# Sending Money Home:

# Reducing Remittance Costs in Sub-Saharan Africa

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## Disclaimer

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, by the World Bank, by the Global Knowledge Partnership on Migration and Development, or by any other entity.

***Honor Code: On my honor as a student, I have neither given nor received unauthorized aid on this assignment.***

# Acronyms

| | |
|---|---|
| ACH | Automated Clearing House |
| AfCFTA | African Continental Free Trade Area |
| AML/CFT | Anti-Money Laundering/Combating the Financing of Terrorism |
| API | Application Programming Interfaces |
| BCA | Benefit-Cost Analysis |
| CENFRI | Centre for Financial Regulation and Inclusion |
| CBK | Central Bank of Kenya |
| CDD | Customer Due Diligence |
| EAP | East Asia and Pacific |
| ECA | Europe and Central Asia |
| EU | European Union |
| FDI | Foreign Direct Investment |
| GDP | Gross Domestic Product |
| IFAD | International Fund for Agricultural Development |
| ILP | Interledger Protocols |
| IMF | International Monetary Fund |
| IMTS | Informal Money Transfer Services |
| KNOMAD | Global Knowledge Partnership on Migration and Development |
| KYC | Know-Your-Client |
| LAC | Latin America and the Caribbean |
| LMIC | Low- and Middle-Income Countries |
| MENA | Middle East and North Africa |
| MNO | Mobile Network Operator |
| MTO | Money Transfer Operator |
| NPV | Net Present Value |
| ODA | Official Development Assistance |
| OECD | Organisation for Economic Co-operation and Development |
| OTC | Over the Counter |
| PSD | Payment Services Directive |
| RSP | Remittance Service Provider |
| RTGS | Real-Time Gross Settlement Systems |
| SAR | South Asia |
| SADC | Southern African Development Community |
| SDG | Sustainable Development Goals |
| SIRESS | SADC Integrated Regional Electronic Settlement System |
| SMS | Short Message Service |
| SSA | Sub-Saharan Africa |
| UN | United Nations |
| USSD | Unstructured Supplementary Service Data |
| WAEMU | West African Economic and Monetary Union |

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## Executive Summary

Sending money to Sub-Saharan Africa comes at a relatively high cost. In 2018, the average cost of sending $200 to Sub-Saharan Africa was 9 percent, far above the global average of 6.9 percent, and three times as high as the United Nations' Sustainable Development Goal target of 3 percent by 2030. Increased remittance flows to developing countries are associated with poverty reduction, improved health outcomes, increased educational attainment, and enhanced financial development (Adams & Page, 2005; Inoue, 2018; Azizi, 2018). The high cost to send money to Sub-Saharan Africa limits the ability for people to send money to promote economic and financial development in the region.

Remittance costs associated with sending money to Sub-Saharan Africa are the highest within the region itself. Market and government failures both contribute to high remittance costs within the region. Global commercial banks limit correspondent banking relationships in the region to mitigate money laundering and terror financing concerns. This forces some remittance service providers to partner with financial institutions that are more expensive or based in less transparent jurisdictions with higher regulatory burdens. A few large-scale money transfer operators form exclusive partnerships with local partners, such as post offices and other financial institutions, restricting entry into the remittance service market. Some rural communities still rely on unsafe and insecure informal channels. Preferences for cash transfers to send remittances reflects of the lack of access to formal financial services for some communities.

This report evaluates three policy options:

1. Let Present Trends Continue
2. Expand Mobile Payment Services
3. Prioritize the creation of a more competitive RSP market

Each policy is evaluated using the following criteria: 1) the estimated percentage cost in 2030, 2) the net present value of benefits, 3) improved access, and 4) increased security of transfers. This report explores a data-driven strategy to predict the efficacy of the policy options based on these evaluative criteria.

This report ultimately recommends an expansion of mobile payment services. If this policy was implemented in 2019, the average cost to send $200 to Sub-Saharan Africa in 2030 would reach 2.3 percent. The net present value of benefits from this policy option amounts to $53.69 billion. This option is also more likely to expand access to vulnerable and rural populations and promote relatively more secure and reliable payments.

## Problem Statement

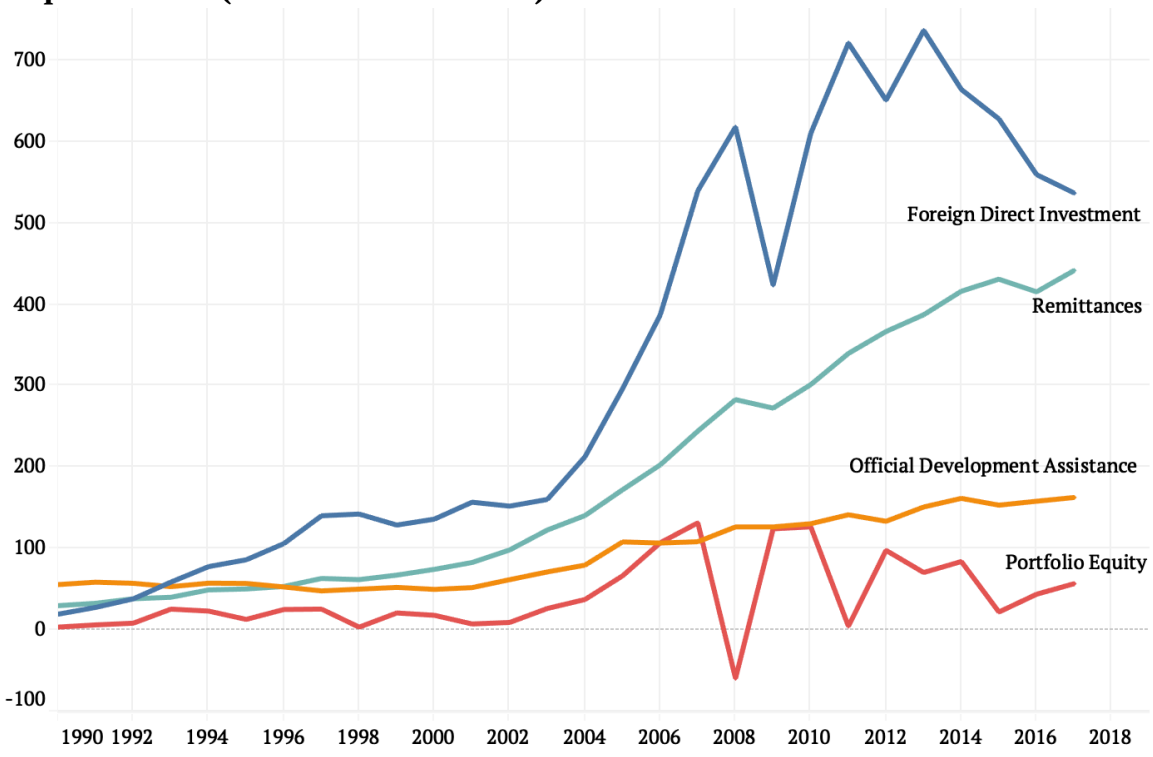
The cost of sending remittances to Sub-Saharan Africa far exceeds the global average, which raises concerns of equity, security, and efficiency. While remittances are increasingly being seen as a development tool, cross-border remittances include expensive fees. The average global cost of sending remittances is approximately 6.9 percent (World Bank, 2018). Remittance costs are regressive, meaning that low-income migrants are less likely to send money due to costs making up a relatively high percentage of their total income. Global development strategies such as the World Bank's Financing for Development Strategy and the United Nations' Addis Ababa Action Agenda have identified lowering remittance costs as a crucial component of progress. In fact, the United Nations' Sustainable Development Goals (SDGs) see reducing remittance costs as a target for reducing inequalities. ***The average cost of sending $200 to the Sub-Saharan African region is 9 percent, far above the global average of 6.9 percent, and three times as high as the SDG target of 3 percent by 2030. This high cost limits the ability for people to send money to Africa to promote economic and financial development in the region.***

# Literature Review

## Background

Remittances, money that migrants transfer to their country of birth, have exponentially grown in the last forty years. Remittances to developing countries have increased from $17 billion in 1980 to approximately $442 billion in 2017 (World Bank, 2018). This large increase has caused remittances to become an emerging source of development finance. The total volume of remittances to developing countries in 2017 is almost three times the size of Official Development Assistance (ODA) to developing countries. ODA is defined as government aid used to promote the economic development of developing nations (Kapur, 2003; IMF, 2003). **Figure 1** displays the global trends in total remittance flows compared to Foreign Direct Investment (FDI), portfolio equity, and ODA from 1990 to 2017.

**Figure 1: Remittance Flows to Low- and Middle-Income Countries Are larger than Official Development Assistance and More Stable than Private Capital Flows (Current Billion USD) 1990-2017**

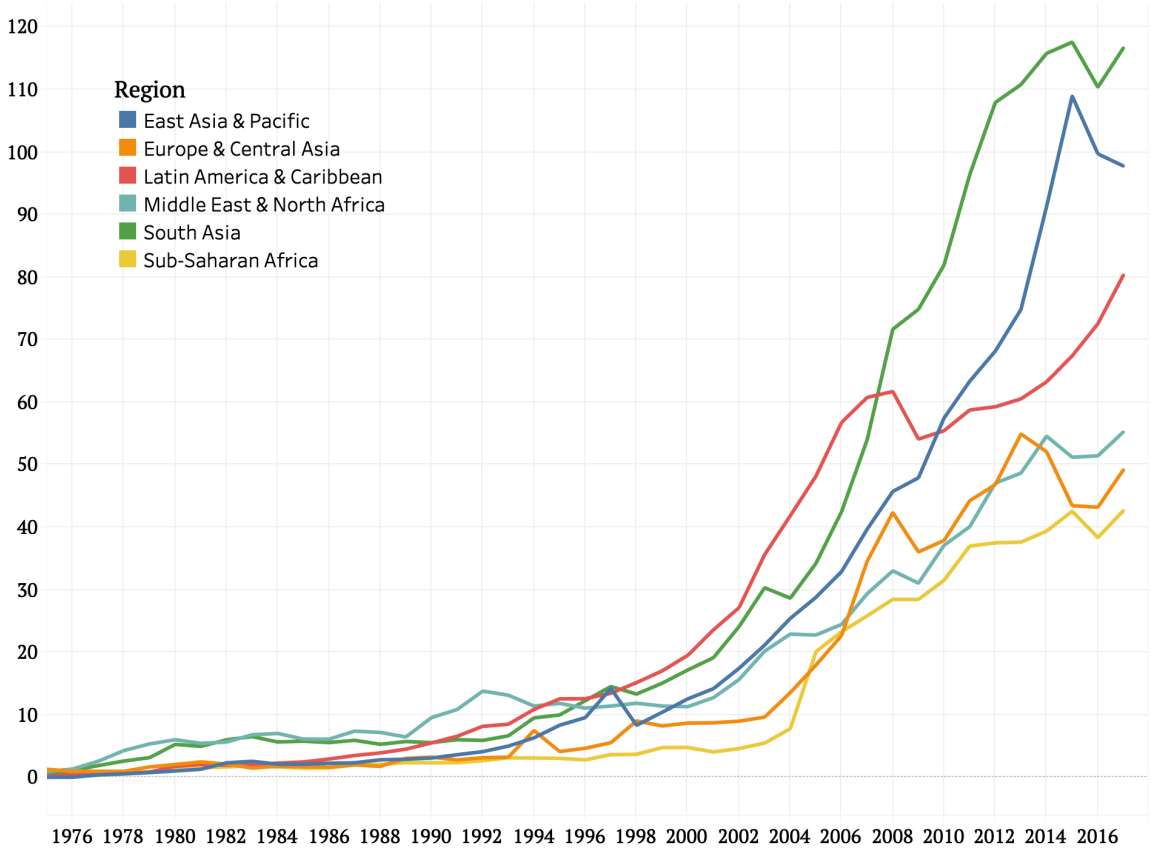



*Source: World Bank Staff Estimates; World Development Indicators*

**Figure 2** (below) shows that remittance inflows to developing countries have significantly increased in the last two decades, with the largest gains being seen in the Asian-Pacific region. Most of the growth in remittance inflows have come

from remittances sent to lower middle-income countries (LMICs), followed by upper middle-income countries (MICs) and low-income countries (LICs) (Inoue, 2018). A caveat to these estimates is that many low-income countries have inadequate tracking systems and have a higher proportion of informal remittances. The implication of these findings is that remittance flows to LICs may be larger than official estimates show. It is also worth noting that remittances can flow not just from high-income countries but also from middle-income countries or other low-income countries.

**Figure 2: Remittance Inflows to Developing Countries by Geographical Region 1975-2017 (Current Billion USD)**




*Source: World Bank staff estimates; World Development Indicators*

The global increase in remittances can be traced to the increasing volume of international migrants. The number of international migrants has grown from 79 million in 1960 to roughly 250 million in 2015 (Pew Research Center, 2016). The sizeable increase in global migration has drawn attention to how labor economic theory can build a model of migratory flows and its implications for remittance flows.

Neoclassical economics views migration as a form of human capital investment (Sjaastad, 1962). This implies a setting in which migrant workers estimate the value of labor markets abroad, evaluate the cost of migration, compare the probability of gaining employment in each labor market, and determine the option that maximizes the net present value of lifetime income (Todaro, 1969; Todaro & Maruszko, 1987). Therefore, migrants are more likely to move from low- income to high- income areas and from high unemployment to low employment areas (Kubursi, 2006). The cost restraints of migrants are the driving force behind where workers decide to migrate. Because very-low-income households cannot afford the costs of international migration, it should not be surprising to see that remittance inflows have increased more for middle-income countries than for low-income countries (Azam *et al.* 2016; Inoue, 2018).

However, low-income countries receive more in remittances when viewed in proportion to a country's GDP. For example: Nepal, Haiti, Tajikistan, the Kyrgyz Republic, and Tonga all had remittance inflows that comprised 28 to 34 percent of their respective GDP in 2017 (World Bank, 2018). The new economics of migration posits that the root cause of migration comes from market failures external to the labor market (Kubursi, 2006). When domestic markets are incomplete, imperfect, or inaccessible, as is typical of developing economies, a household will send a member of the family abroad as insurance against future risks and to increase access to capital (Stark 1991; 1986). This model reevaluates the idea of the individual as the unit of observation and establishes the household as the choice arbiter of migration decisions, where "relative deprivation" is more of an incentive for migration than are labor market conditions (Stark and Taylor, 1989).

Other factors related to increased remittance flows are the relaxation of foreign exchange controls and the increased use of formal channels for those who send or receive remittances. The relaxation of foreign exchange controls in the 1990s may have encouraged the use of remittances for investment. Formal channels came about through the strengthening of financial sector infrastructure in developing economies and the facilitation of international trade on a more global scale (Ratha, 2005).

## Effects of Remittances

Remittance inflows may have indirect growth impacts on receiving countries. While some studies have found no direct effect of workers' remittances on the growth of developing countries, indirect effects may include remittance flows serving as an investment channel in regions with a lack of robust financial sector services (Rao and Hassan, 2011; Gapen *et al.* 2009; Giuliano & Ruiz-Arranz, 2009; Ziesemer, 2012). In fact, a study of 109 developing countries found that

remittance inflows increase the aggregate level of deposits and credit intermediated by local banking sectors. (Aggarwal, 2011). Some studies have found remittances to have consumption smoothing effects in receiving countries, which can improve welfare during fiscal shocks (Beaton *et al.* 2017). The smoothing effect is also more pronounced in countries with a greater reliance on remittances. This suggests that countries with a higher remittance flow-to-GDP ratio would benefit more from remittances as a way to increase consumption during fiscal shocks.

Remittance inflows have been found to influence poverty reduction in developing countries (Adams & Page, 2005; Azam *et al.* 2016, Gupta *et al.* 2009; Imai *et al.* 2014; Inoue, 2018). An average 10 percent increase in per capita remittances may lead to a 3.5 percent decline of the share of people living in poverty in 71 developing countries (Adams & Page, 2005). These findings seem to have stood the test of time, where expanding the sample size to 120 developing countries from 1980 to 2013 indicates that remittance inflows help improve poverty conditions in developing countries (Inoue, 2018).

Remittance flows can also facilitate improvements in health outcomes and increases educational attainment (Azizi, 2018). On average, a 10 percent increase in per capita remittances can lead to a 1.5 percent increase in per capita health expenditures, a 1.7 percent decrease in the infant mortality rate, and a 1.9 percent decline in the under-five mortality rate. The authors found that a 10 percent increase in per capita remittances can lead to a 3.5 percent increase in the pre-primary enrollment rate, a 2.3 percent increase in enrollment of private primary schools and a 0.9 percent increase in secondary school completion rates. This study found that educational attainment effects are also more pronounced for girls. A 10 percent increase in per capita remittances increases male and female secondary completion rates by 0.8 percent and 1.2 percent respectively (Azizi, 2018).

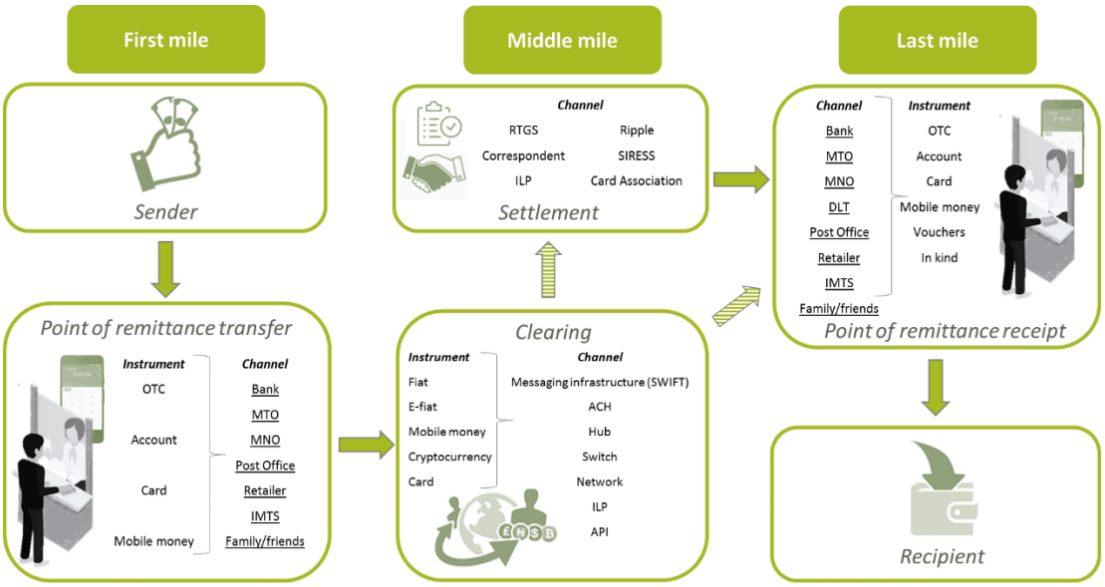
Remittances can also have a large negative impact on both labor supply and demand in low-income recipient countries. On the supply side, remittances reduced labor force participation in low-to-middle income countries and fragile states. While they also reduced overall unemployment, this mostly occurs in lower-wage, lower-productivity non-tradable sectors, while employment in high-wage, high-productivity tradable sectors decreases (Chami *et al.* 2018). This may be due to high skilled migrants seeking work in higher-wage, higher-productivity tradable sector jobs in sending countries. Research has found that a 10 percent increase in the share of migrants in a country's population leads to a 2.1 percent decline in the share of people living on less than a $1.00 per person

on a daily basis (Adams & Page, 2005). While there may be a brain drain occurring because of this phenomenon, the authors suggest that remittances' effect on poverty reduction may have long-term positive effects on labor outcomes in recipient countries.

## Remittance Process, Costs, & Market Structure

The remittance transfer process is summarized into three "miles". The process starts with the point of the remittance transfer in the first mile, the clearing and settlement stages in the middle mile, and the point of the remittance receipt in the last mile. **Figure 3** illustrates the stakeholders and functions in the three miles of the transfer (CENFRI, 2018).

**Figure 3: The first, middle, and last miles of the remittance process**




*Source: CENFRI, 2018; Adapted from Isaacs, et al. 2017*

In the first mile, the person sending the remittance uses a "payment instrument" to send money. These payment instruments include mobile money, credit/debit cards, a traditional banking account, and over the counter (OTC) payments. An OTC payment is a transaction an agent conducts on behalf of the customer. These payment instruments are offered through a remittance service provider (RSP). RSPs can include commercial banks, money transfer operators (MTOs), mobile network operators (MMOs), post offices, and informal money transfer services (IMTS). In this stage, the sending and receiving parties' personal information is collected, with the sender being provided necessary information related to the transfer. These include costs, documentation

requirements, transaction identification details, and collection process information.

The middle mile includes two stages: the clearing stage and the settlement stage. The middle mile comprises the technical processes that an RSP must make in order to initiate the transaction. This stage involves the exchange of value into payout currency, reconciliation, anti-money laundering (AML) and counter-terrorist financing (CFT) checks. These requirements fall under know-your-client (KYC) and Customer Due Diligence (CDD) rules in place by financial governing bodies. The payment is transferred from the first-mile operator to the last mile agent through channels such as the financial messaging platform SWIFT, the United States electronic payment network Automated Clearing House (ACH), payment hubs typically used by banks, payment switches that act as independent entities to channel payments, payment networks, mobile money transfers through Interledger Protocols (ILP), application programming interfaces (API), or Unstructured Supplementary Service Data (USSD) used for sending money via short message services (SMS). Once a payment message is verified, it is redirected to the receiving institution where it is converted from data into usable funds, like fiat currency, mobile money, cryptocurrency, or card.

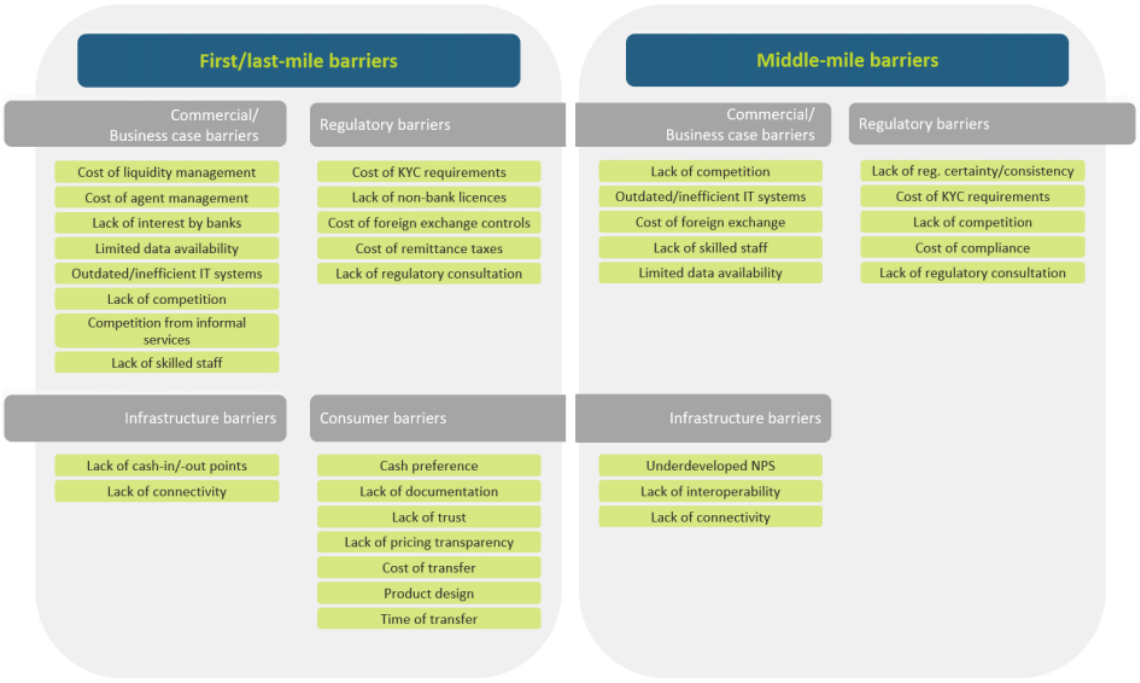
The settlement stage in the middle mile refers to the settlement of the funds between both the sending and receiving entities. These settlement channels include corresponding banking services such as real-time gross settlement systems (RTGS) or SWIFT, ILP, the Southern African Development Community's (SADC) Integrated Regional Electronic Settlement System (SIRESS), credit card associations, or Ripple, an open source protocol used as an RTGS for tokens representing fiat currency or cryptocurrency (CENFRI, 2018).

The recipient gets the funds in the last mile. Funds are usually obtained in the form of cash from an institution such as a bank, MTO or IMTS. In a similar fashion to the payment instrument in the first mile, the remittance recipient receives money in the form of various pay-out instruments, such as cash, card, mobile money, vouchers, or in-kind goods (CENFRI, 2018).

Remittance transaction costs depend on many elements in the three-mile transfer process. These restraints include market forces, regulatory failures, infrastructure barriers, and consumer preferences. Some cost-driving phenomena are exclusive of one stage in the remittance process, where other barriers affect various steps of the process. **Figure 4** (below) outlines these cost-driving barriers at the three miles of the remittance transfer process into three

categories: commercial/business case barriers, regulatory barriers, infrastructure barriers, and consumer-related barriers.

**Figure 4: Drivers of remittance costs and lack of access**




*Source: CENFRI, 2018*

There is a lack of competition for the RSP market on a global level, where MoneyGram, Ria, and Western Union have dominated the global market share. These MTOs also make up more than half of remittance flows to many countries (IFAD, 2009). This is especially true in countries where MTOs have exclusivity contracts that place them into dominant market positions that limit competition (IFAD, 2009). Commercial banks have also engaged in "de-risking" practices, where large commercial banks cut off correspondent relationships with local banks and MTOs. This forces MTOs to partner with institutions that are more expensive and based in less transparent jurisdictions typically faced with larger regulatory burdens (IFC, 2016). This phenomenon occurs in countries considered to pose a high risk of money laundering or terrorist financing (KNOMAD, 2019). In fact, the number of active corresponding relationships has fallen by 15.5 percent from 2011 to the end of 2017 (Financial Stability Board, 2018).

This lack of competition also affects the middle mile. Because banks are usually the only licensed type of firms that offer remittance services in some countries, non-bank RSPs are forced to work with banks that charge higher operational costs (CENFRI, 2018). Clearing channels such as SWIFT often drive these

operational costs because of the extensive chain of requests needed to deliver wiring data from the first to the last mile. Other commercial/business case barriers include agent management, asymmetric data availability between countries, outdated IT systems, and a lack of transparencies with foreign exchange charges leading to expensive margins (CENFRI, 2018).

The regulatory barriers for RSPs include a lack of licensing, costly AML/CFT requirements, lack of regulatory harmonization, and insufficient knowledge of emerging technologies (CENFRI, 2018). Licensing requirements and banking regulations limit the ability of some financial institutions to enter the remittance market. AML/CFT regulations have also been increasingly more stringent, leading to a rise in compliance costs for RSPs. These requirements go hand-in-hand with de-risking, as banks often end correspondent relationships due concerns over whether partner institutions fulfill these requirements. The burdens of these regulatory barriers fall on all three miles of the remittance transfer process.

There are also infrastructure barriers that burden the remittance market in developing countries. A problem exclusive to the first and last mile is the limited cash reticulation infrastructure, where rural remittance consumers often live far from RSP agents to send or receive cash. A lack of stable telecommunication and electricity infrastructure impacts an RSP's ability to deliver timely payments in all three miles of the process. Underdeveloped national payment infrastructures place unnecessary constraints on interoperability between RSP networks in various countries (CENFRI, 2018).

There are also demand-side obstacles that drive remittance costs. Some customers are more likely to use informal channels to send money, which distorts the true size of the market, thus preventing RSPs' ability to better understand the true market dynamics for remittance transfers (CENFRI, 2018). Customers in emerging economies may also be more willing to use cash due to a lack of formal banking infrastructure. Cash transfers involve costly agent networks rather than the usage of digital transactions (Kachingwe, 2019).

Some consumers have a cash preference over digital channels, which can make adoption of new technologies difficult to implement in certain regions. Mobile Money Operators, however, operate differently than traditional MTOs (CENFRI, 2018). Rather than wiring direct transfers from point A to point B, MMOs typically aggregate transfers to net them out against payments going the opposite way (GSMA, 2013). Because of the flexibility of the stored value of

electronic money, they can be held in cards, mobile phones, paper, or remote servers (Firpo, 2009).

Remittance transfer costs have effects on participation in the formal remittance market and the willingness to remit. Decreased costs and cost transparency have implications for remittance transfers. A field experiment found that Salvadorian migrants living in the Washington D.C. area sent $25 more remittances per month from a $1 reduction in fees (Aycinena, Martinez, & Yang, 2010). The study focused on one RSP, and the question remained whether senders choose RSPs with lower costs. A study found that when transfer costs are transparent, the share of consumers who chose the cheapest option increased by 25 percent (The Economist, 2019).

Reducing remittance costs is considered a crucial goal by the international community. In 2015, the United Nations General Assembly created the 2030 Agenda for Sustainable Development, which aims to reach 17 Sustainable Development Goals (SDGs) by 2030. The tenth goal, SDG 10, aims to reduce inequality worldwide. One of the identified efforts to achieve this goal is to reduce average costs to 3 percent globally, which is estimated to save global remittance receiving families an additional $20 billion annually (United Nations, 2016).

## Remittances & Sub-Saharan Africa

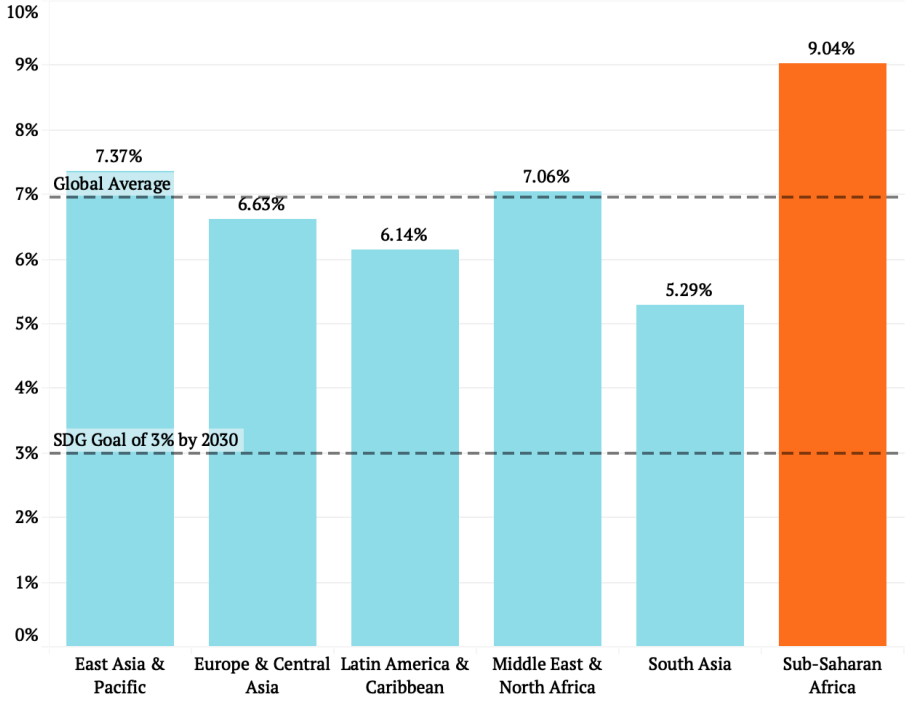
While not exclusive to the region, many of the drivers of cost are prevalent in remittance markets in Sub-Saharan Africa. Where just 40 percent of people living in Sub-Saharan Africa have used formal financial services such as banking, savings, credit, and insurance, a lack of access to formal remittance services goes hand-in-hand with high remittance costs (World Bank, 2015).

Barriers that drive remittance costs and impede access in the first/last miles are the costs of liquidity management, the costs of AML/CFT requirements, and consumers' cash preference (CENFRI, 2018). Other drivers of cost include the high cost of agent management, lack of licensing for non-banking institutions, and the cost of foreign exchange controls. Other impediments to access include de-risking practices by large commercial banks and various infrastructure barriers such as connectivity issues and cash-in/-out points (CENFRI, 2018). Infrastructure deficiency and regulatory inconsistency in middle-mile channels are largely seen as the primary drivers of high costs and lack of access. The unavailability of harmonized payment systems causes inoperability issues between payment instruments and middle-mile channels, ultimately leading to high transfer costs. Some national regulators in the region could not create meaningful reforms to address many of these inconsistencies, and regulators'

uncertainty and unfamiliarity regarding emerging technologies lead to delays in licensing (CENFRI, 2018).

As seen in **Figure 5**, the cost of sending remittances to Sub-Saharan Africa continues to be far higher than to any other region in the world. The average percentage cost to send $200 to Sub-Saharan Africa in 2018 was 9.04 percent. This is higher than the global average of 6.96 percent. Sending $200 to and from a Sub-Saharan African country costs approximately 18 percent in the first quarter of 2018. This is 20 percent higher than the average cost to send money to any other region (World Bank, 2018).

**Figure 5: Percentage cost of sending $200 by destination region in 2018**




*Source: World Bank Staff Estimates; Remittance Prices Worldwide*

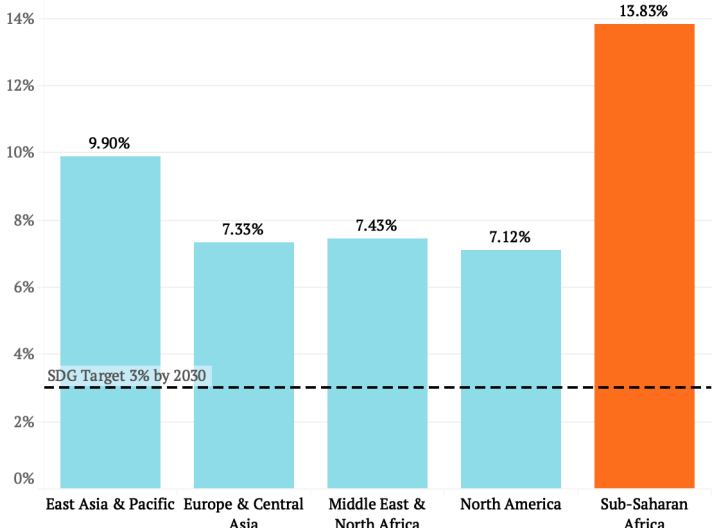
While Sub-Saharan Africa receives a much smaller portion of the total recorded remittances to developing nations, these remittances are found to have a direct poverty-mitigating effect, promote financial development, and increase investment (Gupta *et al.* 2009; Balde, 2011). Remittance flows accomplish these goals by relaxing the budget constraints of recipient households, thus encouraging those people to engage in formal financial services, such as banks and savings/loan companies. A 10 percent increase in remittance flows as a share of GDP leads to a 1.5 percent decline in the headcount poverty ratio in Sub-Saharan countries (Gupda *et al.* 2008), and a 6.57 percent increase in

investment as a share of GDP (Balde, 2011). Investment, in this case, means Gross Fixed Capital Formation. This includes land improvements such as fences, ditches, and drains; plant, machinery and equipment purchases; and construction of roads, railways, hospitals, private residential dwellings, schools, and commercial buildings. Remittances have also been found to be more effective in promoting economic development than traditional foreign aid, due to being directly received by individuals and not being distributed by bureaucratic government intermediaries (Balde, 2011).

The countries with the largest inflows of remittances in Sub-Saharan Africa are Nigeria, Ghana, Senegal, and Kenya. These are also among the top origin countries for Sub-Saharan migrants living in the United States and Europe (Pew Research Center, 2018). Nigeria has dominated the share of remittances sent to Sub-Saharan African countries, accounting for 54 percent of the total volume of remittances sent to the region.

Remittance inflows to Sub-Saharan Africa not only come from outside the region but also come from within the region. In 2017, 68 percent of the international Sub-Saharan African diaspora lived inside the region itself (Pew Research Center, 2018). The substantial amount of intra-regional migration highlights the need for regional reform. **Figure 6** shows the percentage cost to send $200 to Sub-Saharan Africa by the sending region in the fourth quarter of 2018. Intra-regional corridors, a corridor being the channel of funds from one country to another, are associated with exceptionally higher costs when compared with other sending regions.

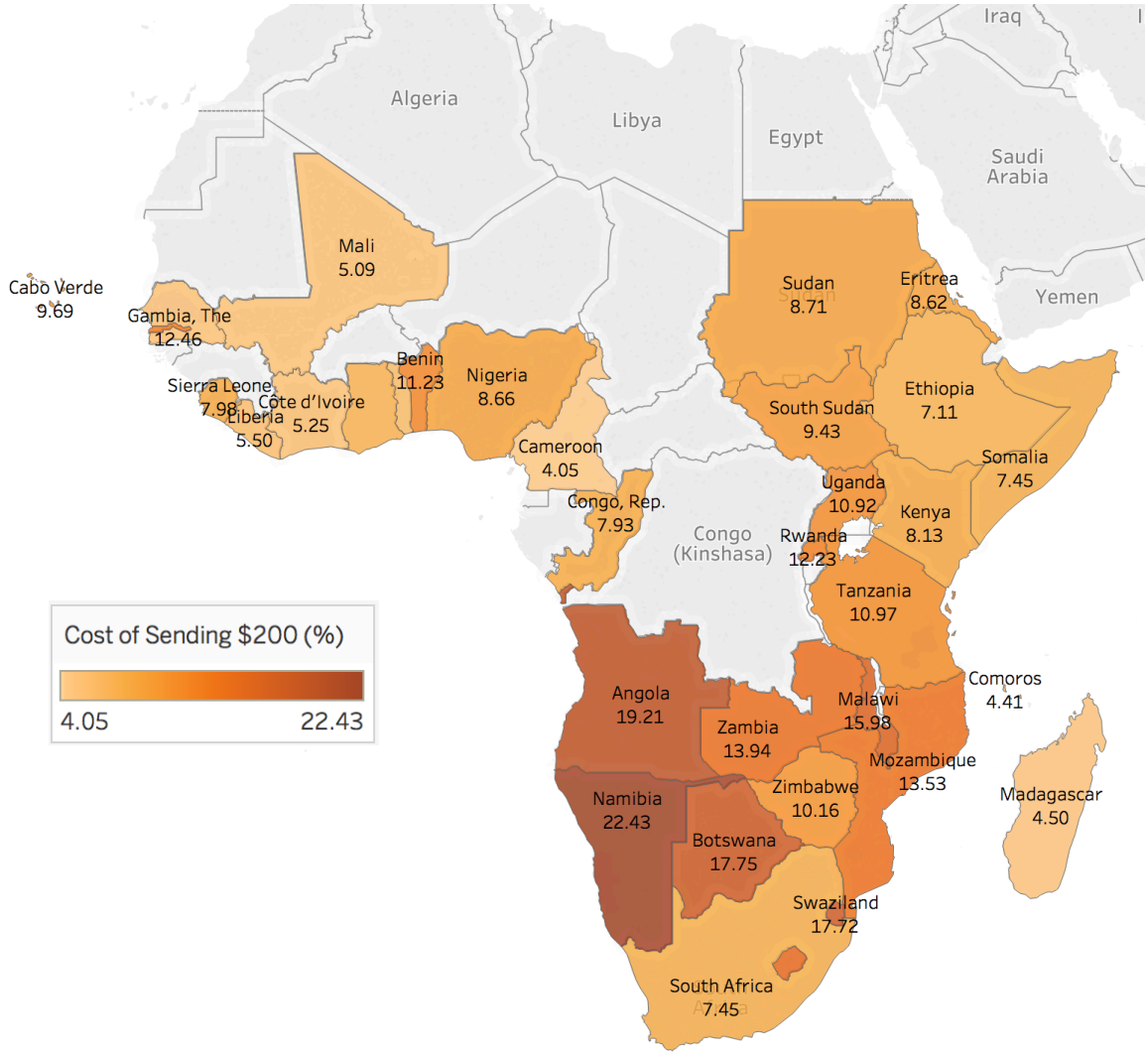
**Figure 6: Percentage cost of sending $200 to Sub-Saharan Africa by sending region in 2018**




*Source: World Bank staff estimates; Remittance Prices Worldwide*

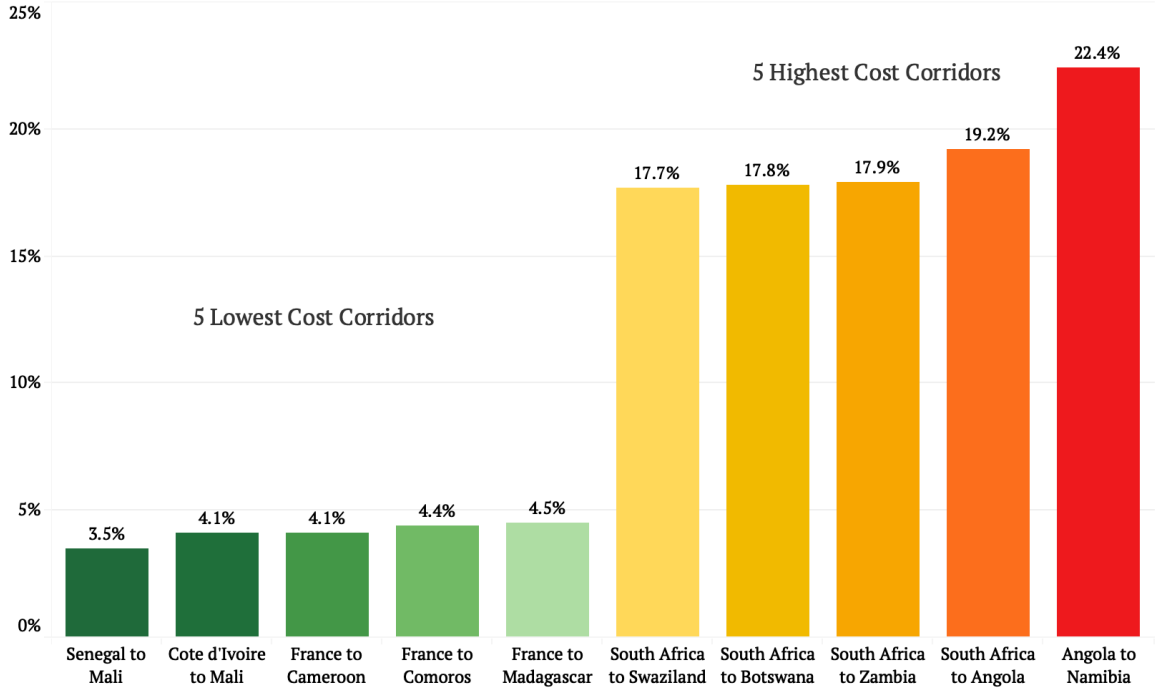
The most expensive corridors in Sub-Saharan Africa are concentrated in Southern Africa. **Figure 7** maps the percentage cost to send $200 to Sub-Saharan African countries (Data is not available for a few Central and West African countries). Namibia, Angola, Botswana, Swaziland, and Malawi are the highest destination countries in the region, all with transfer costs higher than 15 percent. **Figure 8** (next page) graphs the remittance corridors associated with the highest and lowest costs to Sub-Saharan Africa. South Africa is a very frequent high-cost sending country, and the highest cost corridor in the region is Angola to Namibia.

**Figure 7: Percentage cost of sending $200 to Sub-Saharan Africa in the fourth quarter of 2018 by destination country**




*Source: World Bank staff estimates; Remittance Prices Worldwide*

**Figure 8: Five Most and Least Expensive Remittance Corridors in Sub-Saharan Africa (Percentage cost in the fourth quarter of 2018)**



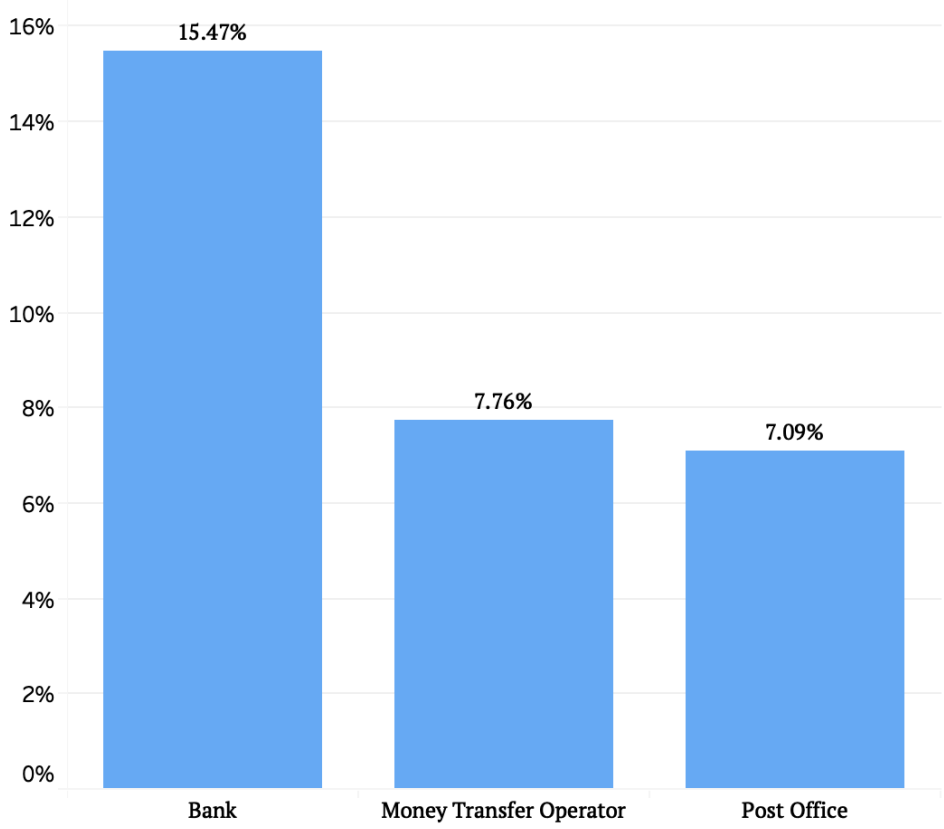

*Source: World Bank staff estimates; Remittance Prices Worldwide*

Remittance costs are high in Southern Africa for a few reasons. Survey data shows that informal remittance providers have ties to both sending and receiving communities, meaning that these informal RSPs have a higher level of recognition and trust relative to that of formal providers (FinMark Trust, 2016). These informal channels include informal operators using taxis, buses, and trucks; sending cash in envelopes through post-offices; and friend/family connections. The wide use of informal channels is not exclusive to Southern Africa and is not a recent phenomenon. In 2005, the volume of informal remittances to Sub-Saharan Africa were estimated to make up 45-65 percent of total remittance flows, compared to about 5-20 percent in Latin America (Freund and Spatafora, 2005).

A large share of formal international remittances to Africa is channeled through a few larger RSPs, which sometimes work in exclusive partnerships with African banks, MTOs, and post offices (Mohapatra & Ratha, 2011). Another cause of the high costs for Southern African corridors are limitations associated with the existing Southern African Development Community (SADC) Integrated Regional Electronic Settlement System (SIRESS). SIRESS has yet to reach scale because it had to rely on a few correspondent banking relationships with firms that tend to be expensive and slow. (Kachingwe & Nicoli, 2019).

**Figure 9** shows the cost of sending $200 to Sub-Saharan Africa by RSP type in the final quarter of 2018. Commercial banks are the most expensive type of RSP, followed by MTOs and post offices.

**Figure 9: Percentage cost of sending $200 to Sub-Saharan Africa by RSP type in the fourth quarter of 2018**



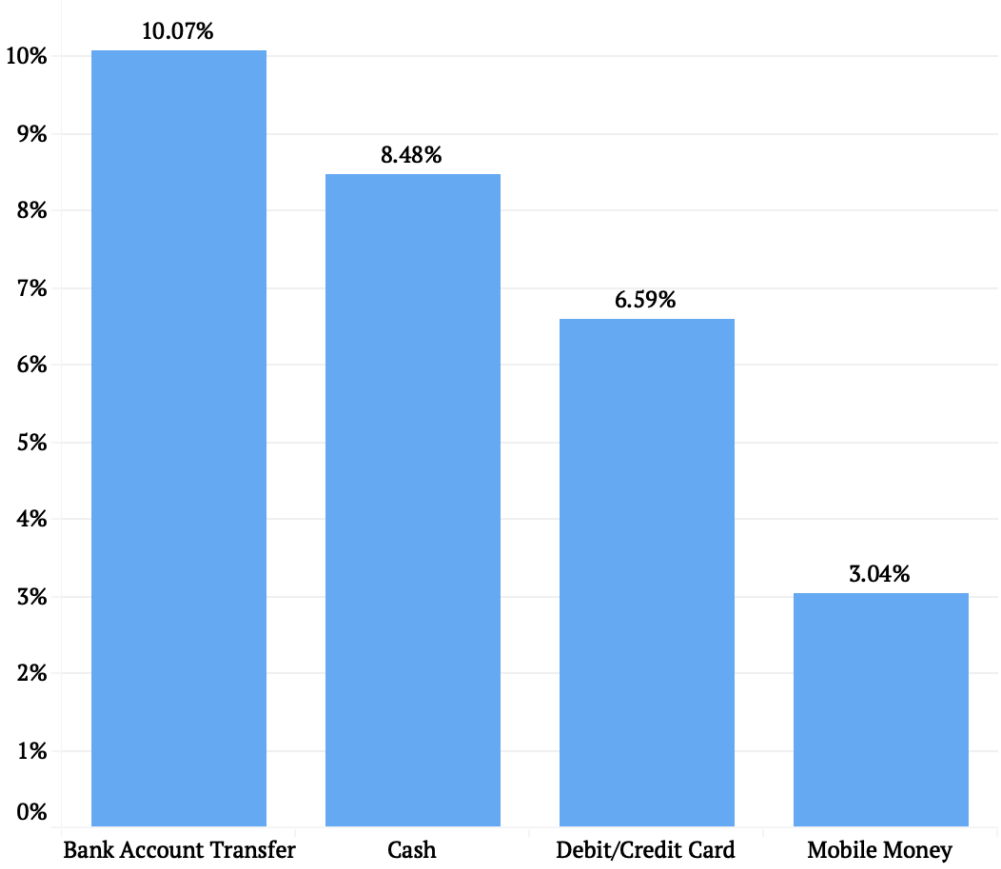

*Source: World Bank staff estimates; Remittance Prices Worldwide*

Transfer costs vary depending on the payment instrument used to make the transaction. Mobile money transfers are associated with lower costs in Sub-Saharan Africa, as shown in **Figure 10** (next page), when compared to bank account transfers, cash, and debit/credit cards. The small number of firms handling remittance transfers, along with the high cost of banking services relative to income levels in Sub-Saharan African countries, is a driver of high costs (Mohapatra & Ratha, 2011).

Innovations in mobile payment systems increase financial inclusion in receiving countries. For example, Safaricom, Kenya's leading mobile operator, introduced M-Pesa in 2007. M-Pesa allows users to send and withdraw funds electronically through SMS texting on mobile devices. Findings suggest that M-Pesa users take part in more remittance activities than nonusers (Jack and Suri, 2013, Mbiti and

Weil 2011). In fact, using a mobile financial service in Kenya increased the likelihood of receiving and sending remittances by 37.4 and 34.3 percent, respectively (Jack and Suri, 2013). M-Pesa usage is associated with decreases in costs of MTOs such as Western Union (Mbiti and Weil, 2011).

**Figure 10: Percentage cost of sending $200 to Sub-Saharan Africa by payment instrument in the fourth quarter of 2018**

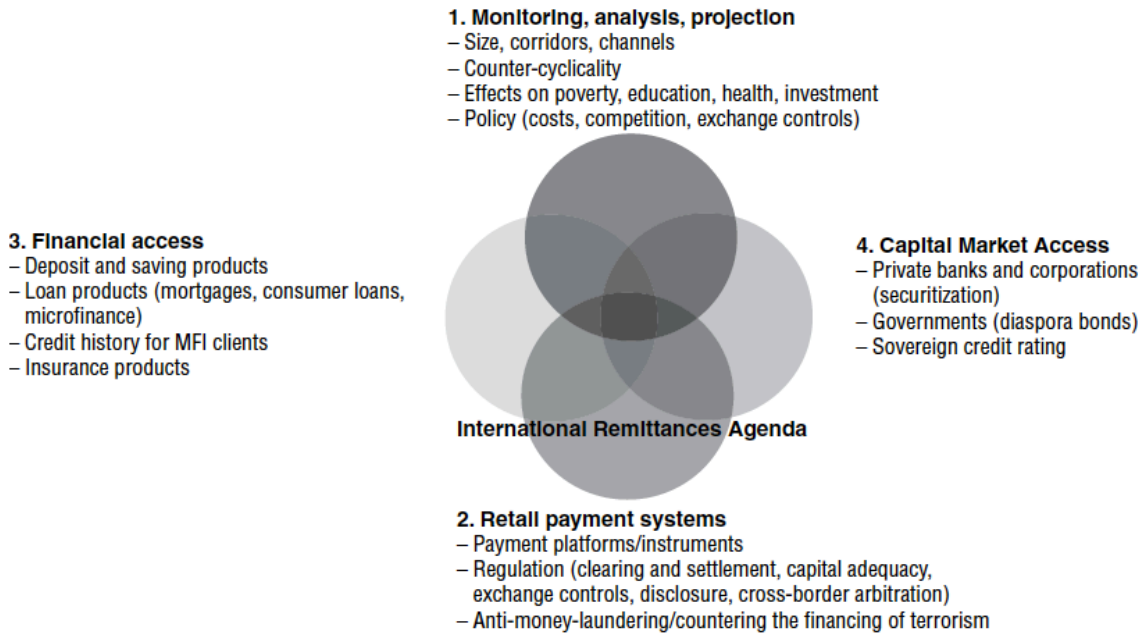



*Source: World Bank staff estimates; Remittance Prices Worldwide*

## Policy Alternatives

Policies must be aimed at addressing the multiple causes of high remittance costs. Figure 11 illustrates the International Remittances Agenda, which characterizes the four broad areas that must be addressed with regards to remittance policy (Ratha, 2006). First, **monitoring, analysis, and projection** focus on furthering understanding and knowledge of remittance flows, impacts on poverty and other welfare characteristics, and analysis of policy factors affecting remittance costs. Second, changes in **Retail Payment Systems** include new payment platforms and/or instruments, and regulations improving access of RSPs to reform the settlement of payment systems and compliance with AML/CFT. **Financial access** plays a role by having financial intermediaries assist with remittance services and develop services to increase saving and investment in communities across Sub-Saharan Africa. Research suggests that developing countries should leverage either domestic or external financial sources for their poverty reduction strategies by reducing the transaction costs of remittances (Inoue, 2018). Finally, remittances can be leveraged for **Capital Market Access** of financial institutions and countries. Remittance flows improve the creditworthiness of countries and sub-sovereign entities (Ratha, 2006). Estimates show that funds raised through bond financing by using future remittances as collateral can be targeted to specific development projects.

**Figure 11: The International Remittances Agenda**



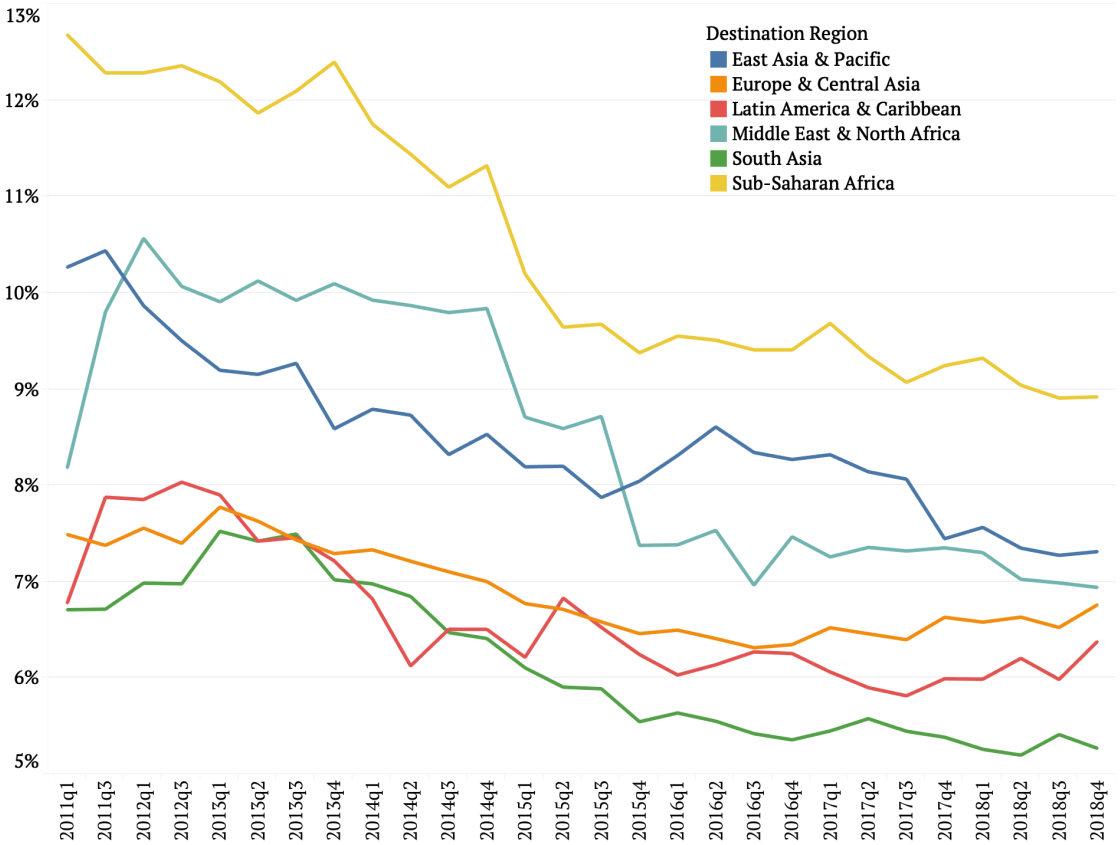

*Source: Ratha, 2006*

## Option 1: Allow present trends to continue

***Improving trends in economic conditions of the region will continue to reduce remittance costs.***

**Figure 12** shows that costs to send remittances to Sub-Saharan Africa have been on the decline. The cost to send $200 to Sub-Saharan Africa in 2017 was 9.8 percent in the first quarter of 2017, whereas the cost in 2018 was 9.4 percent. Decreasing costs over time is likely because of increased use of formal channels, increased financial inclusion, and a continuous decrease in extreme poverty. These non-RSP market-related developments are expected to continue to improve in the future. In the absence of market reforms, ongoing economic development in key areas can pave the way for a more defined consumer base for existing RSPs.

**Figure 12: Average percentage cost to send $200 by region**




*Source: World Bank Staff estimates; Remittance Prices Worldwide*

## Option 2: Expand mobile payment services

***Reforms would apply to payment services in Sub-Saharan Africa, which would expand the mobile money market and enlarge payment networks.***

Remittance costs vary depending on the type of payment. Back account transfers are associated with the highest remittance costs (KNOMAD, 2018). Sending $200 to a Sub-Saharan African country in the fourth quarter of 2018 using a bank account was associated with an average cost of 10 percent. Cash transfers amounted to a cost of approximately 8.5 percent. Costs for debit/credit card transfers amounted to about 6.7 percent. Mobile money transfers had significantly low costs amounting to almost 3 percent.

This policy option aims at expanding payment services to include mobile money as a targeted approach to reduce remittance costs. The following interventions can be implemented to address this:

- **Connect mobile money providers directly with other RSPs**
- **Enhance national payment system infrastructures' compatibility with new mobile money technologies**
- **Expand telecommunication services for greater mobile access**

Some players in the region have already taken steps to form partnerships to enable participation in remittance transactions through mobile money payments. In 2015, South African mobile telecommunications companies MTN Group and Vodafone Group entered a partnership for a commitment to promote mobile remittance transfers between people in South Africa, Kenya, and Tanzania, and MTN Mobile Money customers in Rwanda (Vodafone, 2015).

Public sector institutions and private mobile money providers can also collaborate to form similar partnerships. Member states of the West African Economic and Monetary Union (WAEMU) facilitated intra-group implementation for mobile money remittance transfers with Orange Money, a mobile money service provider in Western Africa. This established mobile money remittance corridors to and from Cote d'Ivoire, Senegal, Mali, and France (GSMA, 2015). In 2018, the Central Bank of Kenya (CBK) approved steps to license mobile money operators to become interoperable with other payment systems under the National Payment System (CBK, 2018). Expanding telecommunication services can promote the use of these technologies for people living in rural regions with a lack of access to formal financial institutions and broadband networks. The convenient nature of mobile money accounts would also promote increased accessibility, leading to a decrease in the use of informal channels.

## Option 3: Prioritize the creation of a more competitive RSP market

### *Break up exclusivity partnerships between RSPs and expand services offered by existing institutions*

Western Union and MoneyGram control almost two-thirds of the remittance market in Africa (IFAD, 2009). These two companies also have exclusive contracts with post-offices and other MTOs, which restricts the ability for these local firms to work with other RSPs. Additionally, commercial banks partake in de-risking practices, which forces MTOs to partner with other banks associated with higher costs. Banks used to send money to Sub-Saharan Africa have been found to have average transfer costs of more than 10 percent in 2018. MTOs and post-offices have lower costs at 7.7 and 6.6 percent, respectively (World Bank, 2018).

A 2005 World Bank study found that remittance services should be recognized as a self-standing industry separate from banking services, and that a lack of competition of firms offering these services result in high transfer costs (Ratha & Riedberg, 2005). Access to remittance services in rural and remote areas can be improved by encouraging participation of microfinance institutions, credit unions and saving banks in the remittance market, and increased financial inclusion can lead to ease of remittance flows (Ratha, 2006). This policy alternative achieves the following:

- **Ban exclusivity contracts between MTOs and financial firms**
- **Expand services offered by post offices, microfinance institutions, credit unions, and saving banks through licensing reform**

Countries in Sub-Saharan Africa have taken steps to enact these kinds of reforms in the past decade. In 2006, the National Bank of Ethiopia issued a directive aimed at RSPs to arrange non-exclusive conditions when making future agreements (National Bank of Ethiopia, 2006). Some of these regulations have extended to intra-regional monetary unions. In 2008, Senegal's Minister for Economy and Finance announced that exclusivity clauses were against existing competition law (Ministry of Economy, Finance and Planning, 2008). Following market reforms in Senegal, all members of the WAEMU adopted the policy of banning exclusivity clauses (Moré, 2015). These countries include Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo. Other countries in Western Africa have taken steps to forbid these agreements, such as Nigeria and Ghana (Moré, 2015; KNOMAD, 2018). In June 2011, Gambia's Competition and Consumer Protection Commission declared that exclusivity clauses be barred in both existing and future contracts (Competition and Consumer Protection Commission, 2011). Other countries in the region that

have banned exclusivity clauses include Rwanda and South Africa (Moré, 2015; Kachingwe, 2019).

In outlawing exclusivity contracts between large MTOs and local firms, RSPs would be allowed to partner with local institutions and firms such as post offices, microfinance institutions, credit unions, and saving banks. Licensing reform must ensure that these various agencies can to enter the RSP market under the same regulatory framework provided for existing RSPs. Expanding services to these new players can provide more access points for people in some regions, particularly for people who rely on informal channels to send cross-border remittances.

# Evaluative Criteria

To test the efficacy of each policy option, each alternative is weighed using equivalent criteria. This APP aims at using a data-driven approach to estimating future trends in percentage cost reductions and annual remittance inflows. These forecasts are used to conduct a benefit-cost analysis that estimates the net present value of benefits for each policy option. While a lack of reliable data creates certain limitations to establish causal inference, this analysis serves as a framework for future evaluative study. For a further discussion on limitations, please refer to **Appendix F**.

## Estimated Average Remittance Cost in 2030

In the fourth quarter of 2018, the average cost to send $200 to Sub-Saharan Africa was 9.04 percent (World Bank, 2018). The average annual decrease in this percentage cost from 2011 to 2018 is approximately 0.4 percent. This criterion is estimated through working assumptions on annual trends of cost reduction depending on the policy option using a linear mixed effects model. The value of interest is the **forecasted average percentage cost to send $200 to Sub-Saharan Africa in 2030**. The justification for the 2030 estimate is the UN's Sustainable Development Goal (SDG) that aims to reduce average remittance costs to below 3 percent by 2030.

## Net Present Value

The benefit-cost analysis (BCA) is a widely used systematic approach to evaluate the net benefits of a policy alternative in monetary terms, adjusted using the time value of money to derive the net present value (NPV). A BCA quantifies the present value of the costs of a policy option, and the present value of its benefits. Ideally, the recommended policy will have a higher present value of benefits when compared to the present value of costs associated with that policy option. Because of the broad nature of this project, the net present value reflects the marginal social benefit of increased inflows to Sub-Saharan African receivers and the marginal consumer surplus gained from the annual marginal reduction in transfer costs. There is no explicit cost valuation in this analysis due to the population of interest being remittance participating households in Sub-Saharan Africa. The **net present value of benefits** is the criterion of interest. This analysis examines the eleven-year trend, with 2019 being the base year and 2030 being the final year. A sensitivity analysis examines the uncertainty of these estimates.

### Access

A South African think tank, Centre for Financial Regulation and Inclusion, identified the most problematic aspects of the remittance market that impede access for consumers in the first and last miles of the remittance process (CENFRI, 2018). This criterion weighs the likelihood of a policy addressing these major impediments to access. These 8 barriers include: 1) cost of liquidity management, 2) lack of interest by banks, 3) lack of cash-in/-out points, 4) lack of connectivity, 5) cost of KYC requirements, 6) cash preference, 7) lack of documentation, 8) lack of trust. The criterion ranks the options in order from **Low**, **Moderate**, and **High**, according to the level at which the policy addresses this issue.

### Security

Security refers to: 1) the ability for people to make safe and secure remittance transfers with a low risk of fraud or theft; and 2) decreased risk of remittance flows falling into malicious groups engaging in illegal activities through both formal and/or informal channels. Anti-money laundering and counter-terrorist financing security checks play a large part in the remittance transfer process. Commercial banks take a part in "de-risking" practices by not allowing remittance transfers to particular regions for fears of financing terrorism. This is particularly a problem in Sub-Saharan Africa, where terrorism is a threat in certain parts of the region. To address the high and regressive cost of sending remittances, a policy priority should be to develop transparent compliance guidelines on anti-money-laundering and antiterrorism financing (Ratha, 2006). This criterion weighs the likelihood of a policy addressing the security of payments through existing and expanded remittance channels. The options are ranked in order from **Low**, **Moderate**, and **High**, according to the level at which the policy addresses this issue.

## Policy Analysis

This section briefly summarizes the methodologies used to estimate the quantitative criteria to evaluate policy options. The outcomes for all three policy options based on the criteria are then presented for assessment for the final recommendation. For a further discussion on the data analysis, refer to **Appendix B**.

A simple OLS regression model [Equation (1) in **Appendix B**] is used to estimate the cost elasticity of remittances to Sub-Saharan Africa. A cost elasticity refers to the measure of responsiveness of the willingness to remit due to a change in the transfer cost. The cost elasticity in this case measures the ratio of the proportionate change in remittance inflows to Sub-Saharan Africa to the proportionate change of the transfer cost. This value forecasts future remittance inflows to Sub-Saharan Africa based on the expected average decrease in transfer costs for each policy option.

A linear mixed effects model [Equation (2) in **Appendix B**] estimates the annual average decrease in remittance costs based on three sub-samples of Sub-Saharan African countries (**Table A1** in **Appendix A**), with each sub-sample representing each policy option. The annual cost trend from 2011 to 2018 for each sub-sample is applied to each policy option to forecast the average transfer cost for every year from 2019 to 2030. All regression results are presented in **Table C1** in **Appendix C**.

## Key Analysis Rates and Values

The regression results presented in **Table C1** in **Appendix C** provide key assumptions for the assessment of quantitative criteria. **Table 1** displays the resulting values used for forecasting estimations and estimating the present value of benefits.

**Table 1: Key Analysis Rates and Values**

| *Rate and Value Name* | *Numerical Value* | *Source/Justification* |
|---|---|---|
| **Discount Rate** | 10% | Zhuang *et al.*, 2007 |
| **Cost elasticity of remittances to Sub-Saharan Africa** | - 0.219 | Equation (1), **Appendix B** |
| **Annual average change of transfer costs: Let Present Trends Continue** | - 0.384% | Equation (2), **Appendix B**, using sub-sample from column 1 of **Table A1** in **Appendix A** |
| **Annual average change of transfer costs: Mobile Money Expansion** | - 0.580% | Equation (2), **Appendix B**, using sub-sample from column 2 of **Table A1** in **Appendix A** |
| **Annual average change of transfer costs: Competitive Market Reform** | - 0.567% | Equation (2), **Appendix B**, using sub-sample from column 3 of **Table A1** in **Appendix A** |

The discount rate of 10 percent is the most commonly used discount rate used to determine the present value of future cash flows for African Development Bank projects (Zhuang *et al.*, 2007). A 1 percent proportionate reduction in remittance transfer costs is estimated to increase remittance inflows by a proportionate 20.85 percent, on average. Estimated annual changes in transfer costs are also displayed above and are explored further in subsequent sub-sections.

## Benefit-Cost Analysis

The benefit-cost analysis results are presented in **Table 2**. The cost elasticity of remittances and cost trends for each policy option forecasts future remittance inflows into Sub-Saharan Africa. The annual marginal increase in remittance inflows, compounded over eleven years, reflects the marginal social benefit of increased inflows to Sub-Saharan African receivers. The annual value of the marginal decrease in transfer costs, compounded over eleven years, reflects the marginal consumer surplus gained from the annual marginal reduction in transfer costs. Given the availability of data and the broad scope of the analysis, this is the best possible estimate of the net benefits for each policy change. The combination of the two benefit categories for each respective policy results in the corresponding net present value of each policy. For a further discussion on benefit-cost analysis methodology, refer to **Appendix D.**

**Table 2: Benefit Cost Analysis (11-year analysis from 2019 to 2030)**

| | ***Let Present Trends Continue*** | ***Mobile Money Expansion*** | ***Market Reform*** |
|---|---|---|---|
| *Marginal increases in remittance inflows* | $25.08 billion | $25.15 billion | $25.14 billion |
| *Marginal Consumer Surplus in reduction of costs* | $20.45 billion | $29.55 billion | $28.94 billion |
| ***Net Present Value*** | **$45.53 billion** | **$54.69 billion** | **$54.08 billion** |

Note: For a further discussion on methodology for this BCA analysis, please refer to Appendix D

## Option 1: Allow Present Trends to Continue

### *Estimated Average Remittance Cost in 2030*

The estimated average annual decrease in the cost to send $200 in remittances to Sub-Saharan Africa from 2011 to 2018 is **0.384 percent**. If trends were to continue with no significant government reform, the average cost is expected to reach **4.43 percent in 2030**, falling just short of the SDG goal of 3 percent by 2030.

### *Net Present Value*

The net present value reflects the present value of the annual increase in remittance inflows and the consumer surplus gained from marginal decreases in transfer costs from 2019 to 2030. The present value of marginal increases in remittance inflows from 2011 to 2030 for this policy option is **$25.08 billion**. The present value of consumer surplus for this policy option is **$20.45 billion**. This results in a total net present value of **$45.53 billion**. An important note to add is that this policy will require capital costs to expand telecommunication services and enhance national payment systems. However, the population of interest for the BCA are remittance consumers in Sub-Saharan Africa, and not institutions engaging in capital investment. Therefore, there is no explicit cost valuation for this analysis.

### *Access*

Continuing to allow present trends without significant reform will likely not address any of the identified high-level barriers to access for the first and last miles of the remittance process (CENFRI, 2018). **Table E1** in **Appendix E** shows the relative level at which this policy option addresses access. Consumers' preference for cash transfers, particularly in Southern Africa due to a lack of trust in other RSPs, complicate liquidity management. This restricts the reliability of the last-mile delivery of funds. This is further complicated by exclusive partnerships between certain MTOs and financial institutions, as some RSPs aren't able to invest in their own liquidity management systems. This leads to a reliance on expensive banks and MTOs. There is also a lack of infrastructure to support national payment systems for reliable rural electricity provision and cash reticulation (Nalane, *et al.* 2012; IFAD, 2009; Isaacs, *et al.,* 2017). Present trends also do not address the costly KYC and AML/CFT requirements, which complicates licensing for RSPs, excludes consumers because of documentation requirements, and speeds up the rate of de-risking practices by commercial banks (CENFRI, 2018). The likelihood of this policy option addressing the issue of access is **low.**

### *Security*

Letting present trends continue is unlikely to address security issues related to the remittance market. De-risking practices by commercial banks continue to be an issue, as the number of active corresponding relationships has fallen by 15.5 percent from 2011 to the end of 2017 (Financial Stability Board, 2018). MTOs are then forced to partner with costly local banks in less transparent jurisdictions typically faced with larger regulatory burdens (IFC, 2016). This policy will also not address the reliance on informal channels. This is especially an issue in Southern Africa, where a majority of remittances are sent through informal means, including some alarmingly unsafe channels such as taxis, buses, and enveloped cash (Finmark, 2016). The prevalence of informal remittance networks also introduces a risk of funding flows to malicious groups that engage in illegal activities. The likelihood of this policy option addressing the issue of security is **low.**

## Option 2: Expand Mobile Payment Services

### *Estimated Average Remittance Cost in 2030*

The estimated average annual decrease of the cost to send $200 in remittances to Sub-Saharan African countries with existing mobile money channels from 2011 to 2018 is **0.58 percent**. If this rate of change was applied to the entire region, then the average percentage cost to send $200 is expected to reach **2.28 percent in 2030**. This meets the SDG goal of 3 percent by 2030.

### *Net Present Value*

The present value of marginal increases in remittance inflows from 2011 to 2030 for this policy option is **$25.15 billion**. The present value of consumer surplus gained from marginal decreases in transfer costs for this policy option is **$29.55 billion**. This results in a total net present value of **$54.69 billion**.

### *Access*

Expanding mobile payment services is the most likely option to address high-level access barriers. **Table E1** in **Appendix E** shows the relative level at which this policy option addresses access. Expanding mobile services has the potential to shift consumers' cash preferences to the usage of mobile networks, where documentation issues are not likely to be an issue due to the convenient nature of mobile devices. Increased connectivity from telecommunication expansion into rural areas will address connectivity issues that erode trust in the formal remittance sector. KYC and AML/CFT regulatory requirements are costly in that MTOs are forced to partner with local banking institutions associated with high costs because of de-risking practices of global banks. Because mobile money

transfers are associated with much lower costs relative to other types of RSPs, KYC requirements are less likely to become an access issue for consumers.

What the mobile money expansion doesn't address are the high costs of liquidity management, lack of interest by global commercial banks, and the lack of cash-in/-out points. While expanding mobile services for remittances has the potential to reach out to a new rural consumer base, there still may be consumers unwilling or unable to abandon their preference for cash transfers. The lack of cash-in/-out points is unlikely to change from this proposed policy option. This policy option also doesn't directly address the lack of interest of global banking institutions, which continue to cut off partnerships with firms in the region through the practice of de-risking. However, because this policy option addresses the problems related to connectivity, consumer entry and administrative barriers, the likelihood of this policy option addressing the issue of access is **high.**

*Security*

The accessibility of expanding mobile money payment services is likely to improve the security and reliability of remittance transfers. Mobile money services store records of transactions and account balances in servers located in remote locations, and funds are transferred into mobile devices quickly and reliably, without the use of external agents. A drawback of these expanded mobile payment services is the potential ease of funding access for groups or entities that engage in illegal or malicious activities. In 2008, the United States Bureau of International Narcotics and Law Enforcement Affairs published a report stating that mobile payment services are a growing threat for funding drug trafficking and terrorism (U.S. Department of State, 2008). Regulatory reform of AML/CFT requirements will have to be considered for purposes of implementation for the expansion of mobile payment services. However, the potential for expanded reliable access where more people can have the opportunity to send and receive remittances through secure mobile networks shows that the likelihood of this policy option addressing the issue of security is **moderate.**

## Option 3: Prioritize creation of a more competitive RSP market

### *Estimated Average Remittance Cost in 2030*

The estimated average annual decrease of the cost to send $200 from 2011 to 2018 to Sub-Saharan African countries that have enacted market reforms is **-0.567 percent**. If this rate of change was applied to the entire region, then the average percentage cost to send $200 is expected to reach **2.419 percent in 2030**. This meets the SDG goal of 3 percent by 2030.

### *Net Present Value*

The present value of marginal increases in remittance inflows from 2011 to 2030 for this policy option is **$25.14 billion**. The present value of consumer surplus due to marginal decreases in transfer costs for this policy option is **$28.94 billion**. This results in a total net present value of **$54.08 billion.**

### *Access*

Creating a more competitive RSP market has a few relatively strong attributes with regards to access. **Table E1** in **Appendix E** shows the relative level at which this policy option addresses access. Breaking up exclusivity contracts and expanding licenses to other financial institutions such as post offices, microfinance institutions, credit unions, and saving banks has the potential to expand participation in the remittance market. This would also likely increase the number of cash-in/-out points for consumers unwilling/unable to shift their preferences away from cash transfers. The increased number of firms participating in the RSP market may also promote an enhanced cash transfer network, potentially decreasing the cost burdens of liquidity management. The likelihood of this policy option addressing the issue of access is **moderate.**

### *Security*

Banning exclusivity clauses and allowing licensing of other financial firms has the potential to increase the use of cash-in/-out points for consumers who prefer to use cash as the primary transfer instrument for remittances by allowing more firms to gain formal licensing. This comes with the limitation that consumers who have more trust in informal channels, as seen in many high-cost Southern African corridors, may still be inclined to use informal channels to send money (Finmark 2016). A potential tradeoff to increasing market competition in the RSP market is the lack of brand recognition for existing RSPs. Regardless, expanding the market to introduce more firms without reforming payment systems will likely not change people's preference for cash and traditional bank account payments. These payment instruments are still at risk of fraud or theft. The likelihood of this policy option addressing the issue of security is **moderate.**

# Recommendation and Next Steps

## Outcomes Matrix and Recommendation

Based on the projected outcomes outlined in **Table 3**, I recommend **Option 2**. Governments in the Sub-Saharan African region must focus on collaborative efforts to expand mobile money payment services to more intra-African corridors by connecting domestic and international mobile money providers with other existing RSPs, enhancing national payment system infrastructures' compatibility with mobile money technology, and expanding telecommunication services for greater mobile access. If this proposal were to be implemented in 2019, the average cost to send $200 to Sub-Saharan Africa in 2030 is expected to reach **2.276 percent**, meeting the SDG goal of 3 percent. The net present value of this option amounts to **$54.69 billion**, and the ranking of these policy options is unaffected by uncertainty in cost trend estimates (**Appendix D: Table D3**). This proposal is also more likely to **expand accessibility** to vulnerable and rural populations, and promote relatively **more secure and reliable payments**.

**Table 3: Outcomes Matrix**

| | ***Let Present Trends Continue*** | ***Mobile Money Expansion*** | ***Market Reform*** |
|---|---|---|---|
| *Estimated percentage cost in 2030* | 4.43% | **2.28%** | 2.42% |
| *Net Present Value* | $45.53 billion | **$54.69 billion** | $54.08 billion |
| *Access* | Low | **High** | Moderate |
| *Security* | Low | **Moderate** | Moderate |

## Next Steps

The specific implementation of mobile money expansion depends on the political context of individual countries. This section will provide general guidance on what policymakers should keep in mind when implementing this kind of policy and upcoming challenges and opportunities developing in the region.

There are opportunities to expand mobile services to more people in Sub-Saharan Africa. In 2017, three-quarters of the population had a SIM connection, and mobile broadband was available to two-thirds of the population (GSMA, 2017). Strategic funding of telecommunication towers placed in rural regions will be a crucial part in expanding access to mobile broadband services for rural populations.

Effective partnership strategy will play an important role in ensuring the success of mobile money initiatives. For example, in 2010, M-Pesa was launched in South Africa through a partnership with South African mobile communications company Vodacom and South African bank, Nedbank. The ineffectiveness of this initiative was because of Nedbank's consumer base of mostly high-income earners (BBC, 2016). To prevent this, policymakers should prioritize partnerships that have focused efforts to expand financial access to low-income and rural communities.

Policy makers should also introduce interoperability of mobile money services into existing national payment systems in order to standardize intra-RSP networks, promoting a more harmonized arrangement of different payment systems associated with different RSPs. What must go hand-in-hand with interoperability is a transition to a risk-based approach to AML/CFT compliance and enforcement procedures. This approach would allow countries to evaluate which channels or regions have a higher risk of money laundering or terrorist financing, and would require financial institutions to take enhanced measures to mitigate risks where they are high, and to approach simplified measures where risks are lower (FATF, 2013).

Africa will soon undergo substantial economic changes. The African Continental Free Trade Area (AfCFTA) is expected to be ratified by 49 out of 55 African Union countries and will aim to remove tariffs and promote freedom of movement in the region (African Union, 2019). This agreement may facilitate the opportunity for further collaborative efforts in the region to leverage remittances to increase financial development, promote growth, improve food security, and eradicate extreme poverty in Sub-Saharan Africa.

# Appendix A: List of Sample Countries

**Table A1: Sub-samples used to estimate cost trends for policy options**

| | *Let Present Trends Continue* | *Mobile Money Expansion* | *Market Reform* |
|---|---|---|---|
| *Angola* | ✓ | | |
| *Benin* | ✓ | | ✓ |
| *Botswana* | ✓ | | |
| *Cabo Verde* | ✓ | | |
| *Cameroon* | ✓ | | |
| *Comoros* | ✓ | | |
| *Congo, Rep.* | ✓ | | |
| *Côte d'Ivoire* | ✓ | ✓ | ✓ |
| *Eritrea* | ✓ | | |
| *Ethiopia* | ✓ | | ✓ |
| *The Gambia* | ✓ | | ✓ |
| *Ghana* | ✓ | | ✓ |
| *Kenya* | ✓ | ✓ | |
| *Lesotho* | ✓ | | |
| *Liberia* | ✓ | | |
| *Madagascar* | ✓ | | |
| *Malawi* | ✓ | | |
| *Mali* | ✓ | | ✓ |
| *Mozambique* | ✓ | | |
| *Namibia* | ✓ | | |
| *Nigeria* | ✓ | | ✓ |
| *Rwanda* | ✓ | ✓ | |
| *Senegal* | ✓ | ✓ | ✓ |
| *Sierra Leone* | ✓ | | |
| *Somalia* | ✓ | | |
| *South Africa* | ✓ | ✓ | ✓ |
| *South Sudan* | ✓ | | |
| *Sudan* | ✓ | | |
| *Swaziland* | ✓ | | |
| *Tanzania* | ✓ | ✓ | |
| *Togo* | ✓ | | ✓ |
| *Uganda* | ✓ | | |
| *Zambia* | ✓ | | |
| *Zimbabwe* | ✓ | | |

# Appendix B: Regression Methodology

## Data Sources

The primary data source for this analysis is the *Remittance Prices Worldwide* dataset. This data project is funded by the World Bank Payment Systems Development group as part of the Finance Competitiveness and Innovation Global Practice. This dataset covers 356 remittance corridors, including 48 sending countries and 105 receiving countries. Key variables included for the analysis are: the percentage cost to send $200, destination/source country, destination/source region, destination/source income group, payment instrument, and firm type. Information for these variables, except for payment instrument, are included on a quarterly basis from the first quarter of 2011 to the fourth quarter of 2018.

World Bank staff estimates of annual remittances data is based on data from the International Monetary Fund's Balance of Payments Statistics database. This data includes annual remittance inflows to countries from 1980 to 2018 in current US dollars.

## Estimating the cost elasticity of remittances to Sub-Saharan Africa.

To predict the cost elasticity of remittance flows, the following simple linear regression specification is estimated:

$$(1) \qquad \ln(y_{it}) = \beta \ln(X_{it}) + \mu_i + \varepsilon_t + T$$

The outcome $y_{it}$ represents the average annual remittance inflow for Sub-Saharan destination country $i$ in year $t$ (2011-2018). The log transformation is interpreted as the annual percentage increase of remittance inflows for country $i$. Independent variable $X_{it}$ represents the cost to send $200 to destination country $i$ in year $t$. The independent variable undergoes a log transformation to reflect the percentage change in the average cost to send $200. The coefficient $\beta$ is the cost elasticity of remittances to Sub-Saharan Africa. $\mu_i$ and $\varepsilon_t$ represent the unobserved characteristics of destination countries and years, respectively. $T$ represents a vector of other fixed effects for source countries and the income levels of the source countries. The value of $\beta$ represents the average effect of a percentage point increase in the cost to send $200 to a Sub-Saharan country on the annual change in remittance inflows, in percentage terms. This estimation is crucial when forecasting remittance inflows based on a policy option's forecasted trend in transfer costs.

## Cost Trend Estimation

A linear mixed effects model is used to estimate the trends in cost reduction. The data structure of *Remittance Prices Worldwide*, where the first level unit of observation in this multi-level model is a remittance corridor, nested in clusters of countries. The mixed effects model accounts for remittance corridors being correlated with one another due to corridors being nested within a destination and source country. This model is specified below:

$$(2) \qquad X_{ict} = \gamma Z_{ict} + U_i + W_c + \varepsilon_t + T$$

$X_{ict}$ is the average percentage cost to send $200 to Sub-Saharan country *i*, through corridor *c*, in year *t*. The independent variable $Z_{ict}$ represents years from 2011 to 2018. $U_i$ is the country-specific random effects, measuring the difference between the average cost in country *i* and the average cost in Sub-Saharan Africa. $W_c$ is the corridor specific random effects, measuring the deviation between the average cost in corridor *c* from the average in country *c*. $\varepsilon_t$ represents year fixed effects, or the unobserved characteristics of years 2011-2018. $T$ represents a vector of other fixed effects for source countries and the income levels of the source countries.

Three different sub-samples are used to estimate the cost trends for the three policy options, as shown in **Table A1** in **Appendix A.** Equation (2) for each of these three sub-samples determines which policy option will yield a larger magnitude of cost reduction. The annual change in remittance costs for Option 1, letting present trends continue, is estimated by including all Sub-Saharan African countries included in the remittance prices worldwide dataset. For option 2, mobile money expansion, the countries that are part of corridors where mobile money is used as a payment instrument were included as a distinct sub-sample. This sub-sample includes Côte d'Ivoire, Kenya, Rwanda, Senegal, South Africa, and Tanzania. For option 3, competitive market reform, the Sub-Saharan African countries that have enacted similar market reforms are included as a sub-sample. This is found through a political history review of these kind of policies being passed in the region (Moré, 2015; KNOMAD, 2018). Countries that have enacted policies to ban exclusivity contracts include Benin, Côte d'Ivoire, Ethiopia, The Gambia, Ghana, Mali, Nigeria, Senegal, South Africa, and Togo. Regression results are presented in **Table C1** in **Appendix C.**

## Appendix C: Regression Results

**Table C1** (next page) presents the results of the regression specifications explained in **Appendix B**. The coefficients of interest are all statistically significant at the 95 percent confidence level. All estimates use year fixed effects (FE), source country fixed effects, destination country fixed effects, and source country income level fixed effects. These fixed effects account for the time-invariance, unobservable characteristics unique to each year/source country/destination country/source income level. Standard errors are clustered at the country level. The coefficients of interest are used in the primary analysis to weigh each policy option based on equivalent evaluative criteria, as presented in **Table 1**.

The first column of **Table C1** presents the results of regression (1) of **Appendix B**. The dependent variable is represented by *ln(Remittances)*, which indicates the natural log transformation of remittance inflows. The log transformation is used to convert the variable in terms of percentage change. The same is done to the variable *% cost*, which represents the percentage cost to send $200. The log transformation represents the percentage change of this variable. Therefore, the coefficient on *% cost* represents the cost elasticity of remittances, or the ratio of the proportionate change in remittance inflows to Sub-Saharan Africa to the proportionate change of the transfer cost. This coefficient is statistically significant at the 95 percent level, indicating a 95 percent chance that the true parameter of the coefficient estimate is not zero.

Columns 2-4 of **Table C1** present the results of linear mixed effects regression (2) of **Appendix B.** This regression is run through three distinct sub-samples, each representing the three policy options as outlined in **Table A1** of **Appendix A**. The dependent variable of is *% cost*, and the independent variable of interest is *Year*. The coefficient on this variable represents the average change in remittance costs after an increase of one year. The first level unit of observation in this multi-level model is a remittance corridor, nested in countries, the second level. All three coefficients are statistically significant at the 95 percent level. These coefficients, along with the estimated cost elasticity of remittances, are used to forecast future flows of remittances and the average percentage cost to send $200 to Sub-Saharan Africa 2030, in order to conduct a benefit-cost Analysis to approximate the net present benefits of each policy option. The standard errors for these coefficients are utilized in a sensitivity analysis, as shown on **Table D3** in **Appendix D**. The outcomes for each policy option are outlined in **Table 3**. For a further discussion of the benefit-cost analysis, refer to **Appendix D**.

**Table C1: Regression Results**

| | Cost elasticity of Remittances | Cost trends: Let Present Trends Continue | Cost Trends: Mobile Money Expansion | Cost Trends: Competitive Market Reform |
|---|---|---|---|---|
| | (1) *ln(Remittances)* | (2) *% Cost* | (3) *% Cost* | (4) *% Cost* |
| *ln(% cost)* | -0.219** (0.073) | - | - | - |
| *Year* | | -0.384*** (0.063) | -0.580*** (0.107) | -0.567*** (0.083) |
| *Year FE* | Yes | Yes | Yes | Yes |
| *Source Country FE* | Yes | Yes | Yes | Yes |
| *Destination Country FE* | Yes | Yes | Yes | Yes |
| *Source Income Level FE* | Yes | Yes | Yes | Yes |
| *Constant* | 4.021*** (19.62) | 783.5*** (148.854) | 1176.253*** (148.854) | 1155*** (140.3) |
| Level 2, Random Intercept (log.) | - | -12.32 | -14.26*** | -2.273 |
| Level 2, random constant (log.) | - | -0.65 | -0.825* | -2.275 |
| Level 1, error (log.) | - | 1.746*** | 1.749*** | 1.688*** |
| Observations | 15,173 | 16,420 | 4,459 | 7,489 |
| R-Squared | 0.38 | | | |

** p < 0.10, ** p < 0.05, *** p < 0.01*
*Clustered standard errors in parentheses*

# Appendix D: Benefit-Cost Analysis

A benefit-cost analysis (BCA) is a widely used systematic approach to evaluate the prospective strengths and weaknesses for policy changes, by valuating the benefits and costs each alternative could generate over a period of time. These values are then adjusted using the time value of money to estimate the net present value.

More often than not, policy options that use a benefit-cost analysis involve explicit capital, administrative, and financial costs associated with a policy alternative. The issue of remittances is unique in that remittance inflows typically transfer within members of the same household. Because the population of interest of this analysis are people receiving/sending remittances to and from Sub-Saharan Africa, this analysis does not include an explicit cost valuation. Instead, the net benefits are estimated through the aggregation of two benefit categories, as shown in **Table D1**. Future flows are forecasted by the cost elasticity of remittances multiplied with the percentage change in remittance costs, based on predicted cost trends for each policy option. The marginal increase in remittance flows is then calculated by subtracting the predicted inflows to Sub-Saharan Africa at year *t*, and the inflows from the year prior. Total remittance inflows to Sub-Saharan Africa are forecasted to amount to $714 billion, which serves as the baseline measure for valuating forecasts (KNOMAD, 2019). The marginal surplus to consumers gained from a reduction of transfer costs is calculated by the difference in transfer costs between two years, multiplied by the volume of remittance inflows in the former year.

**Table D1: Benefits Specification**

| *Benefit Category* | *Specification* |
|---|---|
| **Marginal Increase in remittance flows** | $\text{Remittances}_{t} - \text{Remittances}_{t-1}$ |
| **Marginal surplus in reduction of cost rates** | $\text{Remittances}_{t-1} \times (\text{Cost}_{t-1} - \text{Cost}_{t})$ |

The net present value of each of these benefits is calculated using the NPV formula, $PV = \frac{C_t}{(1+r)^n}$. $C_1$ represents a benefit category for a specified year *t*. The discount rate is represented by *r*, which is 10 percent in this analysis. *n* refers to the number of periods, where 2019 represents the base period of 0, the year 2020 represents the period of 1, and so on. The sums of each category's present value

are aggregated to yield the total net present value of each policy option. This is outlined in **Table D2**.

**Table D2: Benefit Cost Analysis (11-year analysis from 2019 to 2030)**

| | ***Let Present Trends Continue*** | ***Mobile Money Expansion*** | ***Market Reform*** |
|---|---|---|---|
| *Marginal increases in remittance inflows* | $25.08 billion | $25.15 billion | $25.14 billion |
| *Marginal Consumer Surplus in reduction of costs* | $20.45 billion | $29.55 billion | $28.94 billion |
| ***Net Present Value*** | **$45.53 billion** | **$54.69 billion** | **$54.08 billion** |

A sensitivity analysis examines the uncertainty of estimates. The standard errors for key coefficients from regression results in **Table C1** construct a 66 percent confidence interval, representing the "best" and "worst" case scenarios for each policy alternative. The standard error of each cost trend estimation is added to the parameter estimate in order to represent the "best" case scenario and subtracted to represent the "worst" case scenario. **Table D3** displays the results of this analysis.

**Table D3: Sensitivity Analysis**

| | ***"Worst" case*** | ***Primary estimates*** | ***"Best" case*** |
|---|---|---|---|
| *Let Present Trends continue* | $42.16 billion | $45.54 billion | $48.91 billion |
| *Mobile Money Expansion* | **$ 49.25 billion** | **$54.69 billion** | **$60.15 billion** |
| *Market Reform* | $49.77 billion | $54.08 billion | $58.41 billion |

# Appendix E: Access Analysis Results

**Table E1: Results of access analysis for each policy option**

| | *Access barrier* | ***Let Present Trends Continue*** | ***Mobile Money Expansion*** | ***Market Reform*** |
|---|---|---|---|---|
| **Commercial/business case barriers** | *Cost of liquidity management* | Low | Moderate | **High** |
| | *Lack of interest by banks* | Low | Moderate | **High** |
| **Infrastructure barriers** | *Lack of cash-in/-out points* | Low | Moderate | **High** |
| | *Lack of connectivity* | Low | **High** | Moderate |
| **Regulatory barriers** | *Cost of KYC requirements* | Low | **High** | Moderate |
| **Consumer barriers** | *Cash preference* | Low | **High** | Moderate |
| | *Lack of documentation* | Low | **High** | Moderate |
| | *Lack of trust* | Low | **High** | Moderate |

*Source: Adapted from CENFRI, 2018*

## Appendix F: Limitations

This report attempts to use a data-driven approach to explore policy options related to lowering remittance costs. There are limitations to the analysis because of data restrictions, lack of testing of assumptions, limited ability to conduct explicit cost valuation, and naïve forecasting methods. This section explores limitations in the analysis.

*Remittance Prices Worldwide* is a comprehensive dataset that contains invaluable data on the costs of sending money through hundreds of corridors worldwide. However, this data comes with limitations. The dataset includes just 48 remittance sending countries, and the incomplete information on the sending side of remittances can bias conclusions drawn from analyses such as the one used in this report. The dataset also doesn't include the estimated number of migrants sending money through each corridor or the total amount of money typically sent through each corridor. This kind of information can better explain the discrepancy in costs for certain corridors and remittance service providers.

The analytical portion of this report does not contain assumption tests for the linear mixed effects model. In a linear mixed effects model, the independent variables are related linearly to the dependent variable and the errors have constant variance, vary independently from one another, and are normally distributed. Along with the better data collection for remittance corridors, similar analyses will have to take these assumptions into consideration.

Because of the broad scope of this project, the benefit-cost analysis does not include explicit cost valuation of capital costs needed for a few aspects of the policy alternatives. While expanding telecommunication services will be necessary to expand mobile payment services across the region, countries have the independent authority and jurisdiction to implement this aspect of the policy as they see fit.

The naïve forecasting methods in this report assume that the rates of change in costs and remittance inflows will continue to do so in the future. This is a very strong assumption that may not hold, especially because of potentially significant changes in the region. The African Continental Free Trade Agreement, political changes, economic development, and increasingly devastating climate-related disasters all have the potential to have significant impacts migratory flows and remittances.

## References

Adams, R.H. & Page, J. (2005). Do International Migration and Remittances Reduce Poverty in Developing Countries? *World Development*. *33*(10) 1645-1669. doi:10.1016/j.worlddev.2005.05.004.

African Union. (2019). *CFTA – Continental Free Trade Area*. Retrieved from https://au.int/en/ti/cfta/about. Addis Ababa, Ethiopia: African Union.

Aggarwal, R., Demirgüç-Kunt, A., & Peria, M.S.M. (2011). Do remittances promote financial development? *Journal of Development Economics. 96 (2) 255-264.* doi: 10.1016/j.jdeveco.2010.10.005

Amajd, R., Irfan, M., & Arif, G.M. (2013). *How to Increase Formal Flows of Remittances.* London, UK: international Growth Centre

Aycinena, D., Martinez, C. & Yang, D. (2010). The Impact of Transaction Fees on Migration Remittances: Evidence from a Field Experiment among Migrants from El Salvador. *University of Michigan.*

Azam, M. Haseeb, M., & Samsudin, S. (2016). The impact of foreign remittances on poverty alleviation: Global evidence. *Economics and Sociology*,9(1), 264-281.

Azizi, Seyed S. (2018). The impacts of workers' remittances on human capital and labor supply in developing countries. *Economic Modelling.* 75, 377-396. doi: 10.1016/j.econmod.2018.07.011

Balde, Y. (2011). The Impact of Remittances and Foreign Aid on Savings/Investment in Sub-Saharan Africa. *African Development Review*. 23 (2) 247-262.

Beaton, K., Cerovic, S., Galdamez, M., Hadzi-Vaskov, M., Loyola, F., Koczan, Z., Lissovolik, B., Martijn, J.K., Ustyugova, Y. & Wong, J. (2017). *Migration and Remittances in Latin America and the Caribbean: Engines of Growth and Macroeconomic Stabilizers?* Washington, DC: International Monetary Fund.

Beaton, K., Cevik, S., Yousefi, S.R. (2017). *Smooth Operator: Remittances and Fiscal Shocks*. Washington, DC: International Monetary Fund.

Budiman, A. & Connor, P. (2019, April 3). Immigrants sent a record amount of money home to sub-Saharan African countries in 2017. Retrieved from https://www.pewresearch.org/fact-tank/2019/04/03/immigrants-sent-a-record-amount-of-money-home-to-sub-saharan-african-countries-in-2017/

Bureau of International Narcotics and Law Enforcement Affairs (2008, March). *Mobile Payments – A Growing Threat*. Retrieved from https://www.state.gov/j/inl/rls/nrcrpt/2008/vol2/html/101346.htm. Washington, D.C.: U.S. Department of State

CENFRI. (2018). *Market barriers to remittances in sub-Saharan Africa (SSA).* Tygervalley, South Africa: Centre for Financial Regulation and Inclusion.

Central Bank of Kenya (CBK). (2018, April 10). *Mobile Money Interoperability.* [Press Release]. Retrieved from https://www.centralbank.go.ke/uploads/press_releases/1648360391_Press%20Release%20-%20Mobile%20Money%20Interoperability.pdf

Chami, R., Ernst, E., Fullenkamp, & C., Oeking, A. (2018). *Are Remittanes Good for Labor Markets in LICs, MICs, and Fragile States? Evidence from Cross-Country Data.* Washington, DC: International Monetary Fund.

Clemens, M.A., McKenzie, D. (2014). *Why Don't Remittances Appear to Affect Growth?* Washington, DC: Center for Global Development.

Competition and Consumer Protection Commission. (2011, June). *Investigation Report to Competition Commission on Exclusive Contracts in the Money Transfer Services in Gambia.* Banjul, Gambia: CCPC

Connor, P. (2016, December 15). International migration Key findings from the U.S., Europe and the world. *Pew Research Center.* Retrieved from https://www.pewresearch.org/fact-tank/2016/12/15/international-migration-key-findings-from-the-u-s-europe-and-the-world/

Connor, P. (2017, February 28). International migration from sub-Saharan Africa has grown dramatically since 2010. *Pew Research Center.* Retrieved from https://www.pewresearch.org/fact-tank/2018/02/28/international-migration-from-sub-saharan-africa-has-grown-dramatically-since-2010/

Demirguc-Kunt, A., Klapper, L., Singer, D., & Oudheusden, Peter V. (2015). *The Global Findex Database 2015.* Retrieved from

https://www.worldbank.org/content/dam/Worldbank/Research/GlobalFindex/PDF/N2Unbanked.pdf. Washington, D.C.: The World Banks

Federal Reserve Bank of Dallas. (2006). *Migration, Trade, and Development.* Dallas, Texas: Proceedings of the 2006 Conference on Migration, Trade and Development.

Financial Action Task Force. (2013). *FATF Guidance: Anti-Money Laundering and Terrorist Financing Measures and Financial Inclusion.* Retrieved from http://www.fatf-gafi.org/media/fatf/documents/reports/AML_CFT_Measures_and_Financial_Inclusion_2013.pdf. Paris, France: FATF

Financial Stability Board. (2018). *FSB Correspondent Banking Data Report.* Basel, Switzerland: FSB

Finmark Trust. (2016). *Remittances from South Africa to SADC.* Retrieved from https://www.finmark.org.za/wp-content/uploads/2016/07/remittances-from-south-africa-to-sadc.pdf. Johannesburg, South Africa: Finmark Trust

Firpo, J. (2009). *E-Money – Mobile Money – Mobile Banking – What's the Difference?* Washington, DC: The World Bank

Freund, C. & Spatafora, N. (2005). *World Bank Policy Research*. doi:10.1596/1813-9450-3704.

Gapen, M.T., Chami, R., Montiel, P.J., Barajas, A., & Fullenkamp, C. (2009). Do Workers' Remittances Promote Economic Growth? Working paper No. 9-153. Wahsington D.C.: International Monetary Fund

Gibson, J. McKenzie, D., & Rohorua, H. (2006). How Cost-Elastic Are Remittances? Estimates from Tongan Migrants in New Zealand" *Pacific Economic Bulletin.* 21(1).

Giuliano, P. & Ruiz-Arranz, M. (2009). Remittances, financial development, and growth. *Journal of Development Economics. 90 (1) 144-152.*

Global Knowledge Partnership on Migration and Development. (2018). *Migration and Development Brief 30.* Washington, DC: The World Bank.

Global Migration Group. (2015). *Harnessing Migration, Remittances and Diaspora Contributions for Financing Sustainable Development.* New York, USA: World Bank.

Global System for Mobile Communications Association. (2013). *White Paper: Mobile Money Transfer. International Remittance Considerations for Mobile Network Operators.* London, UK: GSMA

Global System for Mobile Communications Association. (2017). *The Mobile Economy: Sub-Saharan Africa.* Retrieved from https://www.gsmaintelligence.com/research/?file=7bf3592e6d750144e58d9dcdcf6adfab&download. London, UK: GSMA

Gupta, S., Pattillo, C.A. & Wagh, S. (2009). *World Development. 37* (1) 104-115. doi:10.1016/j.worlddev.2008.05.007.

Inoue, Takeshi. (2018). Financial Development, remittances, and poverty reduction: Empirical evidence from a macroeconomic viewpoint. *Journal of Economics & Business*. *96* 59-68. doi:10.1016/j.jeconbus.2017.12.001.

Imai. K.S., Gaiha, R., Ali, A. & Kaicker, N. (2014). Remittances, growth and poverty: New evidence from Asian countries. *Journal of Policy Modeling*. 36(3) 524-538.

International Finance Corporation. (2016). *Mitigating the Effects of De-Risking in Emerging Markets to Preserve Remittance Flows.* Washington, DC: IFC.

International Fund for Agriculture and Development. (2009). *Sending Money Home to Africa: Remittance Markets, Enabling Environment and Prospects."* Rome: IFAD

International Monetary Fund (IMF). (2003). *External Debt Statistics: Guide for Complier and Users – Appendix III, Glossary*. Washington, DC: IMF

International Monetary Fund (IMF). (2005). *World economic outlook april 2005: Globalization and external imbalances.* Washington D.C.: IMF

Isaacs, L. (2017). *Remittances in ACP Countries: Key Challenges and Ways Forward.* International Organization for Migration. Brussels, Belgium: International Organization for Migration

Jack, W., Suri, T. (2011). Mobile Money: The Economics of M-Pesa. *NBER Working Paper Series*.

Kachingwe, N. & Nicoli, M. (2019). *What's holding back digital disruption in remittance in Southern Africa?* Washington D.C.: The World Bank

Kubursi, A. (2006). The Economics of Migration and Remittances Under Globalization. *Full and Productive Employment and Decent Work – Dialogues at the Economics and Social Council.* New York, pp. 159-174.

Lartey, E.K.K. (2013). Remittances, investment and growth in sub-Saharan Africa. *The Journal of International Trade & Economic Development*. 22 (7). doi:10.1080/09638199.2011.632692.

Maimbo, S., & Ratha, D. (2005). *Remittances: Development impact and future prospects*. Washington, DC: World Bank.

Mbele, Lerato. (2016, May 11). Why M-Pesa failed in South Africa. Retrieved from https://www.bbc.com/news/world-africa-36260348.

Mbiti, I, Weil, D. (2011). Mobile banking: the impact of M-Pesa in Kenya. *NBER Working Paper No. w17129*.

Ministry of Economy, Finance, and Planning. (2008, March). *Contrats d'exclusivite relatifs aux transferts rapides d'argent*. [Press release]

Mohapatra, S., & Ratha, D. (2011). *Remittance Markets in Africa*. Washington, DC: The World Bank.

Moré, Iñigo. (2015). *Fighting exclusivity clauses in the market for remittances*. Retrieved from http://www.remesas.org/files/exclusivityWP9.pdf. Madrid, Spain: remesas.org

Mughal, M.Y. (2013) Remittances as Development Strategy: Stepping Stones or Slippery Slope? *Journal of International Development*. *25*, 583-595. doi:10.1002/jid.2891.

Nalane, L.J., Chikanda, A. & Crush, J. (2012). *The remittances framework in Lesotho: Assessment of policies and programmes promoting the multiplier effect*. Brussels, Belgium: ACP

National Bank of Ethiopia. Directive No. FXD/30/2006. (2006, June).

Ratha, D. & Riedberg, J. (2005). On Reducing Remittance Costs. Washington, DC: World Bank.

Ratha, D., Mohapatra, S., Silwal, A. (2010). Outlook for Remittance Flows 2010-11. Migration and development brief, No. 12. Washington, DC: World Bank.

Rao, B.B. & Hassan, G.M. (2011). Are the Direct and indirect Growth Effects of Remittances Significant?. *The World Economy. 35 (3) 351-372*. doi: 10.111/j.1467-9701.2011.01399.x

Scharwatt, C. & Williamson, C. (2015). *Mobile money crosses borders: New remittance models in West Africa*. London, UK: GSMA

Singh, R.J., Haacker, M., Lee, K. & Goff, M.K. (2010). Determinants and Macroeconomic Impact of remittances in Sub-Saharan Africa. *Journal of African Economics. 20* (2) 312-340. doi: 10.1093/jae/ejq039.

Sjaastad, L. (1962). The Costs and Returns of Human Migration. *Journal of Political Economy.* 70S:80-89.

Stark, O. (1991). The Migration of Labor. Cambridge: Basil Blackwell

Stark, O. & Taylor, J.E. (1989). Relative Deprivation and International Migration. *Journal of Population Economics.* 1: 57-70.

Stark, O., Taylor, J. & Yitzhaki, S. (1986). Remittances and Inequality. *The Economic Journal.* 96: 722-740

Suri, T., Jack, W. (2016). The Long-Run Poverty and Gender Impacts of Mobile Money. *Science.* 354 (317) 1288-1292. doi: 10.1126/science.aah5309.

The Economist. (2019). *Special FX.* London, UK: The Economist

The World Bank. (2006). *Global Economic Prospects.* Washington DC: The World Bank.

The World Bank. (2018). Migration and Remittances Data. [Data File]. Retrieved from

http://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data

The World Bank. (2018). Remittance Prices Worldwide. [Data File]. Retrieved from remittanceprices.worldbank.org

Todaro, M. (1969). A Model of Labor Migration and Urban Unemployment in Less-developed Countries. *The American Economic Review.* 59:138-148.

Todaro, M. & Maruszko, L. (1987). Illegal Migration and US Immigration Reform: A Conceptual Framework. *Population and Development Review.* 13:101-114.

United Nations. (2018). *The Sustainable Development Goals Report.* Retrieved from https://unstats.un.org/sdgs/files/report/2018/TheSustainableDevelopmentGoalsReport2018-EN.pdf. New York, NY: UN

Vodafone. (2015, 21 April). *Vodafone M-Pesa and MTN Mobile Money agree to interconnect mobile money services* [Press release]. Retrieved from http://www.vodafone.com/content/index/media/vodafone-group-releases/2015/m-pesa-mtn.html

Ziesemer, T. (2012). Worker remittances, migration, accumulation and growth in poor developing countries: Survey and analysis of direct and indirect effects. *Economic Modelling. 29 (2)* 103-118. doi: 10.101/j.econmod.2011.08.013.

Zhuang, J., Liang, Z. Lin, T., & De Guzman, F. (2007). Theory and Practice in the Choice of Social Discount Rate for Cost-Benefit Analysis: A Survey. *ERD Working Paper No. 94.* Mandaluyong, Philippines: Asian Development Bank