensional poverty, remittances, heterogeneity, Sub-Saharan Africa.
JEL codes: G20, I32, F24, C10, O550

1. Introduction

Achieving economic and social goals aimed at reducing poverty has become a major concern for developing countries, particularly in Africa. Although Africa has experienced significant economic growth in recent decades, poverty levels remain high (African Development Bank, 2018). In 2015, for example, Sub-Saharan Africa (SSA) accounted for more than half of the world's poor, with 85% of the world's poor concentrated in this region and South Asia (World Bank, 2018). The

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remaining 15% of the poor are spread across other regions of the world. In these regions, average poverty rates range from 1.5% to 12%, compared with approximately 41% of the population in SSA living below the international poverty line.

Poverty has worsened in recent years in SSA due to the COVID-19 pandemic. According to the World Bank (2022), SSA was home to 389 million extremely poor people in 2020, accounting for 60% of the world's extremely poor. It also has the highest poverty rate in the world in 2020, at around 35%. Poverty in SSA is a very complex reality that goes beyond simple income measurement. It reflects the deprivation experienced by populations in several fundamental aspects of life. These deprivations are grouped into three dimensions: standard of living, health, and education. This situation makes poverty a multidimensional phenomenon, and SSA remains the region most affected by multidimensional poverty[1]. According to World Bank data (2021), approximately 59% of the region's population lived in multidimensional poverty in 2015. In 2020, more than half of this population was affected by multidimensional poverty. Multidimensional poverty in SSA is characterized by a lack of access to the basic social services necessary for a decent life.

In general, the facts show that SSA has made efforts to reduce poverty. Indeed, the monetary poverty rate fell from 41% in 2015 to 35% in 2020, a decrease of 6%. Dimensional poverty, meanwhile, fell from 59% in 2015 to around 50% in 2020. Despite these achievements, SSA remains the region with the highest number of people living in poverty (African Development Bank, 2018). This poverty can be attributed to a lack of access to financial services, which leaves the population vulnerable to basic social services (education, health, drinking water, electricity, housing, etc.). Access to financial services reduces poverty, increases private investment, and promotes economic growth (Bruhn & Love, 2014). Mobile money plays a central role in access to financial services in SSA. It has become the primary means of accessing financial services, particularly in countries where populations are excluded from traditional banking services (Demirgüç-Kunt et al., 2022). Indeed, one-third of adults in SSA have a mobile money account, making the region a world leader in this field.

The rapid development of mobile money services in developing countries has profoundly changed the financial landscape. Mobile money refers to financial services provided via mobile phones, allowing users to transfer, store, and manage money without a traditional bank account (Aker & Mbiti, 2010). It promotes financial inclusion by giving economic agents access to financial services (savings, credit, transfers, payments) that meet their needs. According to Jack and Suri (2014), the use of the M-Pesa service (a mobile money service in Kenya) has enabled Kenyan users to cope with various economic shocks. Indeed, Kenyans using this mobile money service were more likely to receive financial assistance during times of shock. These resources enable them to smooth consumption and reduce food deprivation. Thus, mobile money reduces users'

[1] Multidimensional poverty is an approach developed to complement traditional measures of poverty based solely on income. It takes into account several dimensions of well-being, generally grouped into three broad categories: education (years of schooling, school attendance), health (nutrition, infant mortality), and standard of living (access to drinking water, electricity, housing, cooking fuel).

vulnerability and multidimensional poverty by strengthening their resilience (stability in children's education, access to healthcare, and maintenance of essential goods) in the face of economic shocks. In another study, Suri and Jack (2016) estimated that the expansion of M-Pesa has lifted 2% of the Kenyan population out of poverty. The expansion of M-Pesa has enabled users to increase their savings and diversify their income through entrepreneurship. Similarly, access to mobile money services has enabled households to engage in more stable income-generating activities. The use of mobile money services in Kenya has strengthened households' access to productive resources, improved their living conditions, and their ability to invest in education and health. In Rwanda, research by Blumenstock et al. (2016) showed that households that received money via mobile money were more likely to use these funds for sustainable investments, such as children's education and health, and to increase their savings. These studies (Jack & Suri, 2014; Suri & Jack, 2016; Blumenstock et al., 2016) provide evidence that mobile money can reduce multidimensional poverty by affecting its dimensions (education, health, vulnerability, living conditions, etc.). In light of this empirical evidence, the research question that emerges is: can mobile money contribute to reducing multidimensional poverty in SSA?

Empirical studies on the effects of mobile money on multidimensional poverty in SSA remain inconclusive. Most of these studies have analyzed these effects using estimation techniques that impose restrictions on homogeneous slope parameters (Djahini-Afawoubo et al., 2023; Rotondi & Billari, 2022; Compaoré et al., 2024), whereas it is reasonable to expect that the effects of mobile money are not homogeneous. Indeed, depending on the specific characteristics of each country, the level of mobile money adoption may differ across SSA countries, and its effects on multidimensional poverty may vary by individual or collective characteristics. The heterogeneity across these dimensions may lead to variation in the effects of mobile money. Consequently, standard econometric techniques do not allow us to obtain their heterogeneous effects across country groups. Our research offers a different perspective and fills a gap in the literature by using the finite mixture regression model, a semi-parametric method for modeling unobserved heterogeneity within the sample (Ouedraogo et al., 2020). This estimation technique allows us to reject the hypothesis of a homogeneous effect across countries. In the context of our research, this model assumes that countries can be classified into several groups, associated with different levels of multidimensional poverty, and that the effects of mobile money may vary between these groups.

Another point to consider in this research is the influence of remittances on mobile money's effects in SSA. Indeed, with the rapid expansion of mobile money in SSA, it has become easier for the diaspora to transfer funds to their households of origin. In a context of growing multidimensional poverty, remittances from the diaspora via mobile money services can play an important role in reducing these deprivations. The advent of mobile money in SSA has reduced the cost of transferring funds, increasing the frequency and amounts of transfers. These remittances reinforce the impact of mobile money on beneficiaries' well-being (Suri & Jack, 2016). In a study in Togo, Djahini-Afawoubo et al. (2023) show that households that receive remittances via mobile

money have a lower level of multidimensional poverty than those that do not. Similarly, research by Munyegera and Matsumoto (2016) has shown that remittances via mobile money improve consumption, food security, and access to healthcare among rural households in Uganda. These mobile money transfers play a decisive role in reducing multidimensional poverty in SSA by acting on several dimensions of well-being (education, health, food security, housing, energy, etc.).

In light of the arguments presented above, our research aims to contribute to the literature at two methodological levels. First, it focuses on the heterogeneous effects of mobile money, unlike previous studies that have only examined its homogeneous effects on multidimensional poverty. The aim of this research is to show that SSA countries can be classified into several groups and that the effects of mobile money on multidimensional poverty may vary across these groups. Second, we examine the impact of remittances on the relationship between mobile money and multidimensional poverty in SSA. The objective is to determine whether remittances explain the transition from one country to a group.

The rest of the article is organized as follows. The second section presents the literature on the subject. The third section discusses the methodology. The fourth section presents the data sources and descriptive analysis of the variables. The fifth section presents the results and discussions, and the final section concludes the article by proposing economic policy guidelines.

2. Literature review

As mobile money is a means of accessing financial services and advancing financial inclusion, the theoretical literature on financial inclusion can be used to analyze its effects on multidimensional poverty. This literature emphasizes that access to and use of financial services reduces poverty by providing the resources needed to meet daily needs (King & Levine, 1993; Rajan & Zingales, 1998). Similarly, Beck et al. (2007) have indicated that access to financial services promotes entrepreneurial opportunities for beneficiaries, thereby improving their income, consumption, independence, and participation in family and community decision-making. Thus, access to financial services promotes the economic empowerment of beneficiaries and helps reduce deprivation in non-monetary areas (education, health, housing, energy). In this sense, mobile money, a means of accessing financial services, is a lever for reducing multidimensional poverty by enabling households to invest in their well-being.

Empirically, numerous studies have shown that mobile money reduces multidimensional poverty. Compaoré et al. (2024) analyzed the effects of mobile money on energy poverty in Burkina Faso and Togo. Using the instrumental variables method on data from the 2016 FinScope survey, the results show that mobile money reduces energy poverty in the countries concerned. Still using data from the 2016 FinScope survey, Djahini-Afawoubo et al. (2023) analyzed the effects of mobile money on multidimensional poverty in Africa. Using instrumental variables, the authors found that mobile money reduces multidimensional poverty. Similarly, Asongu and Le Roux (2024) concluded that mobile money innovations help reduce monetary poverty in SSA.

Empirical literature also highlights the importance of remittances in the relationship between mobile money and poverty. Munyegera and Matsumoto (2016) analyzed the impact of mobile money on the well-being of rural households in Uganda. Using data from 846 households, the authors show that access to mobile money increases household well-being by improving consumption. They also indicate that mobile money use increases remittances, thereby improving household well-being. Similarly, Batista and Vicente (2025) showed that mobile money improves household well-being in Mozambique. The authors indicated that mobile money reduces transaction costs and increases the number of household transfers. Thus, mobile money improves households' ability to withstand shocks by allowing them to smooth their consumption.

Empirical studies on this topic have used estimation techniques that assume homogeneous effects, whereas country heterogeneity can lead to heterogeneous effects of mobile money. Our research, therefore, aims to address these methodological limitations.

3. Methodology

To estimate the effects of mobile money on poverty in Sub-Saharan Africa, we follow the same approach as Djahini-Afawoubo et al. (2023) and estimate a model in which multidimensional poverty depends on mobile money and a set of control variables. This model is defined as follows:

$$MP_{it} = \alpha_0 + \alpha_1 MM_{it} + \sum_{2}^{k} \beta_k X_{k,it} + \varepsilon_{it} \qquad (1)$$

where the indices i and t represent the country and period under consideration, respectively, *MP* measures multidimensional poverty (multidimensional poverty index), *MM* is a measure of mobile money (volume of mobile money transactions, % of GDP), X is the matrix of control variables, and ε is the error term specific to country i and period t. The matrix of control variables includes macroeconomic variables such as GDP per capita, inflation, control of corruption, trade openness, and human capital.

As we have shown previously, most studies have used estimation techniques that indicate mobile money has a consistent effect on multidimensional poverty. Given that countries in Sub-Saharan Africa differ in mobile money adoption and multidimensional poverty, the effects of mobile money on multidimensional poverty may vary across countries. To account for this heterogeneity, we use a finite mixture model that relaxes the assumption of a homogeneous effect, thereby accounting for unobserved heterogeneity in the sample (Ouedraogo et al., 2020). This model assumes that SSA countries can be classified into subgroups associated with different levels of multidimensional poverty and that countries are heterogeneous across groups. The general specification of a finite mixture model is defined as follows:

$$f(y|x;\theta) = \sum_{c=1}^{C} \pi_c f_c(y|x;\beta_c,\sigma_c) \qquad (2)$$

Where $f_c(y|x;\beta_c,\sigma_c)$ is the distribution of the multidimensional poverty level conditioned on membership in class c and covariates x, c is the number of distinct subgroups, π_c is the proportion of countries belonging to subgroup c ; β_c and σ_c are parameters to be estimated.
In estimating a finite mixture model, the Bayesian Information Criterion (BIC), developed by Schwarz (1978), is used to determine the number of groups. The BIC is defined as follows:

$$BIC = -2\log(L) + Klog(N) \qquad (3)$$

Where log(L) is the value of the log-likelihood estimated in equation 2, K is the number of free parameters, and N is the number of observations.
The estimation of a finite mixture model is performed using maximum likelihood with the expectation-maximization (EM) algorithm of Dempster et al. (1977). The maximum likelihood equation with the EM algorithm is defined as follows:

$$\max_{\pi,\theta} logL = \sum_{i=1}^{N} \left(log\left(\sum_{c=1}^{C} \pi_c f_c(y|\theta_c) \right) \right) \qquad (4)$$

4. Data sources and descriptive analysis of variables

In this study, we use secondary data to estimate the heterogeneous effects of mobile money on poverty in SSA between 2006 and 2020. This period was chosen because data on mobile money and multidimensional poverty were available. The mobile money data come from the International Monetary Fund (Financial Access Survey). Multidimensional poverty data comes from the UNDP. Data on GDP per capita, inflation, and trade openness come from the World Bank (World Development Indicators). Human capital data comes from Penn Word Table. Data on control of corruption comes from the World Bank (Worldwide Governance Indicators).

This research covers 35 countries in SSA. The countries included in the study are listed in Table A1 in the appendix. We then divided the total period into three non-overlapping three-year averages in order to reduce short-term shocks (2006–2008, 2009–2011, 2012–2014, 2015-2017, 2018-2020). Establishing a three-year average is likely to minimize measurement errors, reduce the time dimension, and the number of missing data points, thereby improving the quality of the regression.

After harmonizing the data, we present the descriptive statistics for the model variables. Table 1, which presents this descriptive analysis, shows an average multidimensional poverty index of 0.325 (32.5%) in SSA. On average, 32.5% of the population in SSA lived in multidimensional poverty over the period 2006-2020. As for mobile money, its transaction volume is estimated at 8.87% of GDP during the same period. Although relatively low, mobile money remains a strategic tool for financial inclusion and is more widespread in SSA than in other regions.

Table 1: Descriptive statistics of the variables

Variables	Obs	Mean	Standard deviation	Min	Max
Multidimensional poverty index	91	0.325	0.131	0.068	0.668
Mobile money	128	8.874	16.383	0	101.011
GDP per capita	175	1315.398	1338.238	276.931	7280.986
Control of corruption	175	-0.719	0.485	-1.542	0.653
Trade openness	175	29.587	15.147	0	76.466
Human capital	155	1.739	0.373	1.136	2.853
Inflation	175	173.924	142.961	0	1866.414

Source: Author

5. Results and Discussion

5.1. Choice of number of classes

To estimate the heterogeneous effects of mobile money on multidimensional poverty in SSA, we first determine the number of classes (groups). According to Hawkins et al. (2001), in a linear regression model, the BIC is the criterion for selecting the number of components. Table 2 shows the BIC values for each class. The BIC values decreased from C1 to C2, then increased from C3 onward. From class 6 (C6) onwards, the function is no longer concave. Thus, the BIC value is minimized for C=2. Consequently, we estimate a finite mixture model with two groups.

Table 2: Selection of the number of classes

Classes	C1	**C2**	C3	C5	C6
BIC	102.784	**85.810**	96.908	123.189	not concave

Source: Author

5.2. Estimation of results

Analyzing the effects of mobile money on multidimensional poverty raises concerns about endogeneity due to reverse causality. Mobile money facilitates access to financial services and can therefore reduce multidimensional poverty; a reduction in poverty, in turn, would lead to increased adoption of mobile money. To control for this endogeneity bias, we use the instrumental variables technique and estimate the results using 2SLS and FMM. For the instruments, we use lagged mobile money values. For endogenous variables, their lagged variables can be used as instruments (Kpodar, 2007). The estimation results are presented in Table 3.

Column 1 presents the homogeneous effects of mobile money on multidimensional poverty using 2SLS. The results indicate that mobile money reduces multidimensional poverty in SSA. As explained above, estimating the effects of mobile money using standard econometric techniques (2SLS) does not provide an accurate picture of its effects across different country groups. It is therefore necessary to further analyze this link using the finite mixture model.

Columns 2 and 3 show the differentiated effects of mobile money on multidimensional poverty in SSA using the FMM. We find that mobile money reduces poverty in group 1 but has no significant effect in group 2. The coefficients for mobile money support our hypothesis that this payment method has varying effects across country groups. The results observed in group 1 can be explained by the fact that mobile money increases households' access to productive resources, improves their living conditions, and their ability to invest in education and health. It facilitates access to other financial services that provide resources to meet the population's needs. These results are consistent with those of Suri and Jack (2016), who indicate that the expansion of M-Pesa has enabled the Kenyan population to escape poverty.

The results obtained in group 2 show that mobile money is struggling to reduce multidimensional poverty in some SSA countries. This is due to limited use of mobile money services, driven by high transaction costs, poor infrastructure and connectivity, and barriers to mobile money adoption. These results are consistent with those of Wieser et al. (2019), who showed that the use of mobile money does not automatically reduce poverty. They emphasize that structural constraints (low incomes, low economic density, adoption costs, etc.) limit the potential effects of mobile money. In the absence of accompanying policies, the adoption of mobile money may have marginal effects.

Table 3: Effects of mobile money on multidimensional poverty in SSA

Dependent variable: multidimensional poverty index			
Variables	2SLS	FMM	
		Group 1	Group 2
Mobile money (mobile money transaction volume, % of GDP)	**-0.583*** (-4.46)**	**-0.061** (-2.35)**	**-0.106 (-0.55)**
Control of corruption	0.016	-0.033	0.110***
	(0.44)	(-1.07)	(13.13)
GDP per capita (log)	-0.441**	-0.209**	-0.113***
	(-2.58)	(-6.23)	(-15.01)
Trade openness	0.383	3.363***	0.016
	(2.55)	(7.63)	(1.58)
Inflation	0.070*	-0.056	-0.951
	(1.71)	(-1.62)	(-1.42)
Human capital	-0.045*	-0.021	-0.615***
	(-1.68)	(-0.36)	(-5.78)
Constant		1.131***	2.598***
		(7.43)	(13.82)
Observations	105	58	37
Number of countries	35	24	11
Hansen-Sargan test (p-value)	0.355		
Posterior probability		0.648	0.352
Wald test (p-value)		0.512	0.276
Likelihood ratio		82.0625	

Note: z-statistics in parentheses. ***p<0.01, ** p<0.05, *p<0.1
Source: Author

5.3. Role of remittances in the relationship between mobile money and multidimensional poverty in SSA

In the first part of our findings, we presented the direct effects of mobile money on multidimensional poverty in SSA. We now examine the role of remittances in the relationship between these two variables. The aim is to analyze whether remittances can stimulate the use of mobile money as an effective means of reducing multidimensional poverty. For the regression in this section, we use a concomitant variable: remittances. The remittance data come from the World Bank (World Development Indicators). Group 1 is considered the reference group, as mobile money reduces multidimensional poverty within this group. We therefore examine whether remittances can enable countries in group 2 to move to group 1. The results for this concomitant variable are presented in Table 4.

These results show that an increase in remittances enhances mobile money's effect in reducing multidimensional poverty, enabling countries in group 2 to move to group 1. Indeed, a 1% increase in personal remittances increases the probability that a country in group 2 will move to group 1 by 42.46%. Similarly, a 1% increase in workers' remittances and remuneration increases the probability that a country in group 2 will move to group 1 by 58.86%. These results show that remittances are useful for SSA countries, as they further strengthen mobile money's contribution to reducing multidimensional poverty. These results are consistent with those of Jack and Suri (2016), who indicate that remittances reinforce the impact of mobile money on the well-being of household beneficiaries. They also corroborate the findings of Djahini-Afawoubo et al. (2023), which show that households that receive remittances via mobile money have a lower level of multidimensional poverty than those that do not.

Table 4: Role of remittances in the relationship between mobile money and multidimensional poverty (FMM estimation)

Variables	Marginal effect of variables	
Personal remittances, received (% of GDP)	-0.4246*** (-5.97)	
Remittances from workers and wages, received (% of GDP)		-0.5886*** (-4.50)
Observations	97	97
Likelihood ratio	40.0872	36.45627

Note: *z*-statistics in parentheses. ***p<0.01
Source: Author

5.4. Robustness analysis

We now turn to analysing the robustness of our results in two ways: using an alternative measure of mobile money and adding control variables. The first robustness analysis involves using a different measure of mobile money. To do this, we use the number of active mobile money accounts as an alternative measure. The data for this measure of mobile money comes from the International Monetary Fund (Financial Access Survey). The results of this analysis, presented in Table 5, show that holding an active mobile money account reduces

multidimensional poverty in group 1 and has no significant influence on group 2. These results reinforce the robustness of our findings that the effects of mobile money vary across country groups.

Table 5: Robustness test: use of an alternative measure of mobile money

Dependent variable: multidimensional poverty index			
Variables	2SLS	FMM	
		Group 1	Group 2
Number of active mobile money accounts (log)	**-1.053** **(-2.32)**	**-0.034** **(-5.82)**	**-0.208** **(-1.39)**
Control of corruption	0.044 (1.04)	0.243* (1.76)	0.123*** (5.20)
GDP per capita (log)	-0.512*** (-3.23)	-0.452** (-2.43)	-0.198*** (-6.04)
Trade openness	0.047 (0.38)	-0.236 (-1.28)	-0.099 (-0.77)
Inflation	0.023* (1.81)	0.074* (1.76)	0.045* (1.72)
Human capital	-0.469*** (-3.09)	-0.189*** (-2.61)	-0.136*** (-1.72)
Constant		1.419*** (5.46)	0.659*** (1.41)
Observations	95	61	32
Number of countries	35	21	14
Hansen-Sargan test (p-value)	0.4703		
Posterior probability		0.6012	0.397
Wald test (p-value)		0.4136	0.321
Likelihood ratio		73.245	

Note: z-statistics in parentheses. ***p<0.01, ** p<0.05, *p<0.1
Source: Author

The second robustness analysis consists of adding control variables to the model. These variables include foreign direct investment and domestic investment. These variables are used by Kouamé (2019) as determinants of poverty. The data on these variables come from the World Bank (World Development Indicators). We find that adding these variables does not change the expected sign. Indeed, mobile money reduces multidimensional poverty in group 1 and has no effect in group 2. The results of this robustness analysis are presented in Table 6.

Table 6: Robustness test: adding control variables

Dependent variable: multidimensional poverty index			
Variables	*2SLS*	*FMM*	
		Group 1	*Group 2*
Mobile money (mobile money transaction volume, % of GDP)	**-1.886*** **(-2.94)**	**-0.892*** **(-9.82)**	**-0.024** **(-0.26)**
Control of corruption	0.039	0.033**	-0.009

Dependent variable: multidimensional poverty index			
Variables	*2SLS*	*FMM*	
		Group 1	*Group 2*
	(1.06)	(2.18)	(-0.45)
GDP per capita (log)	-0.440***	-0.188**	-0.227***
	(-2.94)	(-6.58)	(-5.32)
Trade openness	0.115	-0.236	0.068
	(1.07)	(-1.28)	(1.16)
Inflation	0.025**	0.059***	0.080***
	(1.99)	(4.12)	(2.87)
Human capital	-0.030	-0.095***	-0.355***
	(-0.46)	(-3.34)	(-3.73)
Foreign direct investment	0.025	0.061	-0.019
	(0.62)	(1.32)	(-0.24)
Domestic investment	-0.135**	-0.071**	-0.053**
	(-2.00)	(-2.46)	(-2.29)
Constant		1.122***	1.155***
		(15.30)	(8.94)
Observations	103	65	37
Number of countries	35	19	16
Hansen-Sargan test (p-value)	0.3728		
Posterior probability		0.5517	0.4483
Wald test (p-value)		0.1954	0.2901
Likelihood ratio		85.052	

Note: z-statistics in parentheses. ***p<0.01, ** p<0.05
Source: Author

6. Conclusion and economic policy implications

Multidimensional poverty is a major concern for governments, particularly those in developing countries. This research, therefore, focuses on countries in sub-Saharan Africa where multidimensional poverty is most pronounced and access to financial services is difficult. Mobile money is now emerging as a lever for financial inclusion and can help vulnerable people escape poverty. This article examines the contribution of mobile money to reducing multidimensional poverty, using a panel of SSA countries for the period 2006-2020.

Contrary to previous work, this research shows that mobile money can have different effects across groups, depending on mobile money adoption. Using the finite mixture model, we find that SSA countries can be classified into two groups. In the first group, mobile money reduces multidimensional poverty, whereas it has no significant effect in the second group. The results also indicate that countries that receive more remittances are more likely to reduce multidimensional poverty by adopting mobile money.

These findings confirm the central role of mobile money as a lever for improving the living conditions of vulnerable populations in developing countries. They have important implications for SSA countries. These findings suggest that financial inclusion policies should encourage the adoption of mobile money as a complement to existing banking and financial market services. They also call on

policymakers to encourage remittances and stimulate mobile money, thereby reducing multidimensional poverty.

This research provides empirical evidence on the relationship between mobile money and multidimensional poverty, which warrants further investigation. Indeed, the fact that mobile money has differentiated effects on multidimensional poverty may suggest a threshold effect. Future research could therefore examine the threshold effect of mobile money on multidimensional poverty. Similarly, the quality of institutions can influence the effects of mobile money. Future research could incorporate the institutional variable in interaction with mobile money, as well as the gender dimension, into the analysis.

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References

African Development Bank. (2018). African Economic Outlook 2018

Aker, J. C., & Mbiti, I. M. (2010). Mobile Phones and Economic Development in Africa. *Journal of Economic Perspectives,* 24, 207-232

Asongu, S. A., Le Roux, S. (2024). The Role of Mobile Money Innovations in the Effect of Inequality on Poverty and Severity of Poverty in Sub-Saharan Africa. *Information Systems Frontiers*, 26(4), 1565–1579

Batista, C., & Vicente, P. C. (2025). Is Mobile Money Changing Rural Africa? Evidence from a Field Experiment. *The Review of Economics and Statistics,* 107(3), 835–844

Beck, T., Demirgüç-Kunt, A., & Martinez, P. M. (2007). Reaching Out: Access to and Use of Banking Services Across Countries. *Journal of Financial Economics*, 85(1), 234–266.

Blumenstock, J., Eagle, N., & Fafchamps, M. (2016). Airtime transfers and mobile communications: Evidence in the aftermath of natural disasters. *Journal of Development Economics*, 120(C), 157–181.

Bruhn, M., & Love, I. (2014). The real impact of improved access to finance: Evidence from Mexico. *The Journal of Finance*, 69(3), 1347–1376.

Compaore, E. D., Guira, A., & Maiga, B. (2024). Mobile money and multidimensional energy poverty: a cross-national study of Burkina Faso and Togo. *Cogent Economics & Finance*, *12*(1), 1-24.

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). The Global Findex Database 2021 : Financial Inclusion, Digital Payments, and Resilience in the Age of Covid-19. Washington DC, World Bank.

Dempster, A. P., Laird, N. M., & Rubin, D. (1977). Maximum Likelihood from Incomplete Data Via the EM Algorithm. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, 39(1), 1–22.

Djahini-Afawoubo, D. M., Couchoro, M. K., & Atchi, F. K. (2023). Does mobile money contribute to reducing multidimensional poverty? *Technological Forecasting and Social Change*, 187(C), 122194. https://doi.org/10.1016/j.techfore.2022.122194

Jack, W., & Suri, T. (2014). Risk sharing and transactions costs: Evidence from Kenya's mobile money revolution. *American Economic Review*, 104(1), 183–223.

Hawkins, D. S., Allen, D. M., & Stromberg, A. J. (2001). Determining the number of components in mixtures of linear models. *Computational Statistics and Data Analysis*, 38(1), 15–48.

King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be Right. *The Quarterly Journal of Economics*, 108(3), 717-737.

Kouame, M. (2019). L'impact Des Investissements Directs Etrangers Sur La Réduction De La Pauvreté Dans L'UEMOA. *IOSR Journal of Economics and Finance*, 10(4), 74-85.

Kpodar, K. (2007). Manuel d'initiation à Stata (version 8). Centre d'Etudes et de Recherche sur le Développement International, Clermont-Ferrand, France.

Munyegera, G. K., & Matsumoto, T. (2016). Mobile Money, Remittances, and Household Welfare: Panel Evidence from Rural Uganda, *World Development*, 79(C), 127-137

Ouedraogo, R., Sawadogo, R., & Sawadogo, H. (2020). Private and public investment in Sub-Saharan Africa: the role of instability risks. *Economic Systems*, 44(2), 100787.

Rajan, R., & Zingales, L. (1998). Financial development and growth. *American Economic Review*, 88(3), 559–586.

Rotondi, V., Billari, F. C. (2022). Mobile Money and School Participation: Evidence from Africa. *Population Research and Policy Review*, 41, 343–362

Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics*, 6(2), 461–464.

Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354(6317), 1288–1292.

Wieser, C., Bruhn, M., Kinzinger, J. P., Ruckteschler, C. S., Heitmann, S. (2019). The Impact of Mobile Money on Poor Rural Households: Experimental Evidence from Uganda, Policy Research Working Paper Series 8913, The World Bank.

World Bank. (2018). Poverty and Shared Prosperity 2018: Piecing Together the Poverty Puzzle

World Bank. (2021). Multidimensional Poverty Measure. https://www.worldbank.org/en/topic/poverty/brief/multidimensional-poverty-measure

World Bank. (2022). Poverty and Shared Prosperity 2022: Correcting Course. World Bank. http://hdl.handle.net/10986/37739

Appendix

Table A1: List of study countries

Countries	Countries	Countries	Countries	Countries
Benin	Rep. Congo	Guinea	Lesotho	Senegal
Burkina Faso	Ivory Coast	Guinea-Bissau	Liberia	Sierra-Leone
Burundi	Eswatini	Kenya	Mozambique	Sudan
Cameroon	Ethiopia	Madagascar	Namibia	Tanzania
Central African Republic	Gabon	Mali	Niger	Togo
Chad	Gambia	Mauritania	Nigeria	Uganda
Congo, Dem, Rep	Ghana	Malawi	Rwanda	Zambia

Source: Author