FINDEX NOTE 7

SUB-SAHARAN AFRICA SERIES: THE ROLE OF MOBILE MONEY REGULATIONS: EVIDENCE FROM SUB-SAHARAN AFRICA

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The Role of Mobile Money Regulations: Evidence from Sub-Saharan Africa

Throughout Sub-Saharan Africa, innovation is transforming how people conduct financial transactions and live their lives. Mobile phones and the availability of new digital technologies are at the forefront of this change, helping to draw more and more people into the formal economy, potentially mitigating gender and income inequality, and stimulating development in areas ranging from agriculture to education.

The Findex Notes: Sub-Saharan Africa *series summarizes data compiled by the Global Findex from nationally representative surveys of more than 150,000 adults in over 140 economies in 2017, including more than 35,000 adults in 35 economies in Sub-Saharan Africa. The Global Findex is the world's most comprehensive data set on how adults save, borrow, make payments, and manage risk. The full dataset and methodology are available at https://globalfindex.worldbank.org/.*

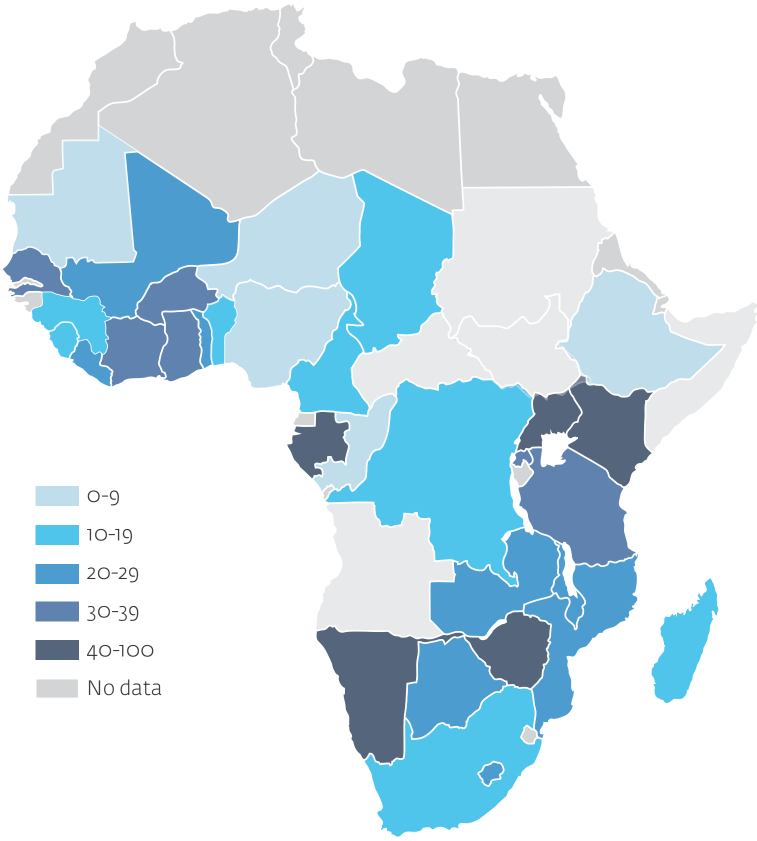
Financial inclusion can help drive development by helping people escape poverty.

COVID-19 is pushing governments to explore innovative ways of disbursing money to citizens affected by the crisis. Many governments are assessing their existing safety net programs to expand and deepen their reach. Under normal circumstances, safety net payments are made in-kind, through food vouchers, or in cash. The need for social distancing and lockdowns in many developing economies require governments to explore digital frontiers. The use of mobile money is at the forefront of this change, with growing partnerships between the public sector, financial institutions, and telecom companies to deliver these payments through mobile phones.

Sub-Saharan Africa is a trailblazer in the use of mobile money to conduct digital transactions (Map 1). The vast majority of adults around the world who have formal financial services rely on traditional banks and financial institutions. Sub-Saharan Africa is notable for widespread ownership of mobile money accounts. As of 2017, 21 percent of adults in Sub-Saharan Africa had a mobile money account, nearly double the share from 2014, according to the Global Findex database.

Map 1: Mobile money is driving an increase in accounts in Sub-Saharan Africa

Adults with a mobile money account (%), 2017



Source: Global Findex database. Note: Data are only displayed for economies in Sub-Saharan Africa.

Regulatory infrastructure plays an important role

Mobile money services offer an opportunity to quickly transfer safety net payments. But the effectiveness of mobile money payments depends on a supportive regulatory environment. Requirements such as Know-Your-Customer (KYC) rules, consumer protection frameworks, and agent transparency can influence the ease with which people use mobile money. An enabling regulatory framework can allow for the development of innovative and sustainable mobile money banking services that can effectively serve beneficiaries. In Ghana, revision of agent banking and e-money guidelines permitted mobile network operators to offer mobile money accounts. Ghanaian financial service providers were able to invest in agent recruitment, customer education, and expand coverage of mobile money accounts. According to the Global Findex database, the share of adults with mobile money accounts tripled between 2014 and 2017 in Ghana. In Cote d'Ivoire, a similar policy allowing non-banks to offer mobile money accounts coupled with enabling factors such as the independent management of agent networks, price transparency, and customer recourse mechanisms allowed the private sector to expand their agent network from fewer than 20,000 agents in 2014 to nearly 100,000 by 2018.

Mobile money regulation in Sub-Saharan Africa

There is significant cross-country variation in mobile money account ownership in Sub-Saharan Africa. It stands to reason that some of these differences might be related to national laws and regulations.

The GSM Association (GSMA) Mobile Money Regulatory Index (2018) conducts a quantitative assessment of the extent to which regulations have been effective in enabling mobile money adoption.[1] The index scores each economy across six different dimensions using 26 different weighted indicators. The dimensions include: authorization; consumer protection; transaction limits; Know Your Customer (KYC); agent networks; and investment and infrastructure environment. Scores range from 0-100, with a higher score associated with more enabling regulation. An overall index is computed for each economy by using these six dimensions.

While the index covers 80 economies around the world, we focus our analysis on economies in Sub-Saharan Africa and examine the relationship between country level regulation and mobile money account ownership. The GSMA scores for the regulatory index range from a low of 33 to a high of 89 (Table 1). Mauritania has the lowest score at 33, largely driven by low performance on the transaction limits dimension. South Africa and Botswana follow with an index score of about 60. The median for the scores falls at 79. The scores among the remaining economies fall within the range of 60-80, while six out of the 32 economies score higher than 80, namely Ghana, Lesotho, Malawi, Namibia, Rwanda, and Zambia.

Table 1: Summary statistics of the GSMA mobile money regulatory database in Sub-Saharan African economies

	Mean	Median	Standard deviation	Minimum	Maximum
Index score	72	79	11	33	89
Authorization	67	89	23	10	100
Consumer protec tion	76	80	15	50	100
Transaction limits	68	69	18	0	100
KYC	74	70	9	40	90
Agent network	87	98	12	52	100
Infrastructure and investment environment	59	60	12	35	90

Source: The GSM Association (GSMA) Mobile Money Regulatory Index (2018). Note: Data are for 32 economies in Sub-Saharan Africa.

Data for mobile money account ownership come from the Global Findex database, which is based on nationally representative surveys of more than more than 35,000 adults in 35 economies in Sub-Saharan Africa. In addition to collecting data on mobile money, the Global Findex is the world's most comprehensive dataset on how adults save, borrow, make payments, and manage risk. This paper merges the two databases to explore the relationship between regulation and mobile money account ownership for 32 economies in Sub-Saharan Africa.

Do laws and regulations captured by GSMA play a role in access to and use of mobile money?

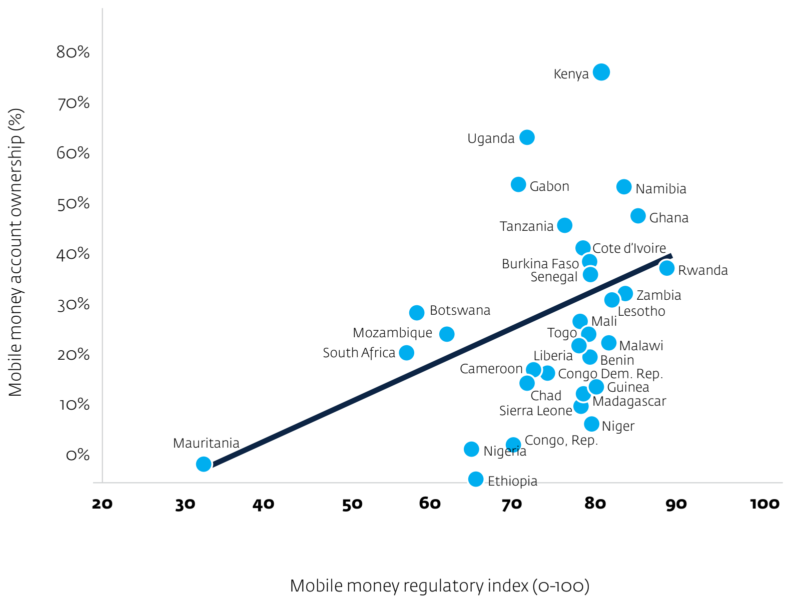
In Sub-Saharan African economies, the correlation between the GSMA regulatory index and mobile money account ownership is positive and statistically significant at 95 percent (Figure 1). After controlling for varying levels of economic development in Sub-Saharan Africa (using log GDP per capita), the data show that a 10-point increase in the index is correlated with a 7-percentage point increase in ownership of mobile money accounts. This suggests that in Sub-Saharan African economies, an improvement in regulatory practices is associated with higher ownership of mobile money accounts.[2]

1 GSMA studied regulatory instruments that were in force up to and including July 2018 and use both qualitative and quantitative techniques to arrive at the scores. The data are available at https://www.gsma.com/mobilemoneymetrics/#regulatory-index

2 If we exclude Mauritania, the data show that a 10-point increase in the GSMA regulatory index is correlated with an 8.5-percentage point increase in mobile money accounts.

However, the GSMA index shows little variation in the scores and most countries fall within the range of 60-90, implying that policies would have to significantly change for there to be any notable shift in the GSMA index scores, and therefore the implied correlation with mobile money accounts.

Figure 1: The relationship between mobile money account ownership and GSMA Mobile Money regulatory index



Source: Global Findex database (2017) and GSMA Mobile Money Regulatory Index (2018).

The spread of mobile money accounts has created new opportunities to better serve women, poor people, and other groups traditionally excluded from the formal financial system. In some Sub-Saharan African economies—such as Cote d'Ivoire, Gabon, Kenya, Senegal, Uganda, and Zimbabwe—the gender gap in mobile money account ownership is significantly smaller than the gap in ownership of accounts at financial institutions such banks. These results are encouraging but not conclusive on their own. As more economies expand the use of mobile money and new mobile money operators enter the market, regulation can play an important role in ensuring that women and the poor are better served.

Using an OLS estimation, we explore the relationship between the GSMA index and mobile money account ownership for different demographic variables in Sub-Saharan Africa (Table 2). The relationship holds across gender, income level, and rural residence. A 10-point increase in the GSMA regulatory index is correlated with a 7 percentage point increase in mobile money account ownership for men and a 6 percentage point increase for women. The results also show that a 10-point increase in the GSMA regulatory index is correlated with a 7 percentage point increase in mobile money account ownership for adults living in rural areas, and a 5 percentage point increase for adults living in the poorest 40 percent of households.

Table 2: Relationship between mobile money ownership and GSMA regulatory index

	Mobile money account ownership in Sub-Saharan African economies				
	All Adults	**Men**	**Women**	**Poorest 40% of households**	**Rural residents**
GSMA regulatory index	0.68***	0.73***	0.63***	0.51***	0.66***
	(0.14)	(0.15)	(0.15)	(0.13)	(0.13)
GDP per capita (log, real US$)	6.37***	5.96**	6.84***	4.77**	5.71***
	(1.94)	(2.18)	(1.77)	(1.77)	(1.72)
Observations	32	32	32	32	32
R-squared	0.25	0.24	0.26	0.21	0.24

*Note: Standard errors in parentheses. *, **, and *** indicate significance at 10%, 5%, and 1% respectively. Data for rural residents are taken from Eurostat's degree of urbanization classification (DEGURBA) for all economies except Rwanda.*

There are limitations to this analysis. Data for the regulatory index are only available for 2018. Given the dynamic nature of the mobile money industry, this prevents us from capturing multi-year effects. We are unable to make any conjectures about changes in regulatory policies over time. Nor can we analyze whether policy reforms improved mobile money account ownership in subsequent years.

We do have Global Findex data for 2014 and 2017 which allow us to create a baseline of mobile money account ownership and remove any bias introduced if mobile money accounts were widely prevalent even before reforms were implemented. Assuming that most regulations were introduced after 2014, we control for mobile money account ownership in 2014. Once we account for mobile money account ownership in 2014 as an independent variable, we find no significant change in the correlation. We find that a 10-point increase in the GSMA regulatory index is correlated with a 7 percentage point increase in mobile money account ownership in Sub-Saharan Africa.

KYC requirements, authorization and consumer protection help create an enabling environment for mobile money

There are many components that make up a sound regulatory framework. For mobile money users, these can range from easing documentation requirements to ensuring access to reasonable grievance redress mechanisms. For mobile money providers, these regulations address agent flexibility, the ability of non-banks to issue mobile money accounts, payment settlement infrastructure, taxes, price controls on mobile money transactions, and more.

The GSMA regulatory index is a composite score comprised of six dimensions which are aggregated to assess the extent to which an economy's regulatory framework enables mobile money. We take each individual dimension and explore its relationship with mobile money account ownership. We find a significant positive correlation between the index and mobile money account ownership for sub-scores measuring KYC requirements, authorization, and consumer protection (Table 3).

Table 3: Relationship between mobile money account ownership and the GSMA regulatory index components

GSMA regulatory indicators	Mobile money account ownership in Sub-Saharan Africa					
Authorization	0.36**					
	(0.13)					
Consumer protection		0.47**				
		(0.22)				
Transaction limits			0.13			
			(0.17)			
KYC				0.48*		
				(0.28)		
Agent network					-0.026	
					(0.37)	
Infrastructure and investment environment						-0.29
						(0.23)
GDP per capita (log, real US$)	7.48***	4.923**	4.31*	5.44*	4.31*	5.02**
	(2.52)	(2.29)	(2.38)	(2.87)	(2.48)	(2.39)
Observations	32	32	32	32	32	32
R-squared	0.30	0.25	0.08	0.13	0.06	0.10

*Note: Standard errors in parentheses. *, **, and *** indicate significance at 10%, 5%, and 1% respectively.*

KYC is a procedural requirement set in place to meet the due diligence standards when a new customer opens a mobile money account or carries out certain types of transactions. KYC requirements include regulations on minimum identification requirements and verification and Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT) reporting obligations. Disproportionate KYC requirements can discourage beneficiaries from enrolling in financial services, increase the intake time for financial institutions, and reduce overall efficiency. Excessive KYC especially burdens small, low-risk account holders and can deter financial inclusion of the poor and drive up administrative costs for service providers.

Uganda and Mozambique share the highest KYC score at 90 each. Most of the other Sub-Saharan African economies have KYC scores within the range of 60-80. Botswana is the only other economy that falls outside of that range, with the lowest KYC score at 40. The data find that controlling for GDP per capita, 10-point increase in the KYC sub-score is correlated with a 5-percentage point increase in mobile money account ownership.

Authorization requirements—such as the eligibility criteria for companies to provide mobile money services, the existence of legislative frameworks governing mobile money, and regulations around capital requirements or international remittances—are another important aspect of mobile money regulation. Authorization requirements are necessary to ensure that providers are prudentially regulated and follow at least some, if not all, of the regulations created for traditional banking services. The GSMA's authorization dimension also measures if certain economies have the basic authorization for non-banking players, such as mobile network operators seeking licensing as mobile money providers, to offer mobile money services.

Authorization scores vary considerably among the Sub-Saharan African economies. Mauritania scores 10—one of the lowest in the region—while South Africa lands at 26. By contrast, economies like Ghana, Kenya, Malawi, Rwanda and Zimbabwe, which have high mobile money penetration rates, exceed 95 on authorization.

The right balance of authorization rules can prevent providers from expanding aggressively and ensure that they have sufficient capital in case of an insolvency. Given the low-risk and low-value nature of cash transfers made through mobile money during the COVID-19 crisis, regulations can ensure that these are typically set lower than the traditional banking requirements. The data find that controlling for GDP per capita, 10-point increase in the authorization sub-score is correlated with a 4-percentage point increase in the use of mobile money.

Consumer protection is a vital component of any financial service. Consumer protection encompasses the full range of regulations that protect beneficiaries who use mobile money to receive and manage safety net payments, including general consumer redress and disclosure mechanisms, as well as provisions for the safeguarding of customer funds, and deposit insurance measures. Appropriate consumer protection policies help ensure that beneficiaries are aware of the various fees, fines and procedures before using mobile money services. Ghana, Kenya, Nigeria and Rwanda score the highest on the consumer protection index as well as the regulatory index as a whole. The poorest performers in the mix are also the economies with the poorest consumer protection scores. Botswana, Democratic Republic of Congo, Mozambique, and South Africa rank 50 on the consumer protection dimension.

Mobile money services might be new to most relief payment recipients affected by the COVID-19 crisis and, unlike traditional banking services, consumer protection policies will have to be adapted to meet the new challenge. The data find that controlling for GDP per capita, a 10-point increase in the consumer protection sub-score is correlated with a 5-percentage point increase in mobile money account ownership.

Do other regulatory components matter?

The GSMA also measures the performance of different economies on other regulatory issues such as transaction limits, agent networks, and overall investment and infrastructure environment. Our analysis suggests no significant relationship between these dimensions and mobile money account ownership in Sub-Saharan Africa. But they still play an important role within different regulatory regimes. For example, transaction limits help reduce the risk of money laundering for an entry-level account. But transaction limits can also prevent mobile money users from making regular transactions on their account and incentivize their return to cash. Regulations around reasonable transaction limits can protect banks and encourage customers. As the GSMA data shows, economies like the Democratic Republic of Congo, Gambia and Zimbabwe face significantly fewer constraints on transaction limits compared to, say, India and Nepal, where monthly transaction limits on entry-level accounts are around US $500 and US $140 respectively.

An appropriate agent network is also an important contributor to the success of mobile money. For GSMA, this includes the eligibility criteria of agents and their authorization along with requirements on their location and scope of activities. In many economies, the expansion of mobile money services largely depends on agent access points. A high score may be correlated with special provisions made by the regulators to ensure that access is available in hard to reach geographic and rural areas. The investment and infrastructure environment dimension captures everything else that is external but still likely to affect the regulatory environment for mobile money. For example, infrastructure around ID verification infrastructure, interoperability and national financial inclusion policies all play an important role. According to the 2017 Global Financial Inclusion and Consumer Protection (FICP) Survey, 33 economies had a national financial inclusion strategy and 29 were in the process of developing one. By 2018, only 18 economies had financial inclusion policies with specific provisions for mobile money. By contrast, more than 30 economies had no publicly available financial inclusion policies. Monitoring such policies could ensure that good practices are adopted by mobile money providers.

Our analysis finds that the GSMA data show little variation between economies for the dimensions on agent network regulations and investment and infrastructure environment. The lack of variation may have contributed to inconclusive results when we tested their relationship with mobile money.

Keeping a check on regulation

Quick changes in the regulatory framework can provide the right conditions for beneficiaries to receive safety net payments, or create complications in disbursements and hinder the transfer of much needed benefits. The success of digital payments heavily depends on the enforcement of regulations. In 2014, India's Pradhan Mantri Jan Dhan Yojana (JDY) financial inclusion program simplified the account opening process, allowing millions of adults to get a bank account. But the rules were widely abused; our survey found that two-thirds of adults who applied for an account under the new system were asked to post a minimum balance even though the program had no such requirement, while nearly a fifth reported having to pay bribes.

The evolving nature of digital payments also requires governments to be flexible in adapting their regulatory frameworks. A certain degree of experimentation (as permitted, for example, by the use of a regulatory sandbox) might be in order. The GSMA finds that economies which have undergone frequent regulatory reforms achieve higher regulatory index scores and are more flexible at addressing regulatory challenges than economies whose first iterations of regulations are still in place. Rwanda, for example, scores 89 on the index, has been swift in addressing mobile money, along with issuing at least four regulatory instruments for payment service providers in the last decade.

Findings beyond Sub-Saharan Africa

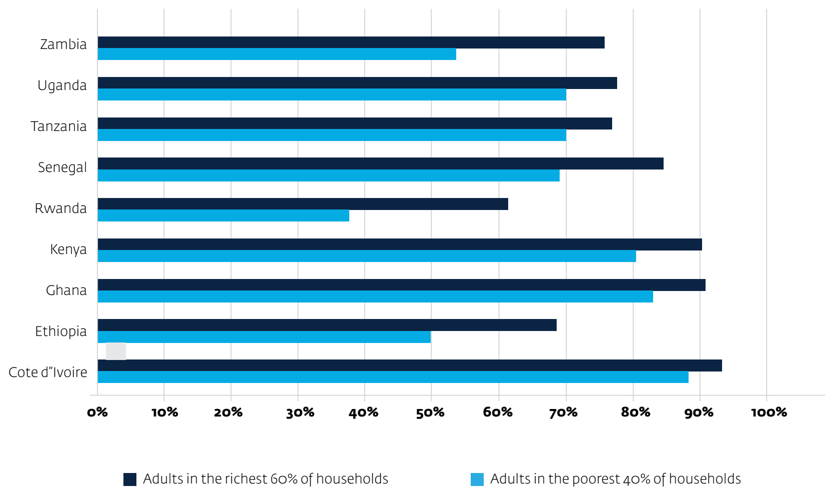
GSMA researchers recently analyzed the relationship between mobile money adoption and regulations in 46 economies, including economies outside of Sub-Saharan Africa. Our findings showing a positive correlation between good regulations and mobile money uptake are broadly consistent with theirs.[3] The authors also find evidence that the association between

3 See Kalvin Bahia, Maria Sanchez, and Pere A. Taberner, "Exploring the relationship between mobile money regulation and usage," GSMA Intelligence Economic Research Working Paper, July 2020.

a supportive regulatory environment is stronger among women and men, and that good mobile money regulations might be especially important for poorer adults. While the authors caution against asserting causal relationships, they note that tiered KYC requirements, and laws allowing mobile agents to register customers, could be especially significant for enabling mobile money use among women and the poor.

Figure 2: Mobile phone ownership higher among wealthier adults than poorer adults

Adults with a mobile phone (%), 2019



Source: Gallup World Poll. Note: Data for the poorest 40 percent and richest 60 percent of households are based on household income quintiles within economies.

Digital inclusion is a prerequisite

Mobile phones have been central to Sub-Saharan Africa's financial inclusion achievements—but digital disbursement of safety net payments depends in part on ensuring that everyone has access to this important technology. Poorer adults still lag wealthier adults in mobile phone ownership. In Rwanda, and Zambia, for example, mobile phone ownership is roughly 20 percentage points higher among wealthier adults than poorer adults (Figure 2). Income gaps tend to be smaller in economies such as Cote d'Ivoire, Tanzania, and Uganda. Women are less likely than men to have a mobile phone in many economies. In Chad, for example, mobile phone ownership is twice as high among men than women. Ethiopia's gender gap is about 26 percentage points, while gaps of about 15 percent are found in economies such as Burkina Faso and Mozambique.

Conclusion

Mobile money accounts can help governments disburse COVID-19 relief payments to struggling citizens. The effectiveness of mobile money depends on a supportive regulatory environment. Analyzing GSMA and Global Findex data, we find that KYC requirements, authorization and consumer protection are associated with higher ownership of mobile money accounts in Sub-Saharan Africa. But the lack of statistical significance in our analysis for other dimensions of mobile money regulation does not necessarily mean that they lack practical importance. Beyond regulations, a positive enabling environment for mobile money also includes widespread mobile phone ownership among adults.