East Africa Mobile Money Cross-Border Payments: Market demand Side

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Executive Summary

Background

1. **Context:** The East African region of Burundi, Kenya, Rwanda, Tanzania and Uganda represents a social and geographical zone with high rates of trade and social exchange. Regional remittances are a substantial contributor to the East African economy. Being the region with the highest mobile money penetration in the world (55% compared to 10% globally[1]), cross-border interoperability in mobile money has the potential to decrease frictions in intra-regional payments, particularly person to person payments.

2. **Objective:** The objective of this study is to understand: a) the prevalence of cross-border transactions, b) how people are currently transacting cross-border, how they decide on these methods, and what their pain points are; and c) the demand for conducting cross-border transactions with interoperable mobile money services.

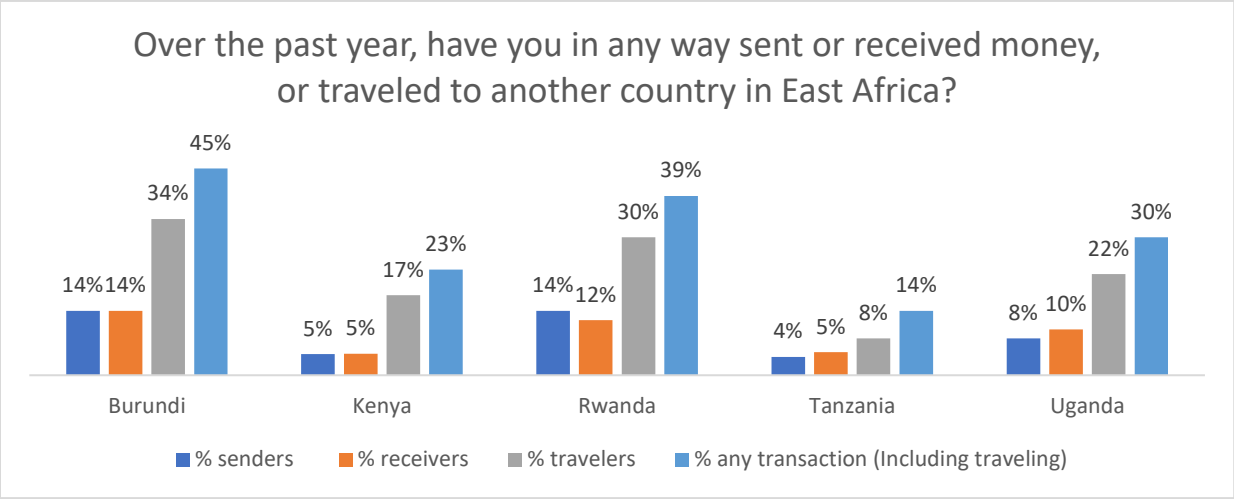
3. **Methodology:** BFA undertook both a quantitative survey, designed to be nationally representative of mobile phone owners, and a qualitative survey to understand cross-border transactions across the East African region. In our study, transactors are those who sent money, received money or traveled to another country in the region in the past year.

Key findings: state of cross-border transactions

- Transactions among East Africa countries are common. In Burundi, 45% of mobile phone owners who participated in the study had sent, received, or traveled to another East African country, but only 14% of Tanzanians had done so. Kenya, Uganda and Rwanda fall in between at 23%, 30% and 39% respectively.

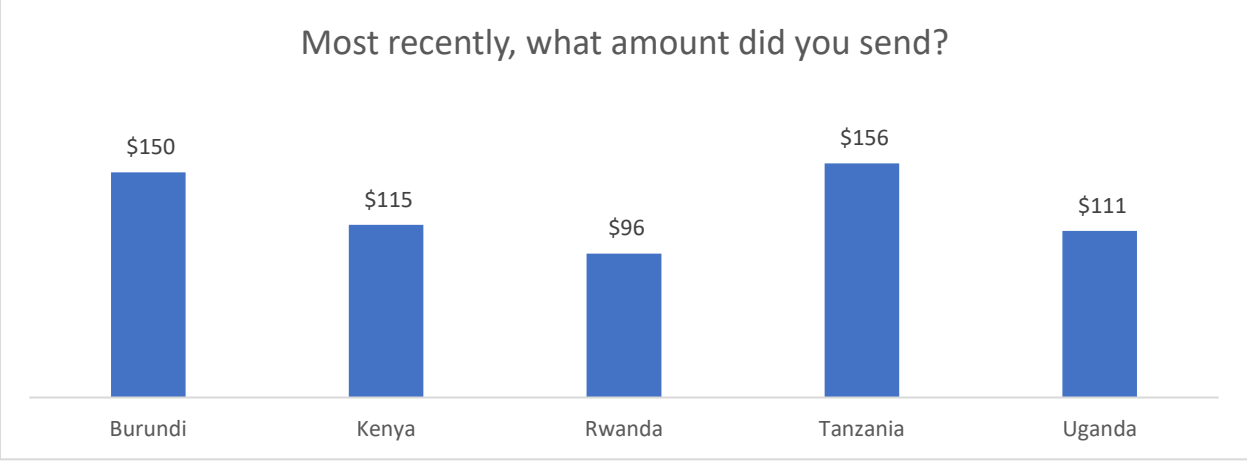
[1] By December 2015, 10% of mobile connections were linked to a mobile money account in markets where mobile money was available compared to 55% in East Africa. Source: GSMA. *Global Adoption of Mobile Money in 2015: A look at the data*. 21 April 2016. https://www.gsma.com/mobilefordevelopment/programme/mobile-money/global-adoption-mobile-money-2015-look-data

Figure 1: Incidence of cross-border transactions



- Travelling across the East African countries is more than twice as common as sending and receiving money across borders. In this report, we refer to people who have conducted a cross-border money transfer, or traveled within East Africa as **transactors**.
- Median transaction size varied between USD 96 to USD 150 across the countries, but in all countries a large proportion of transactions was for less than USD 100.

Figure 2: Median amounts sent by respondents in each country[2]



- Cross-border transactors cover a range of ages, incomes and occupations. Income was widely distributed, confirming that transactors are not highly

[2] Exchange rates used: 1 USD = (3600 UXG); (103.93 KES); (2239 TZS); (91736 BIF); (829.71 RWF)

concentrated in the upper share of the income distribution. The monthly median incomes ranged between USD 60 in Rwanda to USD 289 in Kenya.

- Sending money to, and especially receiving money from, friends and family was by far the most common reason for cross-border remittances. These use cases were reported by over half and three-quarters of respondents across all countries. Two-thirds of those who sent money to friends and family across the border did so more than once a year.

Table 1: How often respondents sent money to friends and family in the country they sent to most recently

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Less than once a year	13%	11%	11%	5%	14%
About once a year	21%	20%	28%	25%	16%
A few times a year	46%	38%	46%	56%	41%
About monthly	11%	20%	10%	8%	17%
A few times a month	9%	10%	4%	6%	9%

Key findings: demand for cross-border mobile money

- **Mobile money is already the most common method for sending money across the border.** Nearly half of the senders in all countries apart from Burundi reported using mobile money for their last cross-border transaction. After mobile money, most people reported using money transfer services as well as friends and family.
- There is a large potential to grow the market for cross-border interoperable mobile money transfer:
    - 24% to 42% of current senders and receivers confirmed that there were occasions when they did not send or receive because they lacked a proper instrument.
    - Over 70% of senders in all countries but Tanzania (56%) stated that they would use mobile money if it were possible to send directly to the other person's account.
- Travelers are an underserved market. Although travelers predominantly used cash, many used mobile money accounts during their latest travel. The preference

was using an account from one's home country, rather than acquiring a new number from the country they are visiting.

- Reliability, convenience, speed and cost, in that order, were the most important drivers when choosing a transfer method.
- Although mobile money was the most preferred method based on positive experiences in Kenya and Rwanda, it did not rank highly in Uganda and Tanzania. Based on the focus group discussions, Ugandans preferred to use other methods because of concerns around their weak currency. They also felt that the bus system was quite reliable and did not limit their transaction sizes. Tanzanians cited reliability (network and recourse) and usability concerns in the available mobile money options.
- Lack of awareness followed by poor usability stood out as major drawbacks for using mobile money to make cross-border transfers. Network reliability, limited recourse, price and foreign exchange understanding were the other notable limitations.
    - About a fifth of cross-border senders, receivers and travelers were not aware that it was possible to make mobile money cross-border transfers.
    - While a tenth of the respondents from Kenya and Uganda cited usability concerns, more than a quarter of respondents in Rwanda, Tanzania and Burundi respectively cited the same concern. The Unstructured Supplementary Service Data (USSD) menu used for cross-border mobile money transfers can be complicated and cumbersome.
    - Price was mostly a concern among those that had not made cross-border transactions while users perceived mobile money as generally being in the same range of cost as other methods or a little more expensive.
    - Foreign exchange calculation was a mystery and cause of stress for many.
    - Network issues which resulted in slow or incomplete transactions and poor options for recourse were not issues in Kenya, but were prominent in the other three markets.

Recommendations:

Mobile money has the potential to offer services that deliver on the attributes respondents care about most: reliability/trust, convenience, speed and cost. We recommend the following:

- Improved and more targeted marketing to increase awareness
- More robust recourse options
- More human-centered product design to address usability issues
- Providers make efforts to serve travelers, who predominantly use cash and who represent a larger potential market than senders/receivers.
- Interventions tailored to each country context given the varying degrees of maturity of the mobile money market

Purpose of the study

The East African region of Burundi, Kenya, Rwanda, Tanzania and Uganda (see Figure 3) represents a political, social and geographical zone with high rates of trade and social exchange. This is also the region with the highest mobile money use in the world. The East African Community (EAC) is the most integrated of the eight regional economic communities recognized by the African Union, according to the Africa Regional Integration Index 2016.[3] Regional trade is an important component of the East African economies, as well as a major policy objective for all the countries in the EAC. The EAC scores high on the volume of intra-regional trade (0.78 on a 0 to 1 scale), and reasonably high (0.72 on a 0 to 1 scale) on labor migration ranked by the African Development Bank.[4]

[3] Koami, K. A. et al. 2016. Africa regional integration index report 2016. https://www.integrate-africa.org/fileadmin/uploads/afdb/Documents/ARII-Report2016_EN_web.pdf

[4] South Sudan was recently added to the East African Community, but is not part of this TORs.

Figure 3: Map of the East Africa region[5, 6, 7, 8]

We already know that regional remittances are a substantial contributor to the East African economy. The World Bank estimates that remittance flows through formal channels reach billions of USD per year (see Table 2 below). Moreover, Rwanda, Uganda and Burundi send over 80% of their total formal remittances to East African countries, while Kenya and Tanzania send about a third. Remittances received from within the region are also significant and range between 13% for Kenya to 73% for Burundi. In a separate report, the World Bank (2016) estimates that Tanzania, Uganda, Kenya and Rwanda are among the top 10 remittance senders in Sub-Saharan Africa.[9] The significance of remittances within the region is a potential contributor to the demand for cross-border mobile moneys services.

[5] Map source: Google.
[6] Financial Inclusion Insights. 12 September 2017. Data Fiinder. Kenya, Tanzania and Uganda 2016 data and Rwanda 2015 data. http://finclusion.org/data_fiinder/
[7] GSMA. 2015. *The Mobile Economy: Sub-Saharan Africa*. https://www.gsma.com/mobileeconomy/archive/GSMA_ME_SubSaharanAfrica_2015.pdf
[8] The World Bank. 17 April 2017. *Population 2016*. http://databank.worldbank.org/data/download/POP.pdf
[9] The World Bank. 12 September 2017. *Migration and remittance factbook 2016*. https://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1199807908806/4549025-1450455807487/Factbookpart1.pdf

We know that the primary use case for mobile money domestically continues to be Person to Person (P2P) transfers. The purpose of this study is to understand:

- The prevalence of cross-border transfers
- How people are transacting cross-border currently, how they decide on these methods, and what their pain points are
- The demand for conducting cross-border transfers with mobile money.

This report considers cross-border transfers to include sending or receiving funds, performing cash-in/cash-out, and transacting with merchants, employers, and other institutions across national borders within the East Africa region.

Table 2: Bilateral Remittance Estimates for 2015 (millions of USD).[10] Formal transfer channels only.[11]

Remittance-receiving country (across) ___ Remittance-sending country (down)	Burundi	Kenya	Rwanda	Tanzania	Uganda	World	Sending to the region as a (%) of total sending to the world
Burundi	0	2	23	27	1	66	80%
Kenya	0	0	2	37	58	319	30%
Rwanda	7	3	0	49	182	256	94%
Tanzania	27	112	11	0	34	586	31%
Uganda	2	84	29	27	0	176	81%
World	49	1,561	161	389	1,049		
Receiving from the region as a (%) of total receiving from the world	73%	13%	40%	36%	26%		

[10] The World Bank. 24 September 2015. *Migration and remittances data*. http://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data

[11] This is data reported by central banks to the IMF, it is not specified what formal means and may or may not include MFS

Methodology

Considering the objectives explained in the previous section, both quantitative and qualitative research methods were applied. This study focused on cross-border transfers made by individuals within the East African region. It did not specifically target business-to-business transfers but some of the individuals did report sending to and receiving from business suppliers.

Quantitative research

The primary goals of the quantitative research were:

1. To establish the incidence of cross-border transactions among mobile phone users in the five countries.
2. To examine the usage patterns of people who completed cross-border transactions over the past year.

The quantitative research relied on computer assisted telephonic interviewing (CATI), using the services of a company (GeoPoll) with large, established databases of phone numbers in Burundi, Kenya, Rwanda, Tanzania and Uganda. Using CATI was dictated by the expected low incidence of the behavior we were seeking (i.e. cross-border transactions) across the whole population, which would have made face-to-face interviews prohibitively expensive and time consuming. Geographic limitations and security concerns in some countries were additional factors.

Generally, research shows that phone interviews stand up to alternatives. Nonetheless, CATI has shortcomings. For example, phone number databases may not always be up to date or include all phone numbers. Moreover, interviewing people by phone may bias responses or have drop off rates in ways that differ from face-to-face interviews. Coverage error is important to note as only mobile phone owners were reached by CATI. Throughout this report, it is important to keep in mind that the results of the quantitative research do not represent the entire country populations, but only those people who use mobile phones. Phone ownership varies greatly among the countries in the study, from 78% in Kenya, to 62% in Tanzania, 51% in Uganda, 47% in Rwanda, and only 17% in Burundi.[12] Overall, considering all the costs and benefits, and the fact that

[12] Koami, K. A. et al. 2016. Africa regional integration index report 2016. https://www.integrate-africa.org/fileadmin/uploads/afdb/Documents/ARII-Report2016_EN_web.pdf

this study targeted users of mobile money, CATI was deemed to be an appropriate interview method.

As previously mentioned, the quantitative research had a twofold focus. First, through a brief screener interview, we aimed to determine the incidence of cross-border transactions such as sending money to, receiving money from, and traveling to other East African countries. In this report, when we refer to transactors, this includes travelers. However, it was not a requirement that travelers performed a monetary transaction, just that they physically crossed an East African border in the past year.

Second, to learn more about their behaviors and preferences, we administered more in-depth interviews to the three categories of people, defined by the types of cross-border transactions performed:

- People who had sent money to at least one other East African country over the past year (**senders**)
- People who had received money from at least one of the other East African countries over the past year (**receivers**)
- People who had traveled to at least one of the other East African countries over the past year (**travelers**)

As previously indicated, the report will refer to these three categories of people jointly as **transactors**.

We intended to collect data from 1,000 full length interviews in each country, with approximately 350 respondents in each of the three categories of interest (with some degree of overlap due to some respondents being in more than one category). The total number of interviews completed exceeded 1,000 in all countries, with travelers being the best represented category. Table 3 provides the breakdown of the actual number of people interviewed under each category.

Table 3: Number of respondents in the telephonic quantitative survey

	Senders	*Receivers*	*Travelers*	*Senders, Receivers, & Travelers (passed screener)*[13]	*Total calls*
Burundi	433	412	965	1284	2861
Kenya	410	402	1241	1572	6907
Rwanda	544	456	1116	1456	3766
Tanzania	339	460	665	1144	8446
Uganda	347	442	973	1320	4363

While reading this report, it is important to note that where results were very similar for senders and receivers, we elected to show only one of the two categories in the main text of the report and the results of the other segment in

[13] Please note that these numbers should not be used to infer incidence, as in some markets there were quotas for some categories.

Annex B: Additional charts. For more information about the data collection method, the questionnaire structure and the sample, please see Annex A: Methodology.

Qualitative research

BFA pursued qualitative research techniques to gain a deeper understanding of individual experiences sending and receiving cross-border payments, particularly with mobile money. We conducted a total of 41 focus group discussions (FGDs) in Kenya, Rwanda, Tanzania and Uganda, followed by 104 in-depth interviews (IDIs) with individuals to further enhance our understanding of these issues (Please see Annex A: Methodology for breakdowns in each country). We did not conduct qualitative research in Burundi due to security concerns. We aimed to identify barriers towards take up and usage, as well as to pinpoint which aspects of mobile money are attractive to users and which act as a deterrent to usage.

We chose respondents for the qualitative research across two main dimensions:

1. Level of mobile money usage:
    a) People who had not used mobile money at all (since the likelihood of coming across non-users of mobile money is extremely low, that category of FGDs was not conducted in Kenya) (labeled as "**non-users FGD**" in the quotes in this study")
    b) People who had used mobile money for sending and receiving domestic payments, but not cross-border payments (labeled as "**domestic FGD**" in the quotes in this study")
    c) People who had used mobile money for sending and receiving some cross-border payments (labeled as "**international FGD**" in the quotes in this study")
2. Geographic location: In each market, we conducted interviews in the capital city as well as two border towns on different sides of the country.

In addition to the two main categories, we included two focus groups with traders (who buy and sell goods in border towns) in each country to be sure to capture the unique experiences of this demographic. We also conducted separate interviews with mobile money agents (six in each market) to obtain a different view of the demand for mobile money interoperability. We focused on their perceptions of the demand for such services and any issues or roadblocks users may encounter.

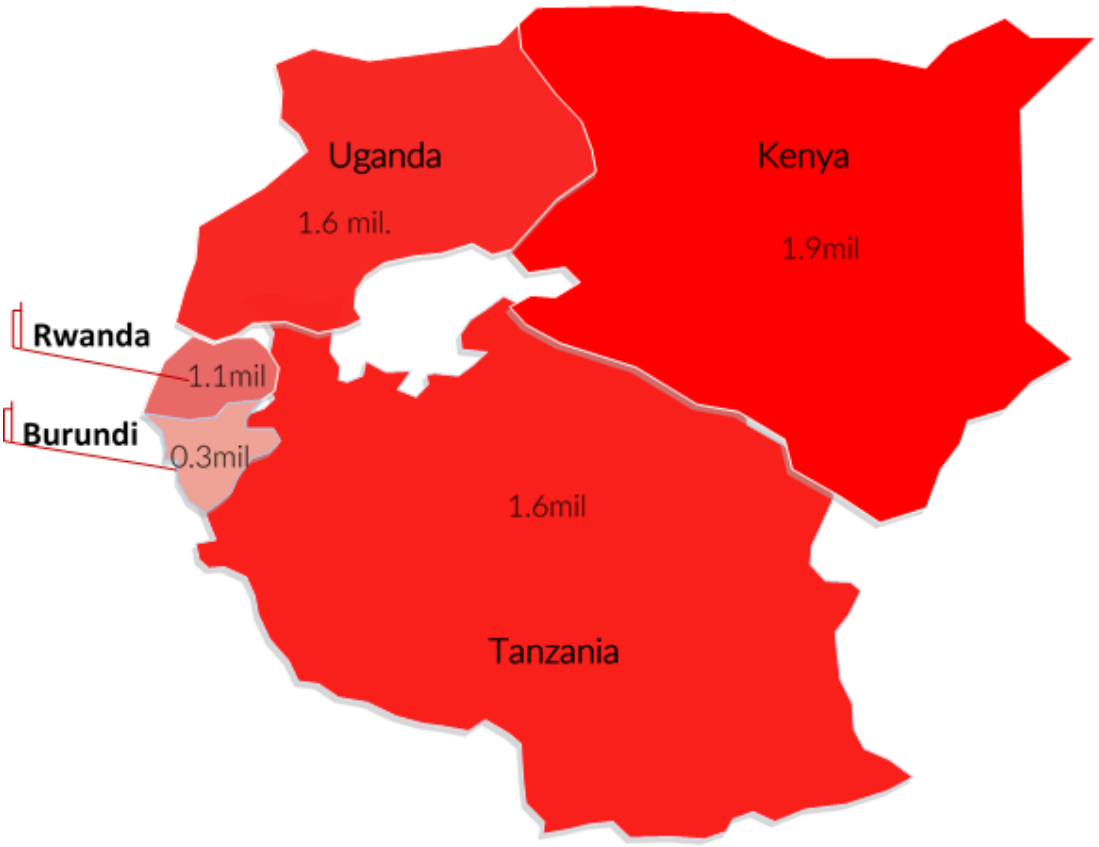
We deployed a ranking exercise as a key research technique for this phase of the research. Respondents first identified often-used payment transfer methods, such as money transfer services, the bus system, going in person, sending family/friends, not just mobile money. The transfer methods were organized from most preferred to least preferred and the reason for preference was given. These rankings helped us gain a deeper understanding of respondent perceptions of good and bad experiences with various methods.

Cross-border transactions among East African countries

Incidence of cross-border transactions

Transactions among East Africa countries are common with a higher share of people from landlocked countries transacting. In all countries, a sizable percentage of participants had dealings with other East African countries, whether to send or receive money or to travel. Considering the number of mobile phone subscribers in each of the five countries and the incidence of sending money, we estimate that, on average, 6% of East African mobile phone subscribers send money to other East African countries (see Figure 4).

Figure 4: Estimated number of mobile phone subscribers who send money cross-border[14]



However, the proportion of transactors varied greatly from country to country (see Figure 5). In Burundi, 45% of mobile phone owners had sent, received, or traveled to another East African country over the last twelve months, but only 14% of Tanzanians had done so. Kenya, Uganda and Rwanda fall in the middle at 23%, 30% and 39% respectively.

We have several hypotheses for why Tanzanians appear to be less engaged in regional travel but we do not have strong evidence to confirm them. A possible reason is that Tanzania has stronger trade and travel ties to the Southern African Development Community (SADC) countries on its southern borders. Tanzania also has a much smaller foreign-born population, at only 0.49% compared to 2-3% in the other countries.[15]

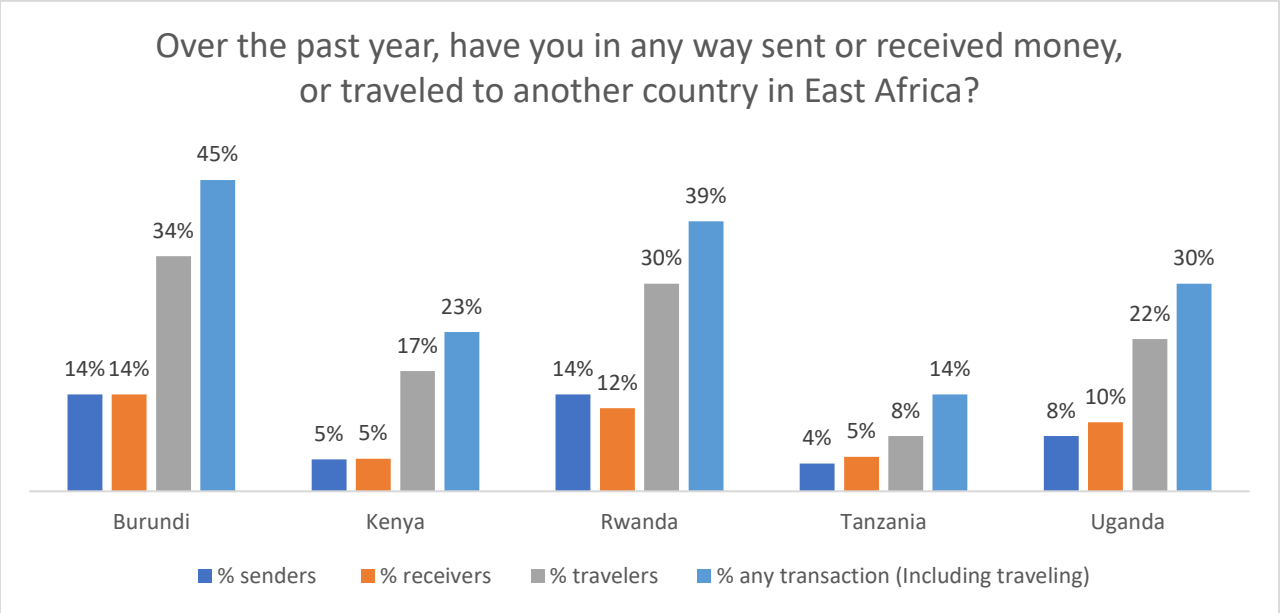
It is important to bear in mind that the proportion of transactors is among mobile phone owners and, therefore, the incidence of cross-border transactions may be different when considering the entire country population. Nonetheless, the prevalence

[14] East African Community Facts and Figures (2016) Report and own calculations
[15] See interactive map at https://www.iom.int/world-migration indicating 3.8% of Rwandans were born abroad; 1.92% of Ugandans, 3.25% of Kenyans and only 0.49% of Tanzanians.

of dealings with other East African countries is indicative of a market with large demand for appropriate tools to facilitate cross-border money transfers.

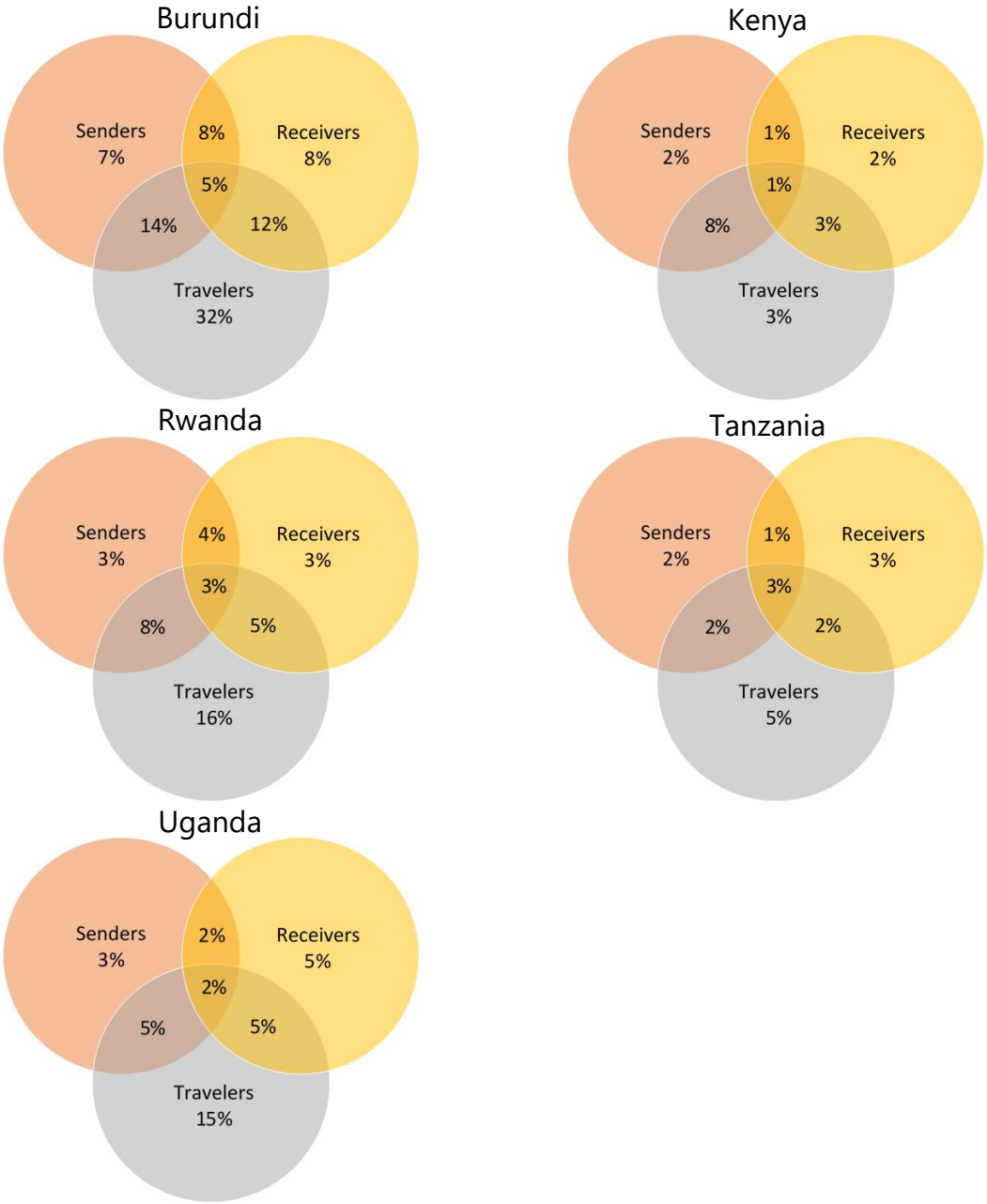
Traveling across the East African countries is more than twice as common as sending and receiving money. Similar to the previous observation, people from landlocked countries are more likely to travel cross-border, with Tanzanians being the least likely to do so. As per Figure 5, almost a third of Burundian and Rwandan respondents traveled to other East African countries compared to 8% of Tanzanians. Ugandan and Kenyan cross-border travelers were about a fifth of the respondents from each country.

Figure 5: Incidence of cross-border transactions



Some of the transactors engage in more than one type of cross-border transaction and hence there is overlap across senders, receivers and travelers. The detail of the overlap can be seen in Figure 6 below.

Figure 6: Share of mobile phone users who engage in cross-border transactions



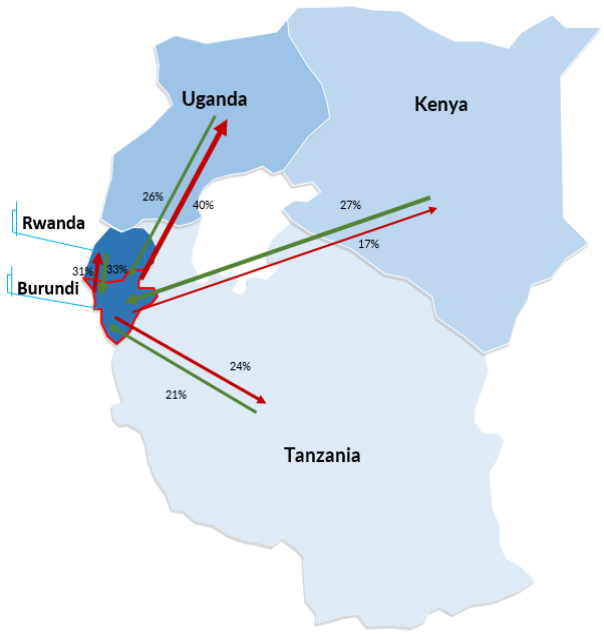
Geographic corridors for cross-border transactions

The size of geographic corridors for cross-border transactions depend on the strength of relationships among the EA countries. See Figure 7 which represents geographic corridors for senders and receivers, as reported in the quantitative survey of mobile phone users. The strongest corridors are Kenya-Uganda, Kenya-Tanzania and Rwanda-

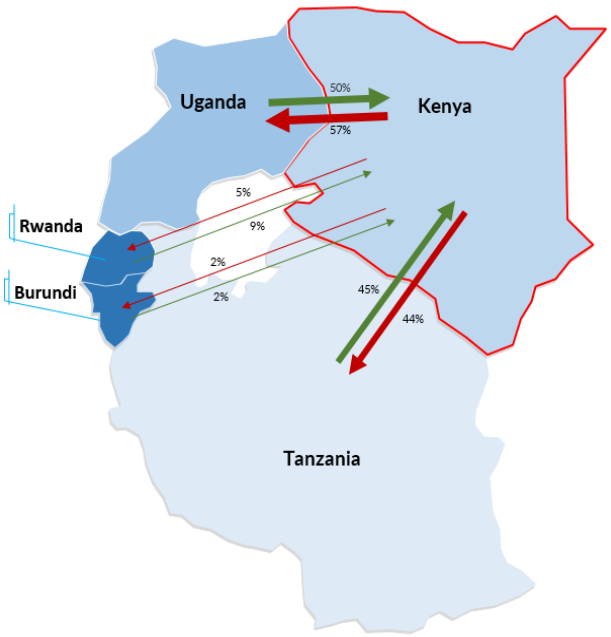
Uganda (where a large share of Rwandans send money to Uganda). Burundi sends to all four countries almost equally. Detailed numbers for sending, receiving and travelers can be found in Annex B: Additional charts.

Figure 7: Geographic corridors for sending and receiving money, by percentage of senders in each country, transacting with other countries

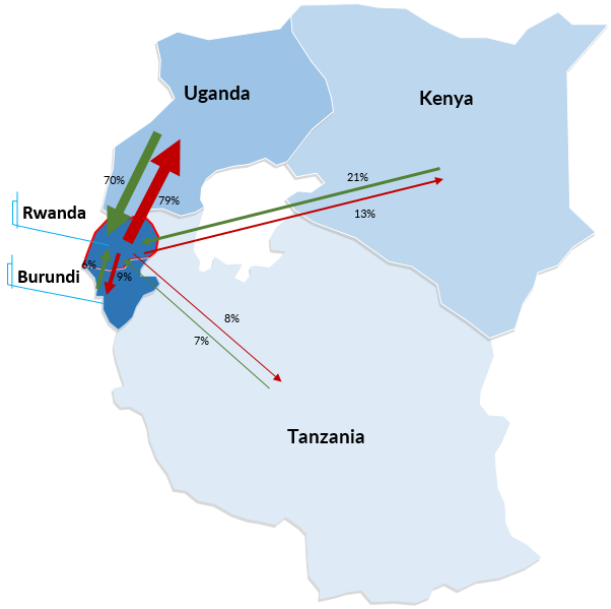
Burundi



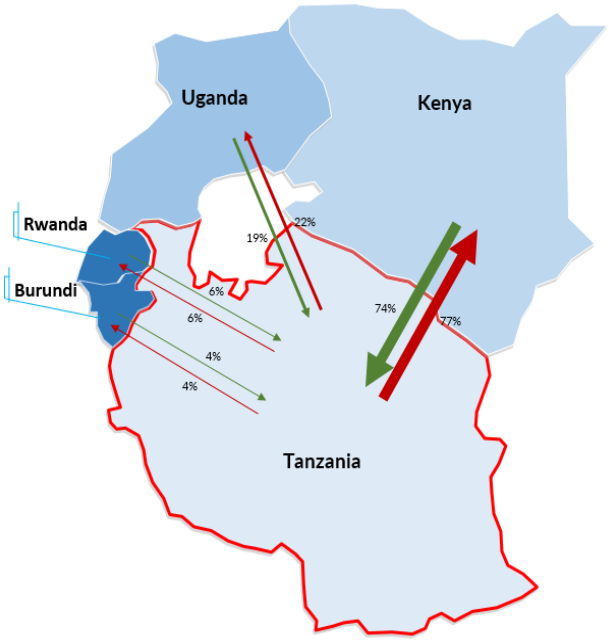
Kenya



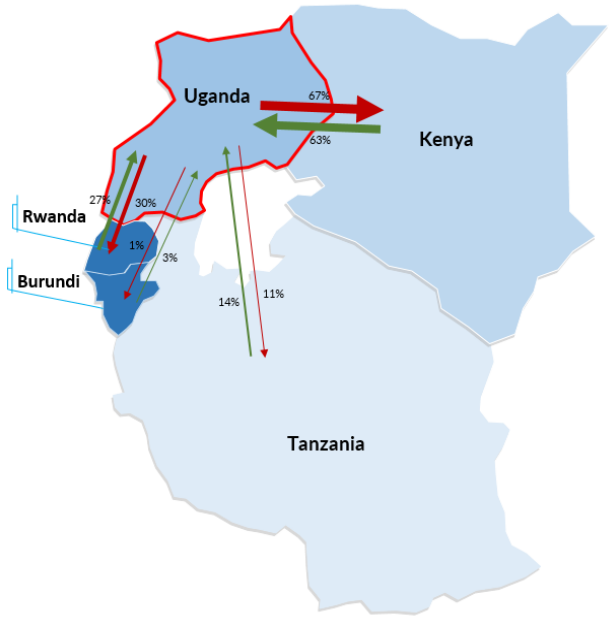
Rwanda



Tanzania



Uganda



Incidence of sending money

- 14%
- 8%
- 5%
- 4%

Indicates sending money

Indicates receiving money

Arrows weights are proportional to the percentage of senders in country X send/receiving money to/from country Y

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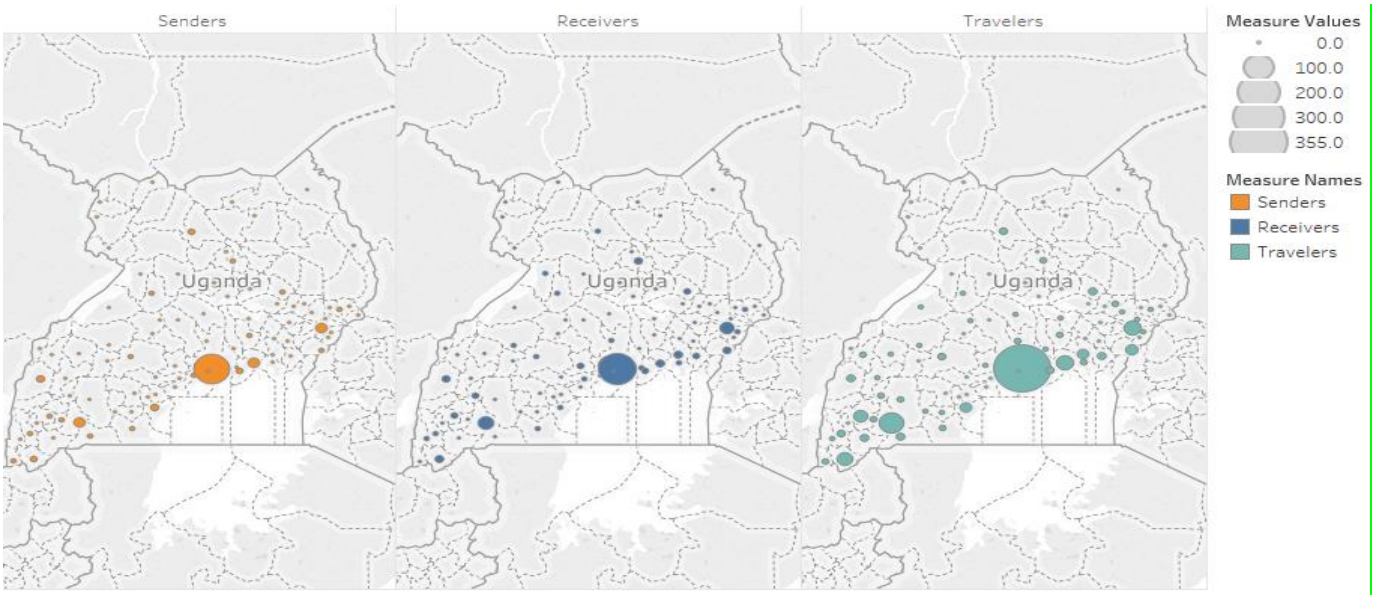
People conducting cross-border transactions are not concentrated at the borders, but found all over. The responses to our telephone survey covered each country roughly in accordance with population. We did not see more transactors in border regions as one might expect. Conversely, they were also not found in the capital cities only, although two-thirds did report themselves to be urban (except in Rwanda). Figure 8, for example, shows that cross-border activity in Uganda seems to take place across the entire country along the lines of the population distribution. The other countries showed similar patterns (maps for each country can be found in Annex B: Additional charts).

Figure 8: Distribution of sample of senders, receivers and travelers in Uganda.



The size of the bubble is proportional to the number of senders, receivers and travelers in the sample. The view is filtered on sum of senders, receivers and travelers in each district.

Demographics of senders, receivers and travelers

Cross-border transactors cover a range of ages, incomes and occupations. The median age of cross-border transactors was about 28, but there was a wide distribution of ages. We asked respondents to give an estimate of their income. The reported incomes were widely distributed (see Figure 9 and Figure 10) and confirmed that transactors are not highly concentrated in the upper share of the income distribution.

Figure 9: Monthly median income[1617]from quantitative survey of telephone users[18]

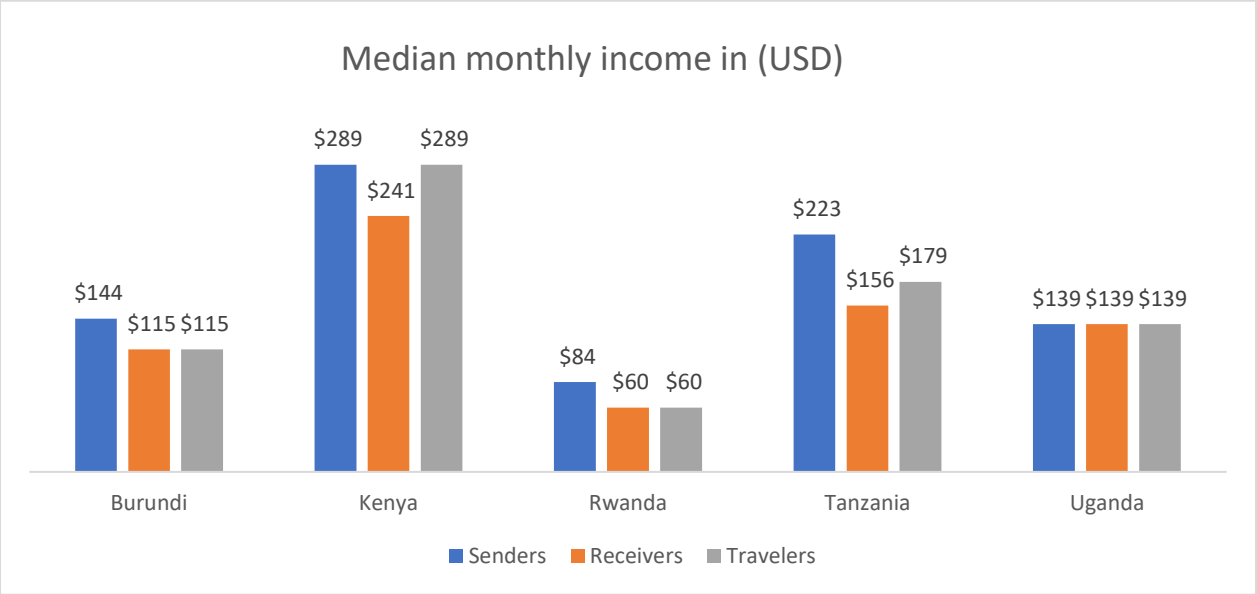
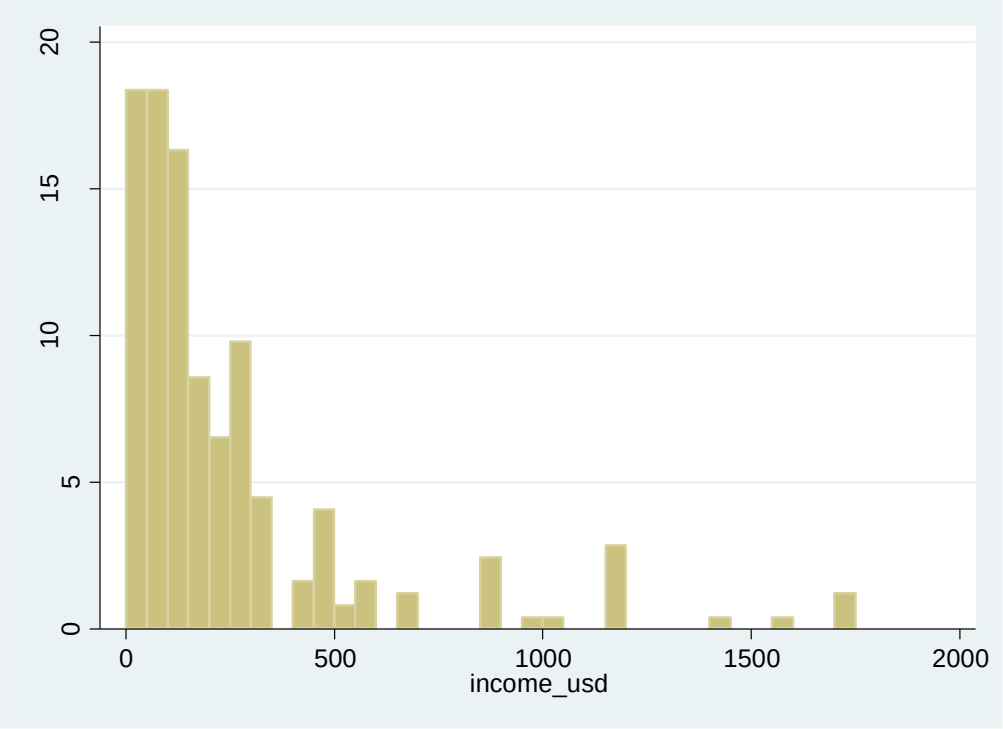


Figure 10 shows the income distribution of senders in Burundi, which shows that incomes are widely distributed and many senders are at the lower end of the income distribution. Similar patterns were seen in the other countries.

[16] Monthly GDP per capita, PPP (current international USD) for each of the 5 countries is: Burundi (USD 64), Kenya (USD 263), Rwanda (USD 159.5), Tanzania (USD 232) and Uganda (USD 154). Although these are similar to the median incomes in **Error! Reference source not found.**10, GDP per capita is not the same as median national income.
[17] Exchange rates used: 1 USD = (3600 UXG); (103.93 KES); (2239 TZS); (91736 BIF); (829.71 RWF)
[18] The World Bank, 2016. 12 September 2017. *GDP per capita, PPP (current international $)*. https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD

Figure 10: Income distribution for senders in Burundi[19]

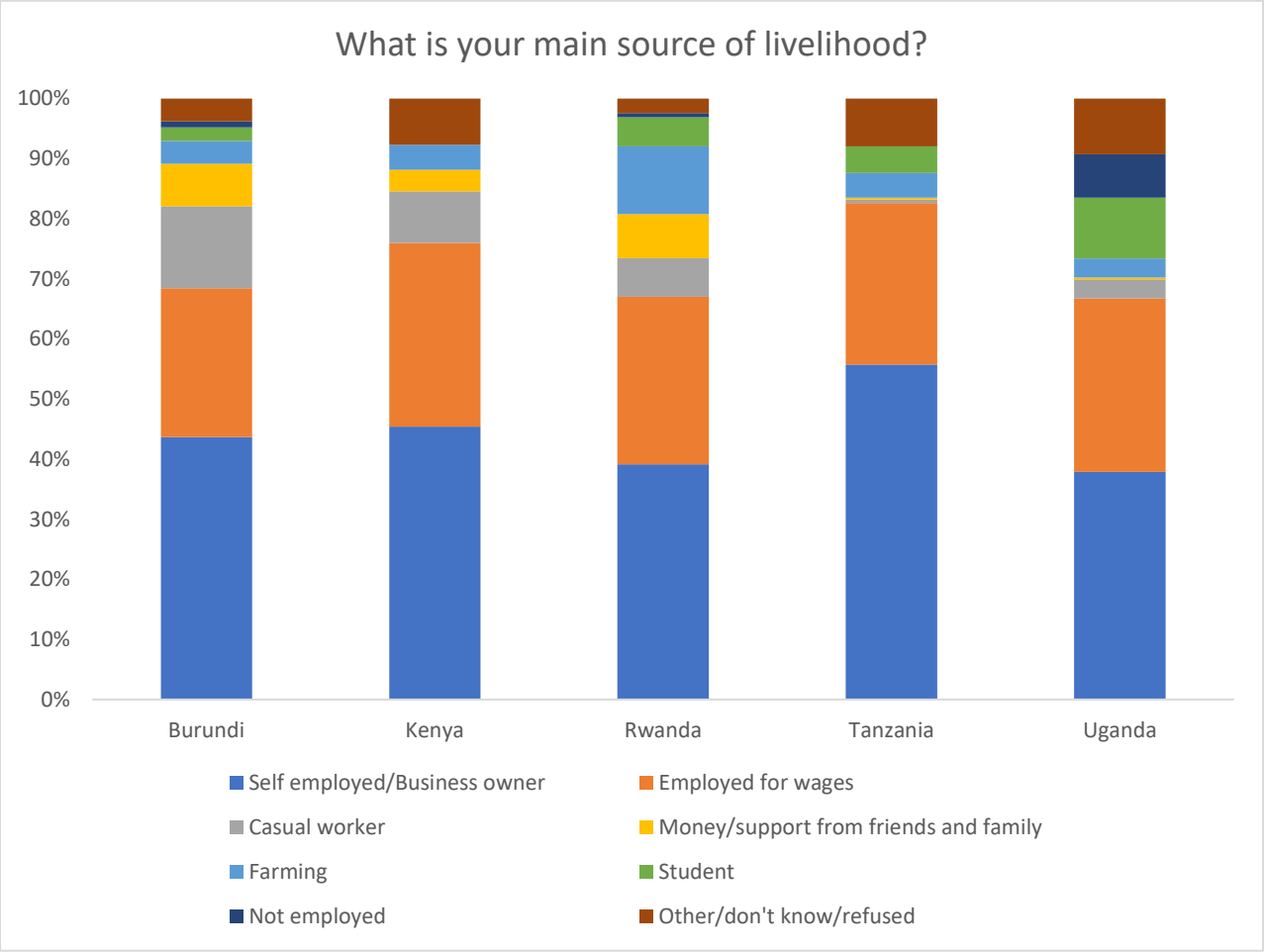


In terms of occupations, transactors also covered a wide span. Self-employed/business owners held the largest share in all the countries (see Figure 11) followed by wage employment and casual labor. Compared to the Kenya FinAccess survey (2016), a nationally representative household survey that covers both phone owners and non-phone owners, it appears that transactors are more likely to be in self-employment and wage employment than the national population.[20] This is likely to be the same scenario in the other countries where agriculture similarly contributes the majority share of livelihood strategies.[21]

About 10% of receivers in both Rwanda and Burundi depend on friends and family for their main source of income (this was also 8% in Kenya). This could mean cross-border remittances are an important source of livelihood support. Also in Uganda, 14% of receivers were students, which reflects the country's status as an educational mecca in East Africa.[22]

[19] Top 2% excluded for clarity of chart
[20] FSD Kenya. 18 Februrary 2016. *The 2016 FinAccess household survey*. http://fsdkenya.org/publication/finaccess2016/
[21] International Labour Organization, Key Indicators of the Labour Market database - Employment in agriculture (% of total employment) Burundi (92%), Kenya (61%), Uganda (66%), Rwanda (79%) and Tanzania (77%)
[22] ICEF Monitor. 10 January 2017. *From the field: Recruiting in East Africa*. http://monitor.icef.com/2017/01/from-the-field-recruiting-in-east-africa/

Figure 11: Main source of livelihood for senders



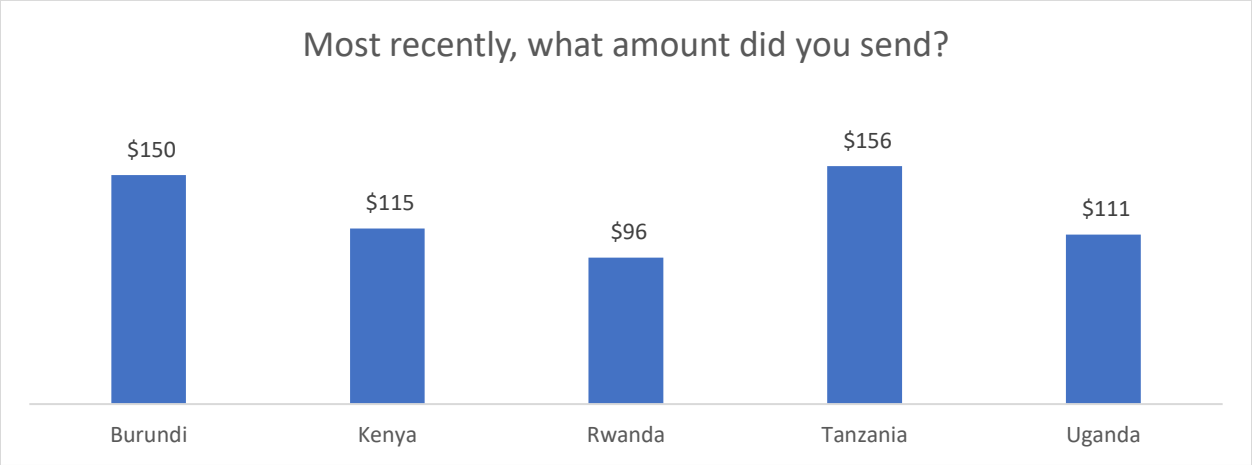
Transactors are considerably more likely to be male. About 75% of those who qualified as senders, receivers or travelers were male, but this is expected since 75% of respondents who are a representative sample of mobile phone users in each country were also male. However, almost half (46%) of male respondents qualified as transactors compared to less than a third (28%) of female respondents. There are a couple of possible explanations for this finding. It is possible that men travel more than women and have social and financial networks that cover a wider geographic spread – BFA's analysis of the financial diaries in Kenya, Mexico and India reported that women tend to

do more transactions close to home.[23] Additionally, men are often considered as the household heads and the official handlers of money, even if the money was sent or received by the entire family the household head may be seen as the "sender" or "receiver". More information on demographics can be found in Annex B: Additional charts.

Transaction sizes

Median transaction size varies across countries, but in all countries, most transactions are for less than USD 150. The median amounts sent[24] varied from slightly less than USD 100 in Rwanda to slightly more than USD 150 in Tanzania. As can be shown in the more detailed distributions (Annex B: Additional charts), the amounts sent ranged widely.[25] See Figure 12 for more information on the cross-country transaction sizes.

Figure 12: Median amounts last sent by respondents in each country



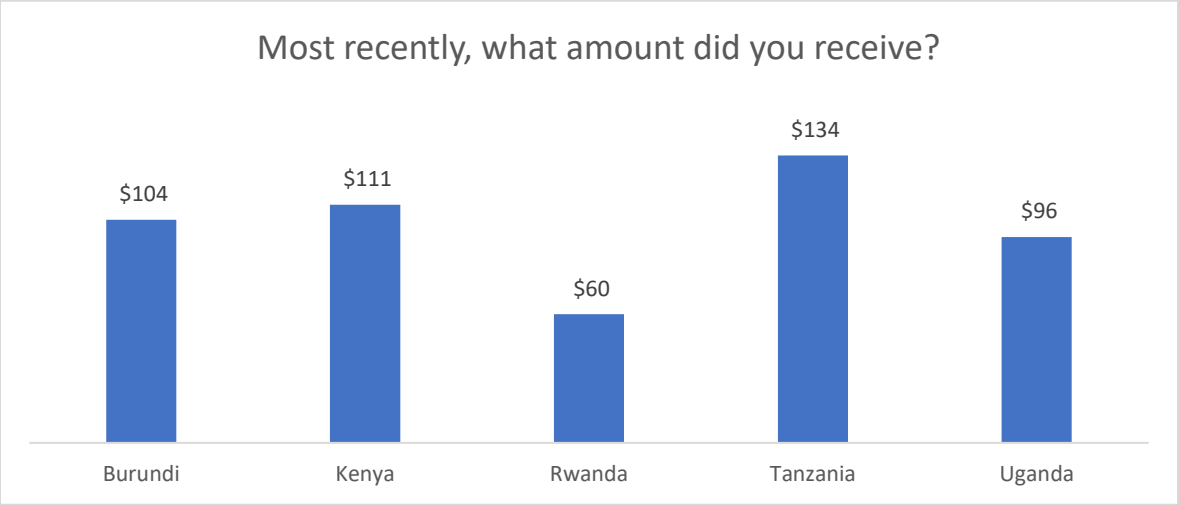
The amounts received show similar tendencies (see Figure 13). In all countries, the median is around or slightly above USD 100. Rwanda receives lower amounts, with a median of only USD 60.

[23] Zollmann, J. and Sanford, C. 5 October 2016. *A buck short - What financial diaries tell us about building financial services that matter to low-income women*. https://www.omidyar.com/insights/what-financial-diaries-tell-us-about-building-financial-services-matter-low-income-women

[24] Please note that included in this analysis are all latest transactions reported, by purpose. This means that transactions that happen with different frequencies receive the same weight.

[25] Exchange rates used: 1 USD = (3600 UXG); (103.93 KES); (2239 TZS); (91736 BIF); (829.71 RWF)

Figure 13: Median amounts last received by respondents in each country

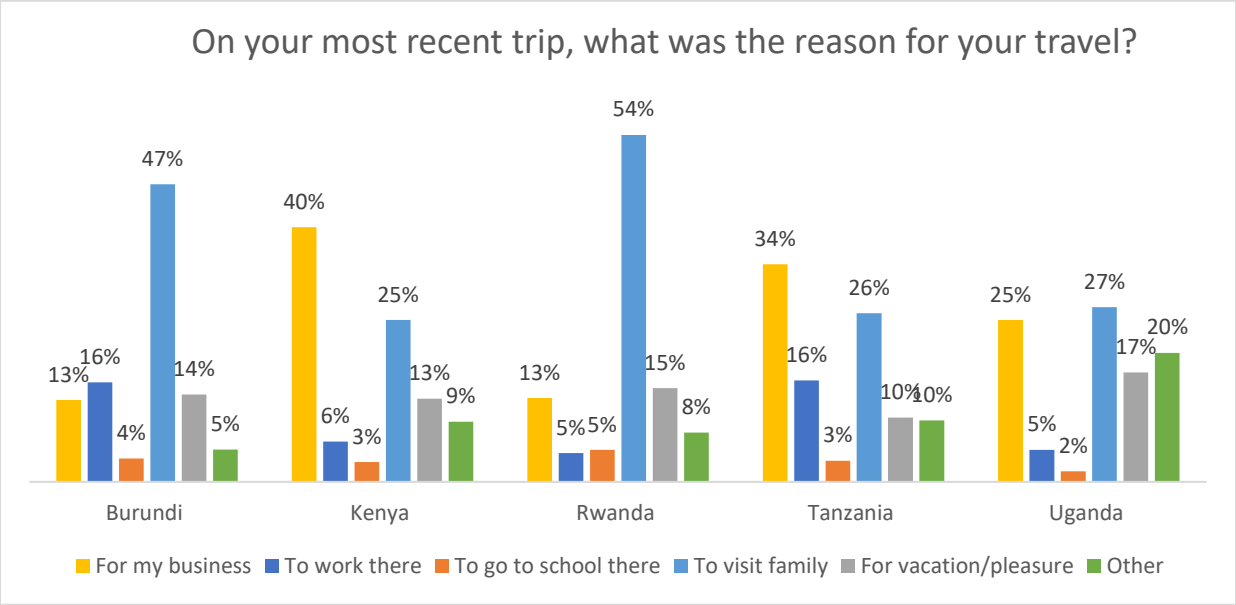


Use cases for cross-border transactions

Travelers

Burundians and Rwandans mostly travel to visit friends and family, while Kenyans, Tanzanians, and Ugandans also often travel for business. In the quantitative study of mobile phone users, about half of the Rwandans and Burundians reported that their last trip had been to visit friends and family, compared to about a quarter in Kenya, Tanzania and Uganda (see **Error! Reference source not found.**Figure 14). In addition, more than a quarter of Kenyans (40%), Tanzanians (34%) and Ugandans (25%) said their last trip had been for business. During qualitative interviews, most respondents said they traveled for business – often to purchase goods. The dominance of business travel in the qualitative research makes sense since we purposely included people in border towns and traders.

Figure 14: Use cases for most recent travel to other East African countries



Cross-border activities reflect geographic realities. During the qualitative interviews, we learned more about the pattern of trade and travel. Kenyans frequently travel to Tanzania to buy goods, especially from Kariakoo Market in Dar es Salaam, and to visit family based there. Similar to Kenyans, many business people in Tanzania said they travel to Uganda and Kenya to buy goods like clothes, shoes and handbags.

"There are those products that I get from Tanzania and those from Uganda. In Tanzania, I buy hair (weaves) while in Uganda I buy hair products."
- Female Trader, Nairobi, Kenya

Landlocked Uganda imports most of its goods through Kenya, which makes some border towns like Malaba and Busia very busy. Further inland, Rwanda pulls most goods through Tanzania, and exports agricultural produce along the same route. The Rwanda-Tanzania border area is also a major trading junction.

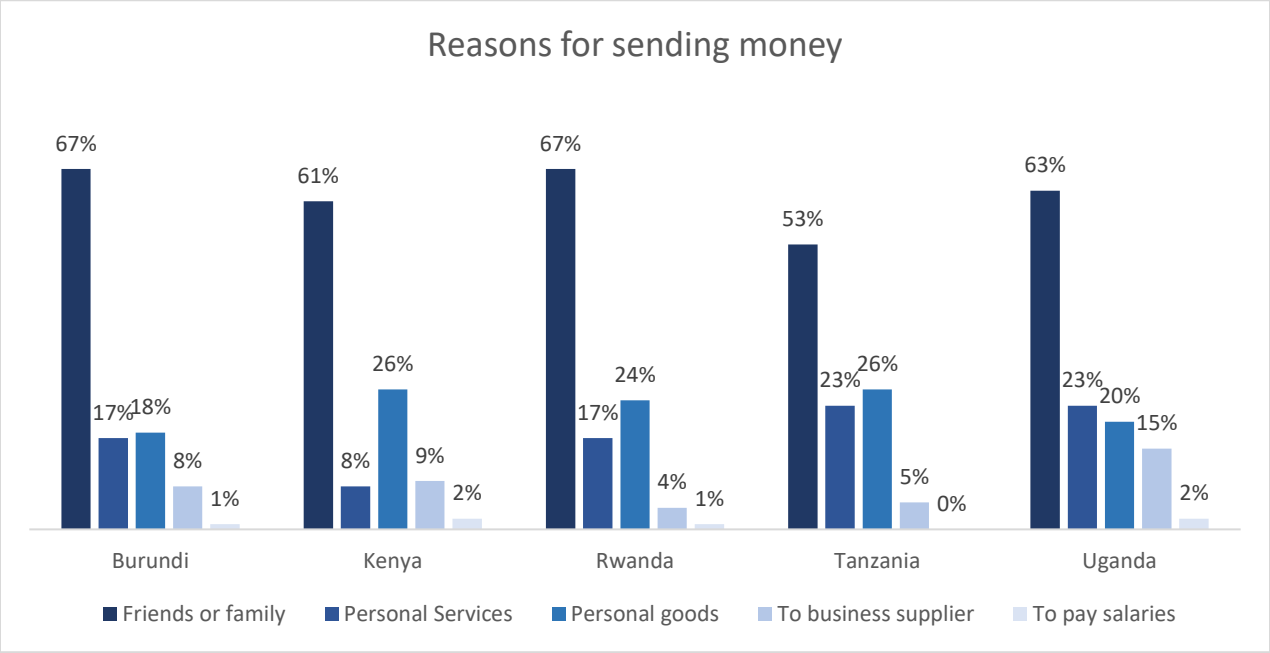
Further, because Ugandan education (high school and university) is perceived as low-cost, Kenyans and Rwandans reported sending their students there, resulting in cross-border transactions (this was also seen in the livelihood status in the quantitative survey of mobile money users, see Figure 11 in page 26 above). With a large historical population of Rwandans settled in Uganda, many Rwandans reported having relatives living in Uganda, especially western Uganda.[26]

[26] In the early 1960s, more than 100,000 Rwandan refugees entered neighboring Uganda and other countries. They sought asylum from the violence emerging from the social and political change within Rwanda. These refugees, and

Senders and receivers

Sending money to, and especially receiving money from, friends and family was by far the most common reason for cross-border remittances in all five countries. More than half of transactors reported having sent money in the past year to friends and family in other East African countries (see Figure 15), while over three-quarters reported receiving money in the past year from family and friends in other East African countries (see Figure 16).

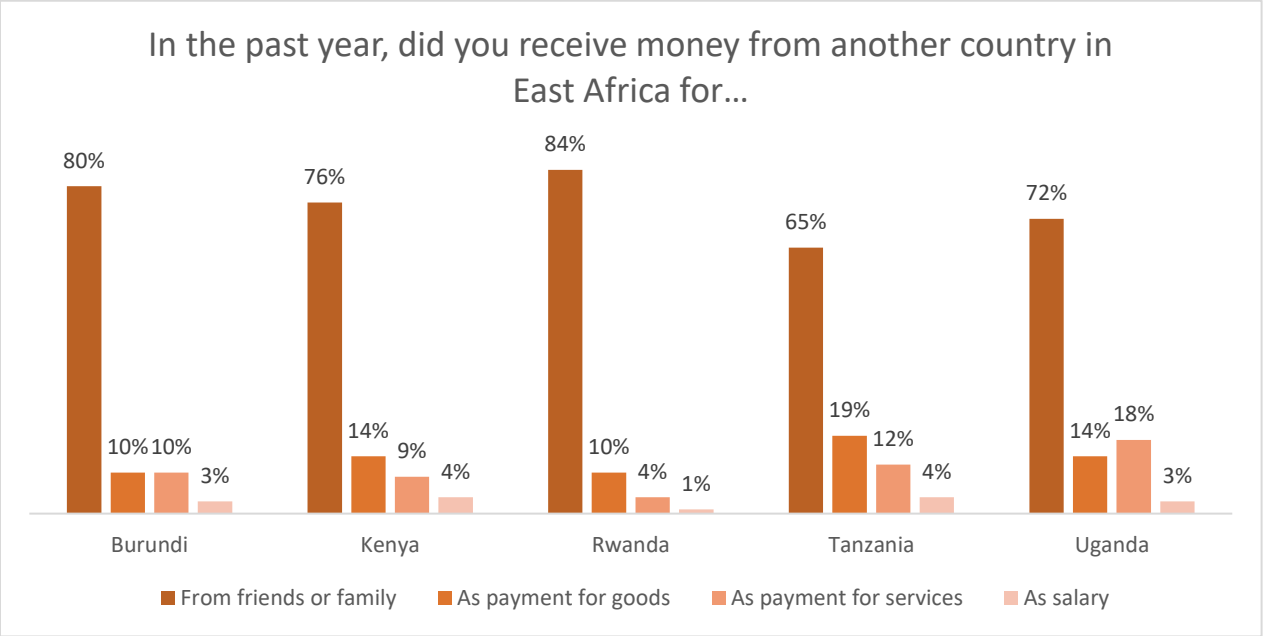
Figure 15: Use cases for sending money[27]



the generations they produced, remained in exile for more than thirty years until political alterations in Rwanda facilitated the return of some in 1994. Many integrated into the Ugandan society and still remain in Uganda.

[27] Services include school fees, electricity and health bills etc.

Figure 16: Use cases for receiving money



The qualitative interviews revealed upkeep, school fees and buying goods for business as the main reasons respondents send and receive money to and from friend and family. For "upkeep," many respondents sent money to parents, partners, and occasionally siblings. Often, the funds did not have a specific purpose and were generally referred to as "upkeep" funds. For school fees, respondents sent money to their children or siblings, particularly in Uganda. Respondents also reported sending money to close family members for buying goods for business, often via the bus system (not used in Kenya). Most of the purchased goods were cosmetics, clothes, shoes, handbags and electronics.

"I have received money five times in the last year from my father who is based in Dar. The money is usually for upkeep. I receive around KES 6,500."
- International FGD, Nairobi, Kenya

Other use cases such as making payments for personal services and personal goods are also significant, especially for senders. More people sent money for services, personal goods and business suppliers across all countries than those who received money for the same use cases (see Figure 15 versus Figure 16). About a fifth of respondents reported having sent money to pay for services and personal goods in all countries (apart from Kenya where just less than a tenth sent money for services). Table 4 below

shows that school fees are paid by most respondents using mobile money. A significant number of respondents also reported sending money for health services.

Table 4: Personal services paid for

	School fees	Health	Electricity & other utilities	Other
Burundi	80%	3%	5%	10%
Kenya	54%	20%	6%	17%
Rwanda	82%	14%	9%	11%
Tanzania	86%	16%	8%	4%
Uganda	51%	32%	23%	15%

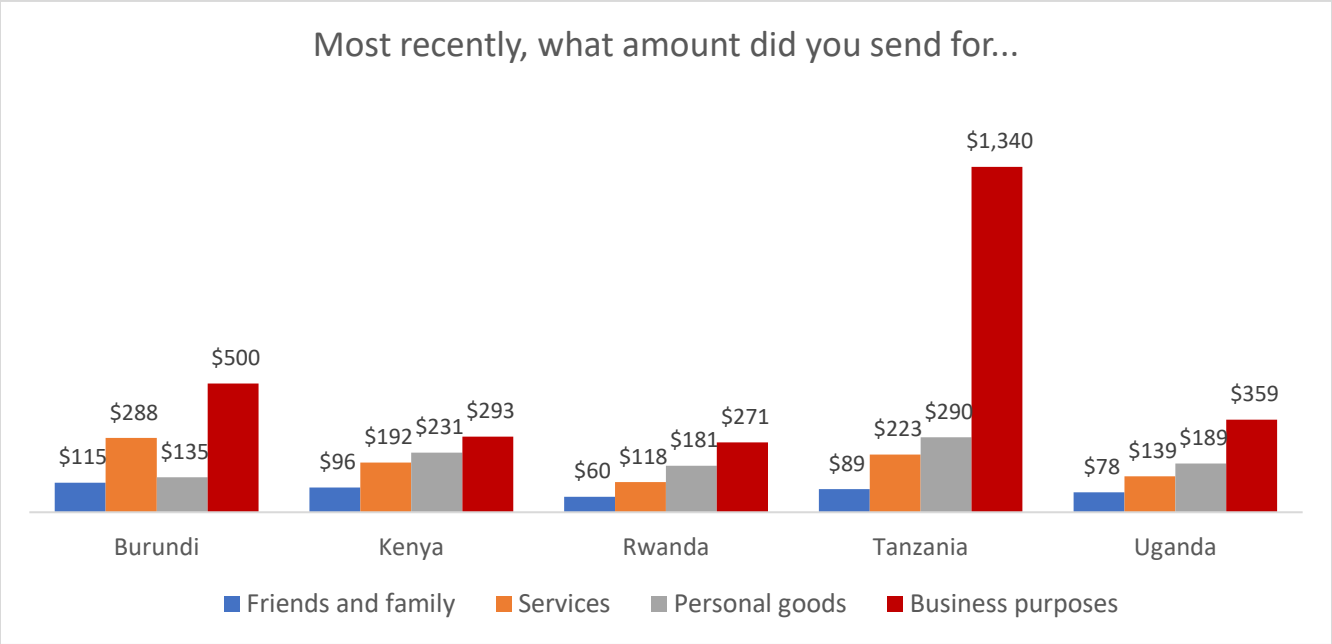
The use case of sending money to business suppliers or receiving money as a business supplier was, on average, quite low (8.3% and 3% respectively). The question may not have been clear enough to distinguish personal vs. business goods. The use case for sending or receiving salary payments was less significant at an average of 1% to 3% respectively.

Transactions for friends and family tend to be smaller while transactions for business purposes tend to be larger. Although sending to friends and family was the most common transaction, it had a lower ticket size compared to the others (see Figure). Business transactions were not as common, but they had higher sizes, with the most marked difference being seen in Tanzania. We do not have a hypothesis for why business transactions were so much larger in Tanzania – it doesn't seem that mobile money transaction limits are higher, for example.

Except for friends and family, the sample sizes were too small for all the other use cases to draw conclusions.

The median amounts received for each use case did not vary significantly from those sent and can be found in Annex B: Additional charts.

Figure 17: Median amount sent by reason for sending



Sending money usually happened once or a few times per year[28] (a few times per year, or even once per year is the most common). Nonetheless, a sizable amount (14% to 30%) of transactions happened one or more times a month. For example, in Kenya, 30% of transactions happened once a month or more (see Table 5).

Table 5: How often respondents sent money to friends and family in the country they sent to most recently

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Less than once a year	13%	11%	11%	5%	14%
About once a year	21%	20%	28%	25%	16%
A few times a year	46%	38%	46%	56%	41%
About monthly	11%	20%	10%	8%	17%
A few times a month	9%	10%	4%	6%	9%

Receiving money shows a similar pattern for frequency (see Annex B: Additional charts).

We expected to find that people send small amounts more frequently, or larger amounts infrequently. A surprising result is that very infrequent transactions (once or a

[28] Please note that included in this analysis are all latest transactions reported, by reason. If a respondent says he sent money to friends and family, but also sent money to pay for services, each transaction appears once, although they may have sent to friends and family multiple times in the last year, and only once to pay for services.

few times per year) also tend to have smaller values. In the qualitative part of the study, we heard that amounts sent for business were larger and more frequent than amounts sent to family and friends.

Median transaction sizes, by frequency of sending are represented in a scatterplot in Annex B: Additional charts.

"Weak" vs "strong" currencies

Respondents did not regard all currencies equally. When sending money via money transfer services, friends/family, bus/courier and through the bank, some respondents preferred sending money in currencies they regarded more highly than their local currencies. This behavior was more pronounced in some countries than others. For instance, Kenyans and Rwandans, and to a lesser extent Tanzanians, mostly used their local currencies. Burundians often sent and received money in foreign currencies, with USD being the most used currency. The Kenyan shilling (KES) was a popular foreign currency for sending and receiving among Ugandans and Tanzanians (see Table 6 and Table 7). The qualitative interviews also revealed that in all countries, some people preferred using mobile money agents to send foreign currency via mobile money on their behalf. For example, instead of sending money across the border using one's own mobile money wallet, some people in Uganda converted the Ugandan shillings (UGX) to KES and gave the KES to an M-PESA mobile money agent in Kampala to send directly to the recipient.

Table 6: Main currency used for sending

	% of sending transactions in local currency	*Next most used currency*
Burundi	55%	USD 32%
Kenya	98%	
Rwanda	92%	USD 4%
Tanzania	85%	KES 9%
Uganda	72%	KES 20%

Table 7: Main currency used for receiving

	% of receiving transactions in local currency	*Next most used currency*
Burundi	42%	USD 23%
Kenya	79%	USD 4%

Rwanda	87%	USD 6%
Tanzania	77%	KES 18%
Uganda	65%	KES 16%

The quantitative results are supported by evidence from the qualitative interviews. Focus group discussions and individual interviews highlighted that the relative strength of someone's home currency is factored in when deciding which currencies to send or receive.

The KES is the strongest and most preferred currency among the four markets. Interviews revealed that even when transacting with Tanzanians, Kenyans got to determine the exchange rate.

"The Uganda suppliers like [the] KES because the exchange value is very high, we don't like their (Uganda) currency."
-Female FGD, Busia, Kenya

Tanzanian shillings (TZS) are preferred to UGX: In the border town of Mutukula in southeast Uganda, most transactions at the border were done in cash, but traders from Tanzania refused to accept the Ugandan currency because it was considered "weaker." Ugandan traders were then forced to convert their currency into TZS to transact. However, Ugandan traders happily accepted TZS.

"When I go to Tanzania, I use Tanzanian currency. Our currency is weak, so it is safe to carry Tanzanian currency."
- Trader FGD, Mutukula, Uganda

Issues with exchange rates even led to in-kind trades. In the border town of Kigoma in Tanzania, some respondents bypassed cash altogether to avoid dealing with exchange rate issues. Some Tanzanian traders chose to trade in-kind goods with their Burundian counterparts to avoid the weaker Burundi currency and overcome uncertainties in foreign exchange rates. Tanzanian traders who dealt with Burundi also chose to deal in USD, especially for large shipments of goods. In some instances, a trader gave money to a businessperson who had shops in both Burundi and Kigoma, Tanzania. The trader left their money at the Burundi shop and picked up the same amount at the Kigoma shop (in USD). Respondents claimed they were not charged, making this their preferred method.

The qualitative interviews revealed that generally, the furthest Rwandans could use their currency was at the border. Thus, Rwandan traders typically preferred buying USD when traveling to the other East African countries. The KES, UGX and TZS were accepted in some places beyond their own border when traveling within East Africa.

Mobile money in cross-border transactions

Mobile money is already the most common method for sending money across the border, with the exception of Burundi. Nearly half of the senders in all countries reported using mobile money for their last cross-border transaction (except Burundi, see Table 8). After mobile money, most people reported using money transfer services as well as friends and family.

Sending through a friend or relative was the most used channel in Burundi and the second most used channel in Rwanda. The bus/courier was also commonly used in Burundi. Kenyans, Ugandans and Tanzanians also made use of the bank. Post services were the least popular (about 1% of respondents used them).

Methods used to receive money exhibited similar trends and can be found in Annex B: Additional charts.

Table 8: The methods respondents used to send money in their most recent cross-border transaction

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Go to the country	5%	5%	6%	1%	4%
Bank	8%	13%	4%	13%	12%
Money Transfer	18%	15%	14%	13%	14%
Post Office	1%	1%	1%	1%	0%
Bus/Courrier	18%	2%	6%	10%	4%
Friends/relatives	32%	8%	20%	12%	6%
Mobile money	11%	51%	48%	50%	54%
Other	6%	4%	1%	1%	4%

Mobile money usage (for domestic transactions) is already high in all the countries in the study, except Burundi. Among both the people who transacted cross-border and those who did not, over 90% of our survey respondents in all the countries reported that they used mobile money, except Burundi where just over half received mobile money

transfers domestically from friends and family (see Table 9 and Annex B: Additional charts for further breakdown). This is higher than the share of mobile phone users who have mobile money reported in other national surveys. In terms of understanding mobile money usage, it would probably be better to be guided by the recent FII trackers (2016) showing mobile money penetration in the general population (not just those who own phones) at 53% in Tanzania, 38% in Uganda and 67% in Kenya[29]; and the Rwanda FinScope 2016 that showed mobile money penetration at 34%. These percentages are still among the highest in the world and reflect active and growing use of mobile money in the East African countries. This provides a strong foundational market for cross-border mobile money transactions.

People are already using mobile money for a wide range of uses, including sending and receiving money internationally (worldwide, including East Africa). From our quantitative survey, a third of respondents are already using mobile money to send and receive money from family and friends in other countries. Table 9 below shows the proportion of people that reported engaging in various use cases.

Table 9: Mobile money uses among senders who have mobile money

	Burundi (N=231)	Kenya (N=345)	Rwanda (N=461)	Tanzania (N=336)	Uganda (N=328)
To send to friends and family in other countries	12%	66%	51%	50%	48%
Receive from friends and family in other countries	17%	48%	34%	27%	39%
To send to friends and family domestically	92%	99%	97%	99%	99%
Receive from friends and family domestically	53%	99%	93%	98%	94%
Deposit money when you travel	26%	85%	75%	79%	69%
Send money for business purposes	25%	81%	51%	64%	74%
Receive salaries/wages	16%	44%	29%	26%	34%
Save or keep money	45%	82%	76%	81%	70%
Pay bills	13%	79%	79%	88%	83%
Pay for goods	26%	85%	39%	50%	44%
Receive payments for goods	17%	57%	47%	43%	51%
Buy airtime/data	59%	95%	93%	98%	98%

Mobile money services are already operational for cross-border services in East Africa except Burundi (See Table 10 for the providers that respondents reported using). A surprising result is that in Uganda, Kenyan mobile network operator Safaricom handles a substantial share of transactions. Although Safaricom does not officially offer mobile money in Uganda, there were some M-PESA (Safaricom) mobile money agents in Kampala and at the border town of Malaba who offered the mobile money services.

[29] Financial Inclusion Insights. 12 September 2017. *Reports*. http://finclusion.org/reports/

They charged an extra cost of 10% in Kampala, but no extra charges in Malaba. During the qualitative interviews, respondents highlighted that they prefer using their home country SIM cards when they are traveling. They can easily pay bills and send money back home; these tasks would be more complicated with a SIM from the host country. Besides, since the charges are similar, they did not see the need of obtaining a SIM from the host country. This could explain some of the use of Safaricom in Uganda.

Table 10: Mobile money providers used for sending to friends and family

	Tanzania			Uganda	
	Sending	Receiving		Sending	Receiving
Vodacom	73%	63%	Safaricom	38%	28%
Tigo	22%	29%	MTN	36%	42%
Airtel	4%	6%	Airtel	18%	22%
Other	2%	3%	Other	4%	

	Kenya			Rwanda	
	Sending	Receiving		Sending	Receiving
Safaricom	94%	91%	MTN	81%	80%
Airtel	4%	5%	Tigo	8%	7%
Other	3%	4%	Airtel	6%	7%
			Other	5%	4%

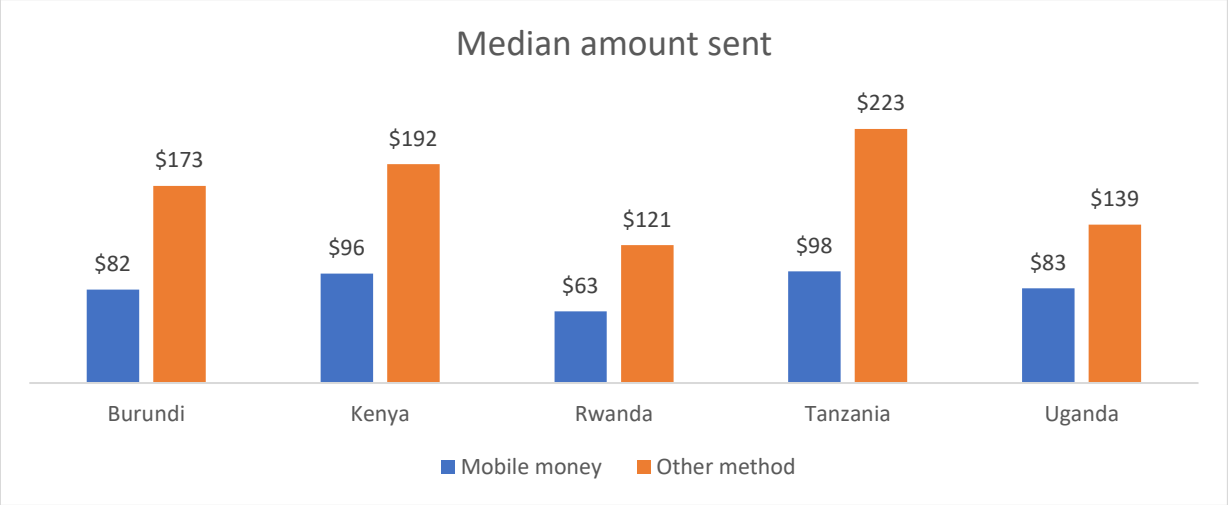
When sending money to another country, people like using MTN to MTN or M-PESA to M-PESA which makes sense as it is the most seamless and familiar. The MTN-M-PESA interface is apparently also working between Kenya and Uganda (see Table 11).

Table 11: Mobile money provider pairs (Sending and receiving to friends and family only)

		Sender's provider			
		Kenya	Rwanda	Tanzania	Uganda
		Safaricom M-PESA (N=105)	MTN Money (N=146)	Vodacom M-PESA (N=75)	MTN Money (N=43)
Receiver's provider	MTN Money	25%	75%	9%	43%
	Safaricom M-PESA	25%		76%	35%
	Vodacom M-PESA	27%			
	Don't know	20%	18%	17%	9%

Transaction sizes were smaller in mobile money than for other transfer methods. The median amount sent via mobile money was twice as small as the median amount sent by other methods (See Figure 18).

Figure 18: Median amount sent via mobile money vs. all other methods



The smaller transaction sizes could be because of the smaller limits allowed for mobile money transactions. Respondents who were traders reported preferring bus/courier or banks to remit larger transaction amounts across the border because of the lower limits on mobile money transactions. It could also reflect that people choose to use mobile money when they have a smaller amount to send, since other forms of transfer are more expensive at these lower values. It could also reflect that when mobile money is available, people send small amounts that would otherwise not be sent at all (noting the

finding above that smaller amounts are more infrequent). The convenience and speed of mobile money may prompt transactions that would otherwise not have taken place. For the median amount received using each method, see Annex B: Additional charts.

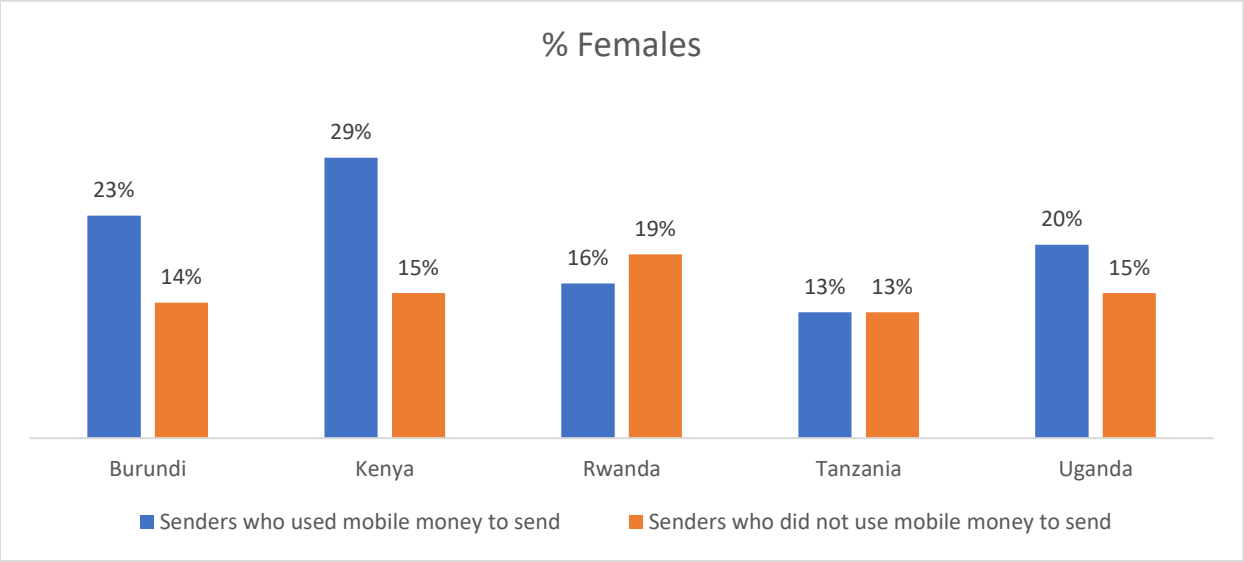
Among travelers, cash is still king but cashing out at mobile money agents while traveling is more popular than ATM withdrawals (Table 12). Using a mobile money account while traveling is also popular especially among travelers from Kenya. We saw from the qualitative interviews that when travelers use mobile money when traveling, they mostly want to use their domestic SIM. They can cash out and perform their home country transactions while they are still in other countries. For example, they can pay their bills back at home, send money to others back at home, buy airtime, etc. Cash out is only possible where there are agents of the traveler's domestic provider in another country. At present, there are no interoperable cash-out facilities and hence catering to this need of travelers could be a market opportunity.

Table 12: Main way respondent obtained cash during their most recent travel to other East Africa countries

	Burundi	Kenya	Rwanda	Tanzania	Uganda
I carried cash with me	91%	66%	85%	81%	75%
I withdraw cash from ATM	3%	11%	5%	10%	10%
Used a credit card	2%	3%	2%	0%	1%
Withdrew from mobile money account	2%	22%	11%	11%	12%
Used traveler's checks	1%	1%	1%	0%	1%
Some other way(please specify)	2%	4%	2%	8%	8%

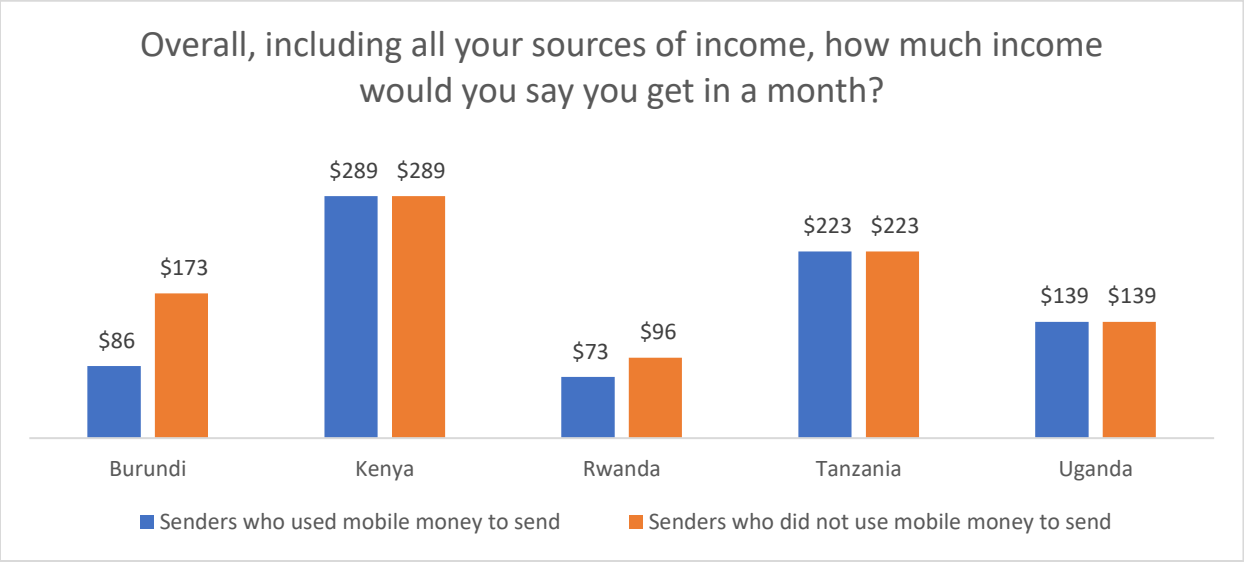
Mobile money may be especially attractive to women. Although the share of women using cross-border transfers was low overall, women in Burundi, Kenya and Uganda (see Figure 19:) were significantly more likely to use mobile money for cross-border transfers than another method.

Figure 19: Percentage of female users of mobile money for cross-border transactions



Mobile money senders in Rwanda and Burundi were poorer than senders who didn't use mobile money, whereas in the larger countries there was no difference in incomes. In Burundi, the median income of those who used mobile money to send cross-border payments in Burundi was half of those who did not, while in Rwanda it was three-quarters (see Figure 20). These are also the countries where the total values sent are much lower, as they are also the poorest countries in the region.

Figure 20: Median income of cross-border senders[30]



Demand for interoperable mobile money solutions

People are already using mobile money, but for a minority of transactions. Could a larger share of transactions move to mobile money? More importantly, can the overall market for cross-border transactions be expanded if there was greater use and availability of mobile money?

Mobile money is not preferred in Uganda and Tanzania

During the qualitative interviews, we asked respondents to determine the qualities that they associate with good and bad experiences when sending and receiving money using popular methods. Respondents identified and then ranked the most preferred methods they use, such as mobile money, the bus system, sending someone in person, money transfer services, etc. Table 13 shows the approximate rankings in each market. Although mobile money ranked first in Kenya and Rwanda, and third in Uganda, it was not among the top four preferred options in Tanzania despite Tanzania being a major country for domestic mobile money usage. The bus was important in Tanzania and Uganda for international transactions.

[30] Monthly GDP per capita, PPP (current international USD) for each of the 5 countries is: Burundi (USD 64), Kenya (USD 263), Rwanda (USD 160), Tanzania (USD 232) and Uganda (USD 154). Although these are similar to the median incomes in Figure 9, GDP per capita is not the same as median national income.

Table 13: Ranking of preferred methods of sending money cross-border (all respondents, including those that don't make international transfers by mobile money)

Approximate rankings	*#1 (best)*	*#2*	*#3*	*#4*
Kenya	Mobile money	Banks/ money transfer services	Traveling themselves	Sending someone else
Tanzania	Bus	Traveling themselves	Sending someone else	Banks/ money transfer services
Uganda	Bus	Sending someone else	Mobile money	Traveling themselves
Rwanda	Mobile money (Using same sim cards)[31]	Bus	Traveling themselves	Sending someone else

For the Kenyan respondents, mobile money was the preferred method for international payments, both for groups that had used it for international payments and those that had not. Using a bank/money transfer service and traveling themselves ranked as number two and three respectively.

"Personally, I prefer mobile transfer because it's fast and saves a lot of time. If I transact in person I will have to board a bus, pay fare and go all the way to Uganda to buy products." - International FGD, Busia, Kenya

Tanzanians were split depending on whether they had actually used mobile money to make international transfers. Respondents who had used the service generally ranked mobile money as first, followed by traveling themselves, sending someone else, or using the bus service. Tanzanians who had not used mobile money to make international transfers ranked using buses as first followed by traveling themselves and sending someone else. They preferred not to use mobile money stating it was not reliable and there were afraid of making a mistake (see section below on Usability).

[31] Used home country MTN Rwanda SIM card in Rwanda and while traveling in Uganda

"I think using the bus is better. I don't know about using the mobile money since I am used to buses which I have used for a long time and I trust them to send the luggage."
- Domestic FGD, Kigoma, Tanzania

In contrast, mobile money was generally ranked third in Uganda after buses and sending in person. Respondents overwhelmingly preferred using registered bus companies. Those sending large amounts of money, traders and non-traders alike, tended to prefer the bus system as there are limits to how much money you can send through mobile money (~UGX1.5 M or about ~USD 400). In border towns, most traders used banks as they could go across the border and open an account in the other country (Kampala-based respondents could not do this easily).

In Kigali, Rwanda, mobile money was ranked the best. Most respondents were sending money to Uganda wallet-to-wallet using a Rwandan MTN SIM. So, when receiving money, for example, the recipient would keep the MTN Rwandan line even if they were in Uganda. We heard that there are MTN Rwanda mobile agents who are based near the stations for buses traveling to Rwanda. None of them reported concerns about being shut down for operating illegally, and they apparently did not charge extra for providing the service in Uganda. The mobile money agents also served as money changers, which made it easier for recipients to access the money sent to them. They charged for the currency exchange service.

"The reason why we prefer mobile money is because if you use mobile money, nobody can steal or divert your money. When you send the money, you receive a notification of the transaction and thus hope that the money reached the receiver. And even if he doesn't receive the money, you can claim using the notification message and if really the receiver didn't receive it, then they send it to him."
- International FGD, Kigali, Rwanda

Most important drivers when choosing a transfer method

During the qualitative study, transactors in all four markets cited the main attributes that they appreciate when making and receiving international payments: reliability (including safety) of the service, the speed at which the transaction is completed, and the price (real and perceived), see Table 14.

Table 14: Most important priorities when choosing a cross-border transfer method

Kenya	Tanzania
• **Reliable service** • **Clear explanation of how much it will cost** • **Convenient service**	• **Reliable service** • **Trust** • **Great customer service** • **Fair pricing**
Uganda	Rwanda
• **Reliable service (safety)** • **Great customer care services** • **Affordable rates**	• **Availability of clear information on charges** • **Reliable services (safety, speed)** • **Trust**

The quantitative survey respondents reported easy access followed by speed as the main reason they chose their transfer method. Aspects related to cost (including the exchange rate) did not feature as high on the list for phone survey respondents (see Table 15) as they did during the qualitative study. This finding was consistent with what we found in the Kenya mobile money interoperability demand study[32], where convenience brought about by easy access and reliability ranked higher than cost.

Table 15: Criteria for choosing method of sending to friends and family ("Why did you use [method used by respondent] to send money to friends in family most recently?" Select all that apply)

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Only way available	28%	24%	32%	9%	22%
Speed	26%	33%	31%	40%	15%
Easy access/close	30%	45%	53%	68%	46%
Safety	6%	13%	7%	10%	7%
Cost	16%	15%	7%	10%	12%
Exchange rate	3%	2%	3%	0%	1%

[32] Unpublished study commissioned by the Mobile Money Association of Kenya (MMAK) and Financial Sector Deepening Kenya (FSD Kenya)

Trust that money is safe	10%	7%	9%	14%	6%
Receiver prefers it	10%	10%	7%	4%	12%

Ease of access seems to be a comparative advantage for mobile money except in Burundi. There was a relatively high proportion of respondents for which their transfer mode was the only one available, or at least the only one they were aware of.

Reliability/Safety

Respondents in all four markets overwhelmingly valued money transfer services that were deemed reliable (we include safety in the definition of reliability, as did respondents). In Kenya, Nairobi respondents were even willing to pay a higher transaction fee so long as the money was guaranteed to reach the intended recipient. While mobile money was popular in Kenya, there was still hesitation among respondents who had not yet used it for international money transfers. These respondents liked their experiences with banks and money transfer services since they were confident the money would reach the intended recipient. Banks are used for large amounts since people believe they are more reliable. A number of respondents asked questions about what would happen if they sent money to the wrong number, for example. Respondents preferred human touch points at agents and banks since they can confirm transactions.

Moderator: Have you ever lost money after sending by parcel?
Respondent: Not yet but when you use it you don't get peace of mind, you keep wondering if it will be delivered
- International FGD, Kenya, Namanga

Respondent: You can send someone and then that person will come back telling you that they lost the goods yet they came with theirs and then you are stranded because you don't know how to claim for that loss because that is a different country and you end up losing those goods.
- Kenya Namanga FGD intl

In Tanzania, a similar sentiment came through among both mobile money users and non-users alike. Respondents elected to use buses since they believed the money was insured in case of a road accident or theft. In addition, they knew for sure that the transaction took about two days, unlike with mobile money where there was possibility of running into unanticipated network issues (discussed more in-depth in section below on Network and recourse). Finally, the buses provided them with receipts, giving them valuable proof in case there were any issues. When it came to mobile money, users had

to call customer care and recovery could take up to four days. Some respondents also preferred to send money via family members to ensure that it arrived safely, usually to pay for school fees or to buy goods. Tanzanians were also willing to spend more if they trusted the money would arrive safely to the intended person. For example, they pay a fee of TZS15,000 (USD 6.7) to send TZS100,000 (USD 44.7) through the bus (15% of the transaction amount).

Similarly, in Uganda and Rwanda respondents preferred using the bus system, especially those who sent large sums of money. They tended to trust the bus system over other methods, including mobile money, since the bus is a registered company and offers insurance.

Traders, too, prioritize reliability. In Uganda, certain commodities are hard to come by. When traders learn of their availability, they need to remit payments immediately. Hence, they preferred to use mobile money because of its reliability, and its speed. Given mobile money's superior attributes in this case, traders said they did not mind if the cost of the transactions were higher. If they missed the chance to obtain their goods, they could lose out.

Convenience/Speed

Respondents in all four markets value methods that are deemed convenient and/or fast. Mobile money users in particular cited that mobile money removed the cumbersome need to travel. Respondents were generally willing to pay more in emergency situations. If family members or friends required money for urgent medical expenses, for example, they prioritized speed over cost. When mobile money worked well, people preferred it since it was instantaneous. Respondents were also willing to pay more for money transfer services since it was viewed as fast and reliable.

"Between cost and time, I would go for time because at times you find someone on the other end is really pestering you waiting for their money."
- International FGD, Namanga, Kenya

"From a business perspective, I prefer a fast method of sending money because you can get what you want within a short period of time."
- International FGD, Kampala, Uganda

In both border towns we visited in Rwanda, respondents told us how they prioritized speed. They often experienced challenges with money agents and the foreign exchange

bureaus who occasionally run out of TZS or UGX. A respondent at the Rusumo border told us he waited two days for the local foreign exchange bureau to obtain TZS all the way from Kigali. Thus, he was unable to buy the goods he needed. There is a great deal of competition among traders, and so whoever pays fastest wins.

Cost

Respondents in all four markets highlighted cost as an important factor they consider when sending money. In general, only senders tend to factor in cost, as they usually incur all charges. Also, it often happened that people who did not use mobile money to send or receive cross-border transfers perceived mobile money to be more expensive than other available channels.

Respondents have adopted a few strategies to reduce costs, such as sending money through agents who have the same mobile money network as the recipient. They often perceive the charge for cash out at agents to be cheaper than sending money wallet to wallet. In particular, Kenyan, respondents do not like sending money from Safaricom to Vodacom recipients because the total cost including the exchange rate appears high.

"The problem with money transfer agencies is the cost. If you can have a friend who will deliver the money without charging you, then that's the best option."
- Non-users FGD, Rusumo, Rwanda

Typically, mobile money fees are higher when transaction amounts go beyond a certain threshold. In Uganda, this factors into why users preferred the bus system: they claimed it costs less, especially for higher amounts. This sliding fee scale affects Kenyan behavior as well. Kenyan respondents used banks to send large amounts as they found it cheaper than mobile money.

"You know any businessperson must first consider the cost, so if you want to send say 100,000 through M-PESA to Kenya and it costs you, 10,000, sending 1 million would be expensive. Therefore, you just use these bus companies because it's cheaper."
- Domestic FGD, Dar es Salaam, Tanzania

The sentiment of mobile money being more expensive came up more often in groups that had not used mobile money for cross-border transactions. Some of these perceptions appeared exaggerated. This potentially reflects an additional market for mobile money transactions if users were aware of the true costs.

"I hear that sending money digitally is more expensive than using a bus. I'm told that using Airtel they charge you 10 percent. You're charged for sending and also for receiving. But I never tried it"
- Domestic FGD, Kigali, Rwanda

"For me, I just avoid expensive charges. I asked a friend about mobile money and was told it's way expensive so I never use it."
- Domestic FGD, Rusumo, Rwanda

Large potential market for cross-border mobile money transfer

A significant proportion of respondents claimed there were instances when they did not send or receive cross-border payments because of lack of a suitable instrument. We asked respondents (senders, receivers, travelers, as well as people who did not perform any of these transactions over the past year) if over the past year there were occasions when they had to forgo transactions for the lack of a proper instrument (see Figure 21). A large portion (24% to 42%) of current senders and receivers confirmed that there were occasions when they did not send or receive because they lacked a proper instrument. What is even more surprising is the substantial proportion of non-senders or receivers (6% to 21%) who said they would have performed these transactions if they had the proper instrument available. This suggests that better ways of transacting cross-border may increase the frequency of transactions among current transactors, and pull a new set of clients onto the market. To shed light on what they considered to be a suitable

instrument, please see the previous section on what people consider when choosing remittance channels.

Figure 21: Proportion of people that had forgone a cross-border transaction because of lack of suitable instrument for transacting

Over half of the respondents claimed they would use interoperable mobile money services if they were available. Among senders in all countries but Tanzania, the majority (over 70%) stated that they would use mobile money if it were possible to send directly to the other person's account (see Table 16). Surprisingly, the lowest portion is among Tanzanians – only 56% responded positively. This is particularly surprising since Tanzania is the most developed market for domestic interoperability in EAC. We wonder if Tanzanians have encountered some problems with domestic interoperability that caused them to be wary of international interoperability, but we do not have any data to establish the reasons Tanzania are more skeptical.

Table 16: If it were possible to send money directly into other person's account across borders, would you use this service?

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Very unlikely	2%	5%	1%	9%	4%
Unlikely	4%	6%	12%	16%	11%
Neutral	3%	7%	4%	20%	9%
Likely	31%	49%	45%	15%	38%
Very likely	58%	30%	37%	38%	35%

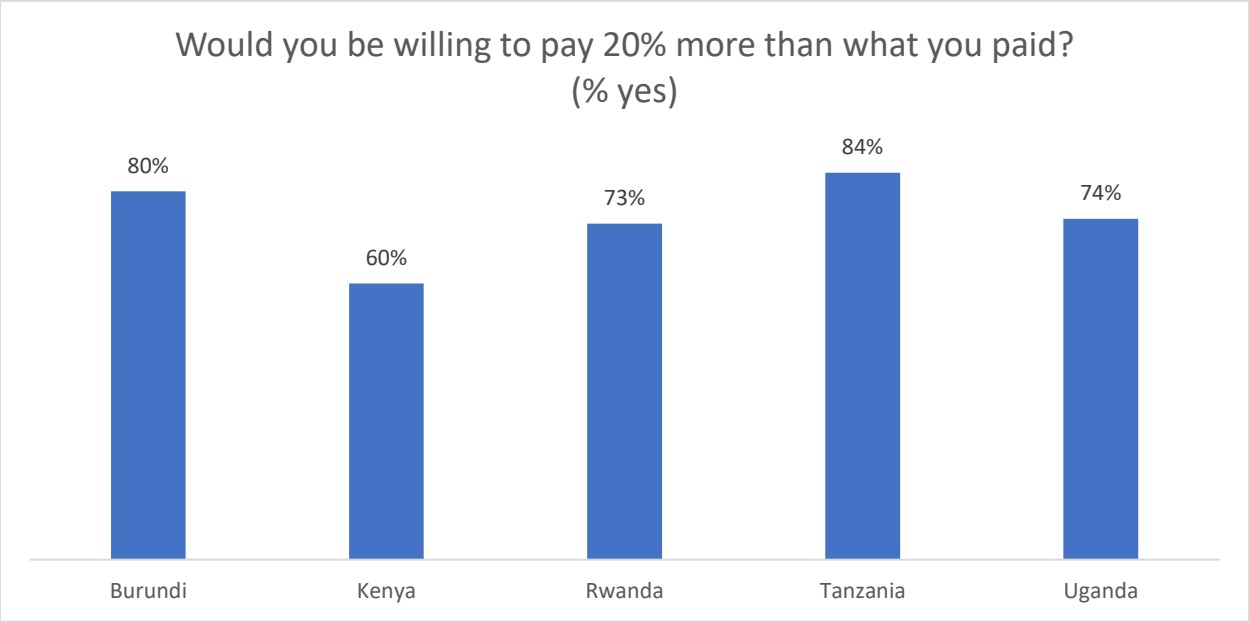
"If that service (cross-border payments using mobile money) will be there it will be an alternative service and it will be better than the rest. It is a good method, personally as security is so poor to travel with cash."

"I like it since sending money, you cannot give anyone your money and even if you travel yourself you cannot carry ten million in your pocket. It would be safer."
- Traders FGD, Tanzania, Kigoma

Amongst the phone survey respondents, nearly three-quarters claimed they would be willing to pay 20% more for interoperable cross-border mobile money services (see Figure 22) than it cost them the last time they sent to the other EA countries using whichever channel. Of course, we expect that interoperable mobile money solutions would not be more expensive than current non-digital transfer methods, nonetheless this willingness to pay more is telling of customers' appreciation for such convenience.

Although customers say they would be willing to pay more for mobile money services, this question does not capture responses from those who did not send money cross-border at all who were not included in the survey. The overall market may be more price-sensitive, since lower prices would induce new people to enter the market. See the next section on Drawbacks and barriers to mobile money for cross-border transactions, which includes some additional reflections on price sensitivity.

Figure 22: Willingness to pay for mobile money cross-border transactions



Travelers are an underserved market

Although travelers predominantly used cash, many used mobile money accounts during their latest travel (see Figure 23). The preference is towards using an account from their home country, rather than acquiring a new number from the country they are visiting. Table 17 shows the providers used by travelers during their most recent trip. Since agent services (cash-in and cash-out) are not currently interoperable, withdrawing money in the foreign country is cumbersome.

Figure 23: Travelers that used mobile money while on their last trip

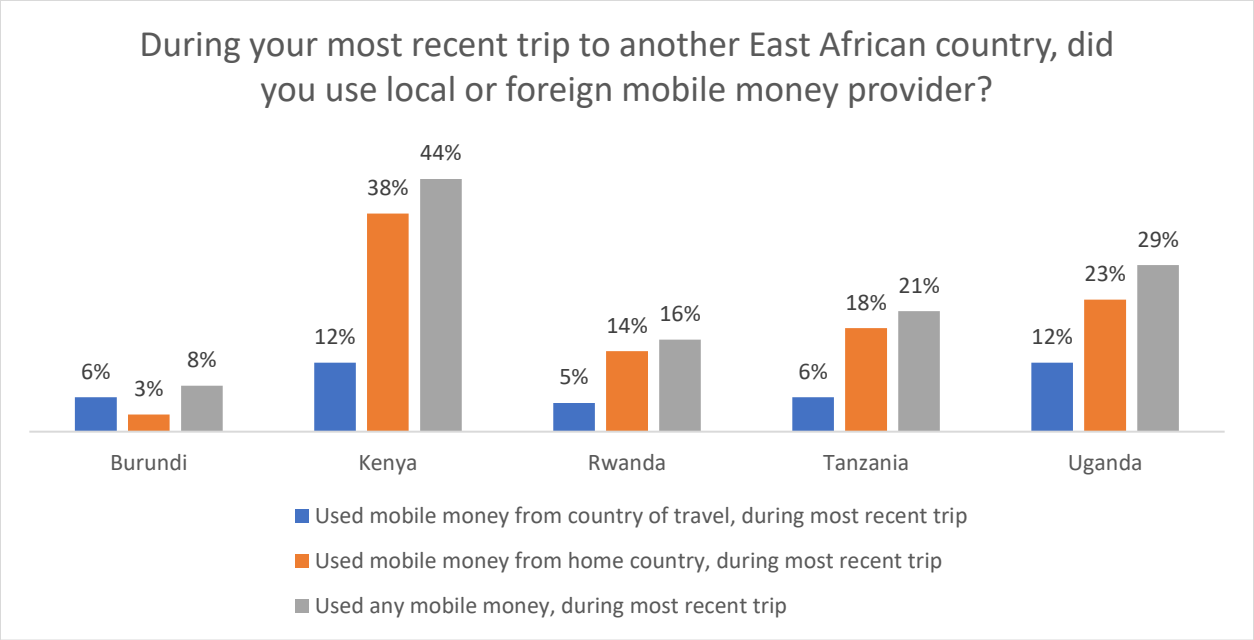


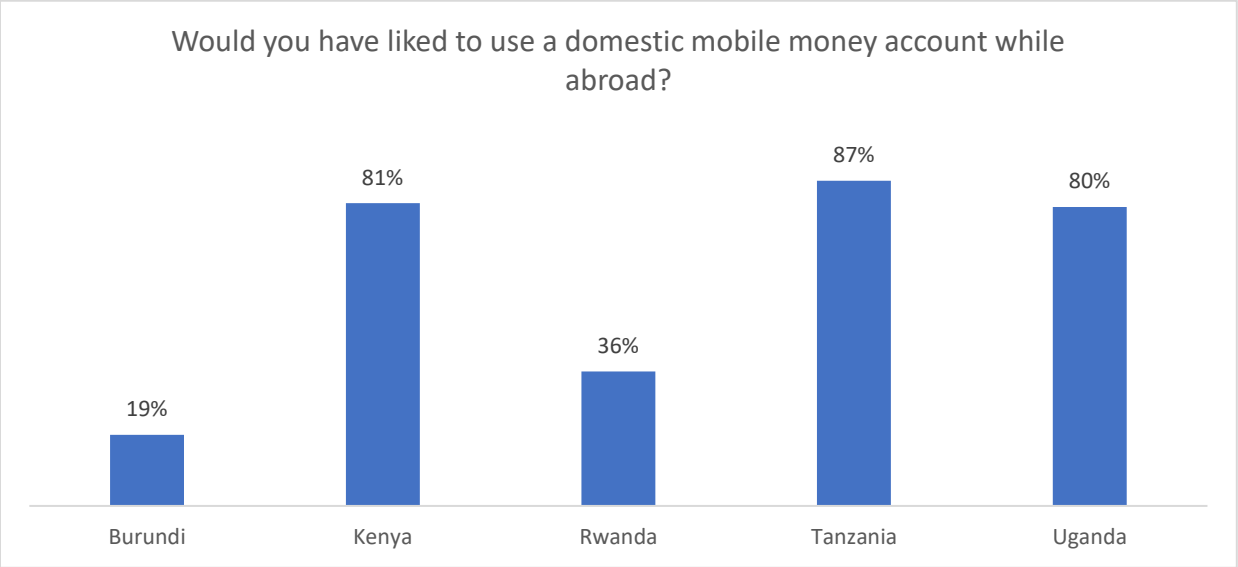
Table 17: Providers used by travelers who used their home country mobile money during their most recent trip

Burundi (N=28)		**Kenya (N=228)**		**Rwanda (N=144)**		**Uganda (N=220)**		**Tanzania (N=120)**	
Leo	36%	Safaricom	94%	MTN	72%	Airtel	54%	Vodacom	43%
Ecocash	50%	Airtel	18%	Airtel	18%	MTN	53%	Tigo	40%
				Tigo	16%			Airtel	16%

A large majority of travelers (over 80% in Kenya, Tanzania and Uganda) who did not use a domestic mobile money account while abroad say they would have liked to (see Figure 24). The idea is not as popular amongst Burundians and Rwandans, possibly because their currency is weaker.

".. there is a time you reach there and experience dollar changes or fluctuation, as the dollar rate increases the Rwandan Francs also increases or decreases that is reason why when you exchange you know exactly what amount the receiver will receive."
- Domestic FGD, Rwanda, Kigali

Figure 24: Would you have liked to use a domestic mobile money account while abroad?



Border traders are probably not a target market

One of the hypotheses at the outset of the study was that border traders might have a higher need for cross-border mobile money transfers, since they frequently perform cross-border transactions.

However, our qualitative studies revealed that those living in close proximity to border areas may have weaker demand for interoperable mobile money solutions than those living in city centers. Mobile money generally ranked lower in the border towns. Most people preferred either using the bus or sending someone and going themselves. In addition, users near the border often travel to retrieve goods, and pay multiple entities along the way (different customs agencies, for example). Thus, given the nature of these transactions, users cannot imagine using mobile money. The borders are porous and traders buy small quantities that they can easily pass through customs. Also, the respondents we talked to at the border highlighted that more often than not, they do not have allegiance to one supplier. They prefer traveling since they can visit several shops at the same time and bargain.

Drawbacks and barriers to mobile money for cross-border transactions

Although mobile money was popular for cross-border transactions, there were still a number of reasons why it was not used more, or at all. We asked respondents aware of

mobile money why they do not use this method for international transactions (not only within East Africa). The reasons vary across countries but lack of awareness and knowing how to perform the transaction stand out in all five countries (see Table 18). Price is also a barrier. A relatively small proportion thinks that mobile money is in general just not as good as their current method. The exception is Uganda, where 19% think mobile money is not as good as what they are using now.

Table 18: Why not use mobile money for international transactions?

Why not use mobile money for international transactions?	Burundi	Kenya	Rwanda	Tanzania	Uganda
Not aware it was possible	32%	23%	16%	18%	18%
Expensive	4%	16%	15%	21%	23%
I don't know how to do it	50%	11%	26%	34%	13%
It is not possible to send to the countries I need to send to	8%	6%	3%	4%	4%
The person I need to send to does not use mobile money	2%	13%	6%	7%	4%
Too risky/ I do not trust it	7%	6%	7%	16%	9%
Not as good as my current method(s)	7%	8%	13%	10%	19%

Awareness

Around 20% of respondents were not aware that it was possible to use mobile money for international transactions. Even in Kenya, where mobile money usage is most prevalent, almost a quarter of the respondents did not know it was possible to send money cross-border though there was a billboard in the town alerting people to the service. In Tanzania, the majority of respondents did not know such services existed. Respondents who were not aware of existing cross-border mobile money services expressed a lot of interest.

Moderator: What if you get a service where by you send the money in KES via M-PESA and the Ugandans can receive it in UGX via MTN
Respondent: Yes, that can help us a lot since we won't have to cross the border.
Respondent: Yes, will be able to operate our business well without having to close them and travel all the way to Uganda
- International FGD, Busia, Kenya

Moderator: Is it possible to send via M-PESA to MTN directly?
Respondent: (All) no it's not possible. But we are hoping that you will be able to improve

that so we can be able to transact the whole of East Africa.
- International FGD, Busia, Kenya

Amongst those who already use cross-border payments, mobile money sounded attractive. A key attraction of the interoperable solution is that it would get around foreign exchange rate confusion and the need to travel to exchange money.

Moderator: What if you get a service where by you send the money in KZS via M-PESA and the Ugandans can receive it in UGX via MTN
Respondent: Yes, that can help us a lot since we won't have to cross the border.
Respondent: Yes, will be able to operate our business well without having to close them and travel all the way to Uganda
- International FGD, Busia, Kenya

Moderator: Is it possible to send via M-PESA to MTN directly?
Respondent: (All) No, it's not possible. But we are hoping that you will be able to improve that so we can be able to transact the whole of East Africa.
- International FGD, Busia, Kenya

"I think it would be better if the East African countries were using the same currency because it's much easier to send and receive money via those countries."
- Domestic FGS, Mutukula, Uganda

"Simply because in East African countries people haven't yet embraced the use of neighboring currencies, you always have to convert. While converting neighboring currencies you're often given at a lowest rate. So, you better use mobile money because they will keep all currency value of all the countries the same."
- International FGD, Kigali, Rwanda

The reason why I choose to send money this way is because I don't need to move to the bus. I can stay doing my work and send directly using my phone which is easy the same as the receiver.
- Domestic FGD, Rwanda, Rusumo

"It is faster - no need to go and exchange money."
-International FGD, Rusumo, Rwanda

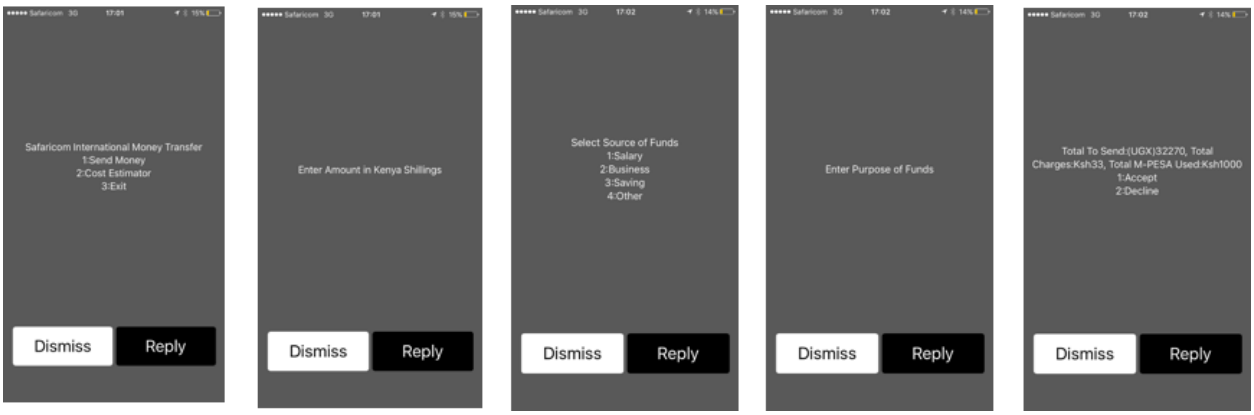
"I would use [mobile money] because it saves time and the hassle of going to the bus; hence it is more convenient"
- International FGD, Kampala, Rwanda

Usability

Mobile money's USSD menu can be complicated and cumbersome. Consistent with the quantitative findings indicated above in Table 18, transactors we spoke with in all four markets referenced usability issues with mobile money. Even in Kenya, a country with superior network coverage and advanced use of mobile money, a few respondents had trouble using mobile money to complete cross-border transactions (Safaricom to MTN). Instead, they often chose to send money to Tanzania through a SIM Toolkit paybill number that they deemed easier to use than mobile money's USSD menu (this SIM toolkit option is only available from Safaricom M-PESA to Vodacom M-PESA from Kenya to Tanzania).

Mobile money menus required users to go through two additional steps stating the source and purpose of the funds. Respondents blindly chose any selection to get through this extra step quickly. In Tanzania, respondents who had used mobile money for international transactions complained that the process of sending money internationally is too long and time-consuming. We heard similar sentiments in Uganda - the transfer process via a USSD code is cumbersome and time-consuming especially if one is using a feature phone (see Figure 25).

Figure 25: Screenshots showing USSD menus for sending money from Kenya to Uganda



While usability issues exist in Rwanda as well, respondents there were more fluent in digital technology, similar to their counterparts in Kenya. There were fewer complaints about usability issues.

Foreign exchange

Qualitative respondents in all four markets told us that they lack essential information on foreign exchange rates; this may be an important perceived barrier to interoperable mobile money solutions. Foreign exchange issues did not show up as strongly in the quantitative survey of mobile phone users, but we found that respondents tend to conflate cost and exchange rate issues. Respondents would start by complaining about cost, but after probing they would reveal that their main contention was lack of control and transparency regarding the exchange rate.

Customers know the exchange rate changes many times in a day, and lack a transparent and comprehensible way to obtain the correct rate. Respondents alike cite a myriad of methods they employ to deal with the lack of control they feel when converting currencies. Even when using the popular local money changers, customers may shop around until they find the best deal.

"That is why I like using World Remit because if you send with World Remit they get it in TZS."
- International FGD, Nairobi, Kenya

"Before giving the agents money you have to change it first otherwise if you let them do the exchange rate they will charge you any rate that they want. So, I change it first and give them TZS."
- International FGD, Namanga, Kenya

Even in Kenya, lack of clarity around exchange rate is a major hurdle for customers. Respondents in Busia and Namanga prefer not to change money at banks as it is more expensive than using agents at the border. Traders conducting cross-border transactions prefer dealing with KES mainly because they can easily calculate how much profit they make selling goods. When traders must carry larger amounts (>KES 500,000), they exchange it to USD at the border and convert it to TZS when they arrive in Dar es Salaam so as not to lose money on the exchange rate.

In Kenya, respondents understood the difference between cost and exchange rates, but in Tanzania and Uganda customers were more unclear and confused. When sending mobile money, users are not told in advance what exchange rate the system will use. To compensate, respondents estimate and send "a bit more" money (top-up) to cover what they think the exchange rate will be. Clearly, this is not the most efficient way to conduct transactions. A lot of times they then receive a text back stating they have insufficient

funds to send the money (amount + transaction), forcing them to re-send with a lower amount.

"We do experience some exchange rate differences because money is being deducted as it is exchanged from Ugandan currency to Tanzanian currency. So, as a trader, you lose a certain percentage. Secondly, we are not experienced enough to know how money is exchanged and we don't know the exchange rate on a daily basis so we just pay."
- Trader FGD, Mutukula, Uganda

"I would go for it if I know how it will work because we are dealing with two different nations using different currencies and these currencies are not of the same value."
- International FGD, Mutukula, Uganda

In Rwanda, foreign exchange issues were exacerbated since the local currency is the franc; we heard from many respondents that changing money from one type of shillings to another was much easier (e.g. from TZS to UGX).

"It is because the when exchanging Rwandese's franc to shillings you encounter difficulties since the rest of the countries in East Africa uses shillings. Unlike the other currencies in shillings, franc proves difficult for other user in the other countries. It is easier to convert for example Uganda shilling to Kenya shilling and vice versa since the conversion rate is straight forward and people in other countries can accept the shilling as compared to them accepting the franc."
Domestic FGD, Kigali, Rwanda

Traders in particular have many pain points when it comes to foreign exchange, since they frequently send money across borders. They are more likely to have been given fake currency or a low exchange rate. Thus, many of them prefer sending money via the bus or to go with the money by themselves. When sending by bus, they can change the money at a foreign exchange bureau that they trust or they change at the money changers who are normally at the bus terminals and the border.

Another issue is that mobile money agents are perceived to have too much control over the exchange rate process. In Tanzania, respondents told us they prefer asking mobile money agents to do the transactions to avoid making mistakes since it can take up to four days to reverse an international mobile money transaction. When we spoke with agents, they corroborated that this was a major pain point. Agents often use their own personal line (SIM from the recipient country) to help with the transactions e.g. they use

Tigo to send to Rwanda and Safaricom to send to Kenya. When using agents, respondents must first convert amounts to the local currency of the recipient, even when sending money over the same network. Therefore, agents have a great deal of power over what exchange rate they choose to enforce. In Kenya, agents were more open about the charges they were applying then in other countries where agents we spoke to did not want to be recorded, because they did not want their strategies to be documented. In Tanzania, agents claimed they did not charge transactions fees; the cost was embedded into exchange rate.

In short, what users value is transparency. Most respondents were fine with charges as long as the final cost was clear beforehand with no "hidden charges." In Rwanda, one respondent gave an example of how he was able to send money from Tigo Rwanda to Tigo Tanzania; he appreciated that he was informed how much it would cost and what the conversion rate from RWF to TZS would be. Quite a few respondents suggested incorporating an exchange rate with real time updates into any mobile money cross-border service.

Network and recourse

Network issues and poor options for recourse were not issues that concerned respondents in Kenya, but were prominent in the other three markets. Network instability that hampered reliability emerged as a major obstacle for those sending and receiving money via mobile money across borders. Confirmation messages take longer as compared to domestic transactions. Domestic is immediate whereas international takes three to four minutes and sometimes hours. A trader in Rwanda told us that it took three days for funds to show up on his recipient's wallet in Tanzania; this delay affected his business relationship negatively by creating a trust deficit. In fact, in the border town of Gatuna only one service provider, Tigo, has a stable network; and so users purchase Tigo SIM cards to better send or receive money, bypassing network issues.

"Sometimes there is no network or the network is down but if you send by bus you are sure that the money will reach to the recipient."
International FGD, Kigali, Rwanda

"We'd prefer to use mobile transfers however connectivity would cause us trouble with clients, like in such cases it's hard to tell a client who gave you his money to transfer

somewhere that he has to wait for three days to have the money delivered or returned." International FGD, Rusumo, Rwanda

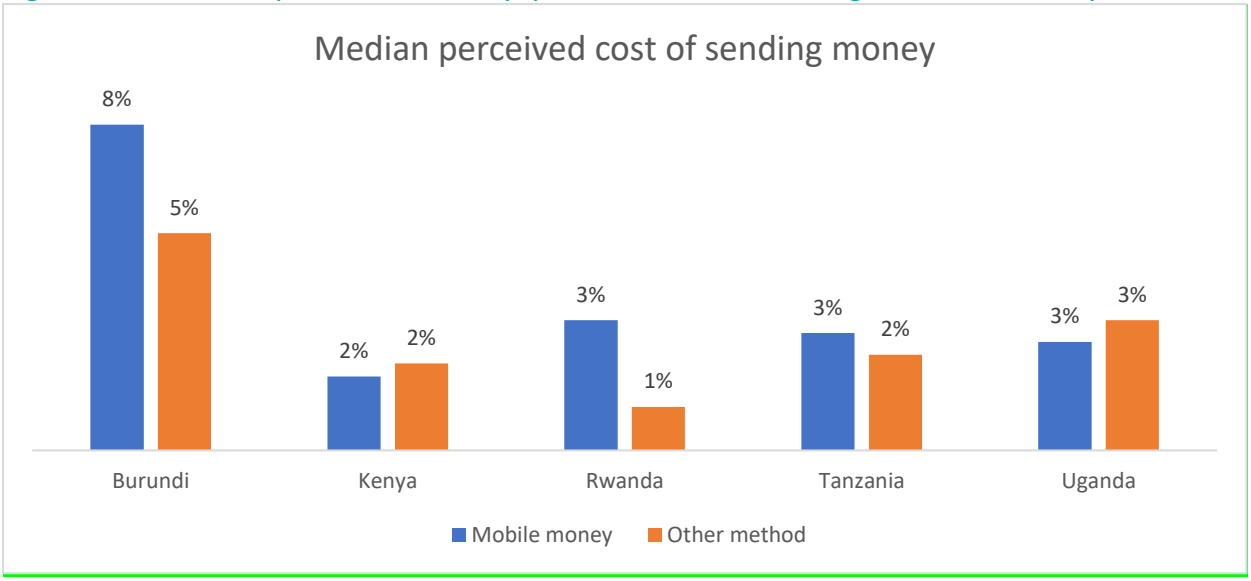
While recourse and customer issues did not come up prominently in the Kenyan and Rwanda interviews, they did in Uganda and Tanzania. In both countries, inadequate recourse options came up as a major barrier to mobile money usage. Most respondents had experienced times when they had sent money to a wrong number. They reported that mobile money service providers did not help them recover funds or were unreachable since their lines were too busy, proving them unreliable. Thus, they preferred other methods like sending via family and friends or buses. They reported that the bus companies in particular have superb customer service. Respondents receive a notice when their parcel is delivered, and bus agents often help them fill out the details for the recipients, etc. Many also prefer getting help from agents who guide them through the process and show them confirmation messages.

Price

As described above in the Demand section, price did not feature prominently in the issues that concern people who are currently using cross-border transactions; indeed, most were willing to pay more for the convenience, speed and reliability. However, there may be some people who are not transacting at all who would do so at a lower price. The quantitative study of mobile phone users hints that the market may be quite price-sensitive, with competing methods that offer a good service at a similar price. Also, people regard transfers by friends and family as free, even though there may be non-monetary costs and obligations that go along with these.

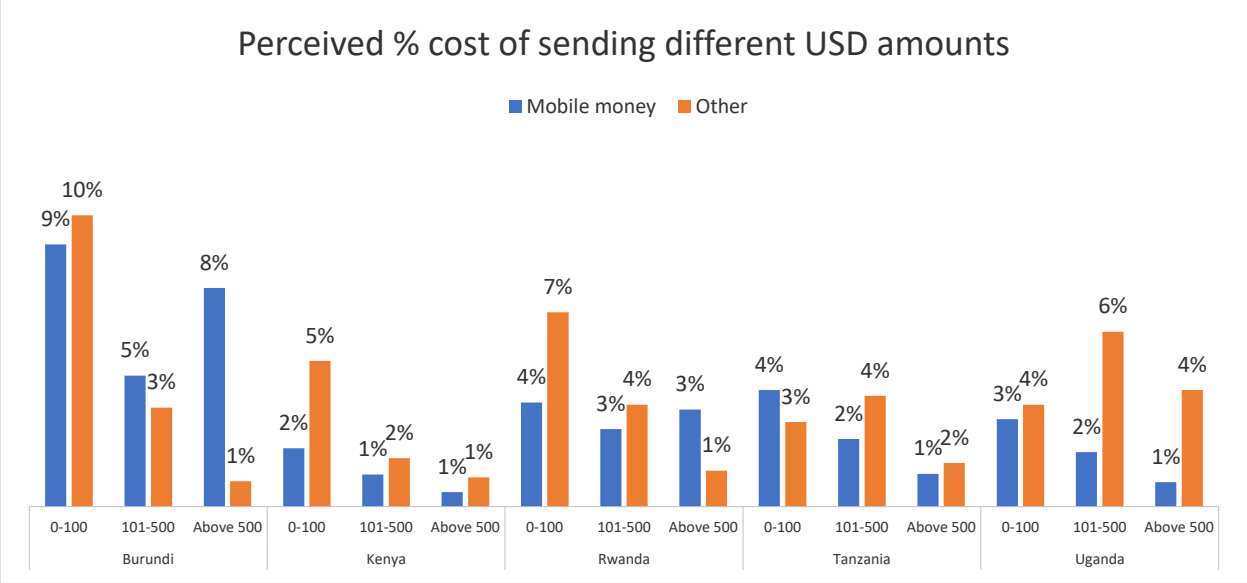
Overall, customers perceived mobile money as generally being in the same range of cost as other methods or a little more expensive (see Figure 26). They reported that costs for mobile money were low (under 3% except in Burundi) but they consider costs for other methods to be even lower.

Figure 26: From the quantitative survey: perceived cost of sending via mobile money



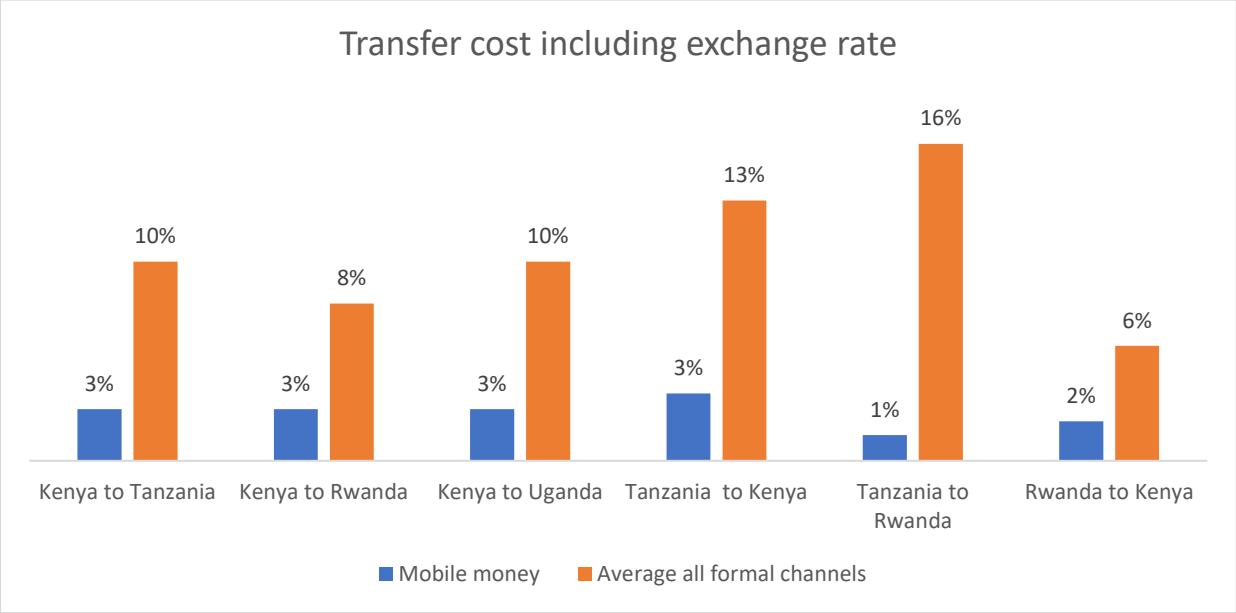
However, when we look at the different transaction sizes, we can seen that mobile money is perceived to be cheaper for the lowest transaction sizes, except in Tanzania (see Figure 27**Error! Reference source not found.**). Other methods seem to follow a different pattern to mobile money transactions which fall as a percentage as the transaction size increases. This heterogeneity probably reflects that other methods combine a variety of different approaches.

Figure 27: Perceived percentage cost of sending different amounts of money, by mode



This perception that costs are similar to other methods is at odds with the World Bank figures on the costs of remittances through formal channels which show that mobile money is much cheaper than banks or transfer agencies for sending money cross-border within East Africa[33] (see Figure 28). One reason for the discrepancy could be that respondents are not aware of the true (low) costs of mobile money or underestimate the costs of other channels. However, this seems unlikely as they are reasonably accurate in their perception of the mobile money costs (or even under-estimate). Although the World Bank figures on the costs are for sending $200 which is about two to three times the median amounts people sent via mobile money (see Figure 28), people in our survey still ranked mobile money as only a little cheaper than other methods for sending $100-500.

Figure 28: From the World Bank: Cost of transfers via mobile money compared with all formal channels (banks, money transfer) to transfer USD 200.



It seems plausible that most transactors simply do not use the expensive banks and money transfer companies; instead they use the alternative channels or do not send at all. Therefore, since prices are quite similar in mobile money and other transfer methods (including the bus and informal methods), mobile money must compete with cheap alternative channels on the basis of attributes other than price, such as speed, convenience and trust.

[33] The World Bank. 12 September 2017. *Remittance prices worldwide*. https://remittanceprices.worldbank.org

Summary of Findings

Mobile money is already a popular method for sending and receiving money across borders in East Africa, for adults that have mobile phones and in countries with a strong mobile money presence. While the most common usage is for friends-and-family transfers, other types of payments, especially for business, are also common. Mobile money transfers tend to be smaller than transactions through other modes, which implies that mobile money may be enabling new transactions at the lower end of the income scale.

Mobile money offers a better service in terms of speed and convenience than options such as the bus/courier or sending the money with a friend. Nonetheless, there are still barriers to uptake related to usability and foreign exchange transparency. Network and reliability issues also undermine confidence, especially outside of Kenya. In particular, bus services provide strong competition, especially in Tanzania and Uganda, since they accept larger amounts of money, charge a fee that is lower at the larger transaction sizes, and transfers are thought to be insured.

Respondents reported that the cost of mobile money transfer is low (2-3% except in Burundi) and around the same cost as other transfer options that people frequently reported using. Respondents valued mobile money for its speed, convenience and reliability, and most said they would be willing to pay up to 20% more than they had paid for their last transaction on an alternative channel.

Nonetheless the study also indicated that the market as a whole is quite price sensitive since the use of mobile money (perceived to be cheapest a lower values) increases as the transaction cost decreases. This indicates that the market would possibly expand further if mobile money services were even cheaper or their true (low) price was well understood by customers.

The main factors inhibiting users for using mobile money for cross-border transactions are lack of awareness of the cross-border service; and usability issues related to the USSD menu, as well as concerns about network reliability and recourse in the event of a problem.

Where interoperable mobile money services may be most able to meet an unsatisfied demand is among travelers. Travel is common and travelers would value the ability to

use their home country's mobile money when they are traveling, in particularly to draw cash at agents.

Conclusions and Recommendations

There is substantial scope to expand mobile money usage for cross-border transactions since most people still use other methods even though they might be using mobile money for domestic transactions.

This study has shown that people value convenience, speed and reliability/trust. Mobile money can provide a competitive offering on all these dimensions, but at present is not getting full value out of these attributes. We are recommending some improvements as follows:

- Marketing to increase awareness and how-to
    - Focus on issues customers care about (country-specific messages), especially around convenience, speed and reliability
    - Clarify and speed up recourse in the event of a problem. Agents are currently reporting four days to resolve an issue.
- Human-centered product design to address some of the issues that users are struggling with and in particular:
    - USSD menu: For markets like Kenya and perhaps parts of Rwanda, providers can consider app development for customers who have smart phones to get around the significant usability issues with USSD.
    - Exchange rate transparency: Providers could use SMS to inform people about the exchange rate before the transaction is complete. They could do A/B testing to determine what messages would be most helpful.
- Travelers are a major potential market, larger than the size of senders/receivers, and are currently operating mostly in cash.
    - Develop interoperable agent services for travelers to use their home country mobile money to cash out while abroad.

Nonetheless, price is important. While mobile money is cheap, competing (mostly informal) options are in the same price range. Mobile money is used for lower transaction values than other methods, and could potentially draw new users into the

market by maintaining a competitive price while marketing convenience, speed and reliability.

The country situations are different, and country-specific approaches will help to grow the overall market. Concerns are different and so are solutions:

- Kenyans are heavy users of mobile money domestically, have confidence in their main provider (Safaricom M-PESA) and want to use it while traveling. An ability to cash out in other countries would be highly valued, along with better usability on the SIM toolkit or app.
- Tanzanians are strong users of mobile money domestically but are more skeptical of it cross-border. They have more concerns about network reliability and recourse. They do less traveling and transfers. They also have a strong competitive offering in the bus companies. Marketing would clarify how to use the service, and product enhancements should improve exchange rate transparency.
- In Uganda, there is strong user of mobile money by other East African nationalities. There is already an existing network of agents offering cash-out for foreign mobile money services (Kenya's M-PESA and Rwanda's MTN). Can this be standardized and enhanced so that travelers and students can easily cash out? Ugandans would also value improved exchange rate transparency and improvements in ease of use.
- Rwandans are also confident in their mobile money providers (especially MTN) and have fewer concerns about using mobile money for cross-border transfers. Like Burundians, they may be more dependent on incoming transfers for livelihood. Exchange rate issues are a concern and should be streamlined.
- Burundians use mobile money less domestically, and face much higher prices for transfers (including mobile money transfers). They exchange transfers widely with other countries in the region. For Burundi to participate more actively in the regional cross-border mobile money environment, improvements are needed to commercial arrangements between mobile money providers, as well as marketing, product improvements and addressing currency transparency.

Overall, this study suggests that if international interoperable mobile money were more available and streamlined, the total number of transactions would increase, not

just switch out of other methods. The new transactions would likely come at the lower end of the market and would especially be for friends-and-family upkeep. These new transfers could be re-distributive since friends-and-family transfers generally go from wealthier households to poorer ones (as we have seen separately in the Kenya Financial Diaries).

The growth of transactions would have a positive impact on trade and other interactions within the region, as well as providing additional income streams for mobile money providers on both sides of the transaction.

Annex A: Methodology

Quantitative research

Quantitative research goals

The quantitative research had two goals:

- establish the incidence of cross-border transactions among mobile phone users in the five countries
- examine the current quantity of people who over the past year had cross-border transactions

The focus of this part of the study was on three categories of people, defined on the types of cross-border transactions performed:

- people who over the past year had sent money to at least one of the East African countries (senders)
- people who over the past year have received money from at least one of the East African countries (receivers)
- people who over the past year have traveled to at least one of the East African countries (travelers)

Data collection method

The quantitative research relied on computer assisted telephonic interviewing (CATI), using the services of a company (Geopoll) with a large, established databases of phone numbers in Burundi, Kenya, Rwanda, Tanzania and Uganda. Using CATI was dictated by the expected low incidence of the behaviors of interest, which would have made face-to-face interviews prohibitively expensive and time consuming, in addition to geographic and security concerns in some countries. Generally, research shows that phone interviews stand up to other alternatives but have their shortcomings and CATI is not perfect. By using phone interviews, we are restricting the population of interest to people who own a mobile phone, rather than the population of the entire country. Moreover, the CATI phone number databases may have their own biases such as not always being up to date. In addition, interviewing people by phone introduces biases, which may not always be apparent or well understood. For example, people who answer

the phone may be different from those who do not, people may be more inclined to answer untruthfully than if they were face-to-face with the interviewer, etc.

Questionnaire

To establish the incidence of cross-border transactions we used a brief screener questionnaire that was applied to all respondents willing to answer their phone and talk to the interviewers. The screener also questioned all respondents about situations when they would have liked to send or receive money but lacked a proper transfer instrument to determine the existence of unmet demand for cross-border money transfer services.

To learn about current statuses around the different types of cross-border transactions, qualifying respondents, who according to their screener responses, performed cross-border transactions in the past year, were directed to answer a longer questionnaire (about 20 minutes).

The full questionnaire was structured to include sections customized specifically for senders, receivers and travelers, as well as common questions probing domestic usage of mobile money, willingness to pay for interoperable mobile money services, and demographics.

Sample

We initially intended to collect data from 1,000 full length interviews in each country, with approximately 350 respondents in each of the three categories of interest (given that we were expecting a certain degree of overlap, with some respondents being in more than one category). Traveling was much more prevalent than sending and receiving money, and the phone survey company preferred to perform more than 1,000 interviews, rather than to impose a quota on travelers. The number of screeners necessary to obtain a sufficient number of qualifying respondents differed based on the incidence of each behavior, as well as drop-off rates.

The final samples have different total numbers of interviews per country, and the distribution among senders, travelers and receivers also varies. A more detailed description of the samples are shown in Table 19 below.

The total number of interviews exceeds 1000 in all countries, with travelers being the best represented category. Please note that the number of screener respondents reported below is for the travel questions. However, since there was a certain level of

dropping off during the interview, more people may have responded to initial questions about sending money than about travel.

Table 19: Number of respondents interviewed in each country under each category

	Screener N	*Senders N*	*Receivers N*	*Travelers N*
Burundi	2853	433	412	965
Kenya	6881	410	402	1241
Rwanda	3750	544	456	1116
Tanzania	8446	339	460	665
Uganda	4363	347	442	973

Additional information on the Geopoll sample

Below please see an overview of Geopoll's databases used for completing the phone interviews in this project. As mentioned, in addition to the known biases related to phone interviews, these databases may not be completely up to date, they do not cover all phone providers, and may suffer from various other (non-apparent) biases. For example, based on a small Random Digit Dialing sample of calls, we suspect slight biases towards male and urban respondents, compared to the total population of mobile phone owners. However, if these biases do exist, we are not able to estimate their degree.

GeoPoll's sample:

Through established partnerships with Mobile Network Operators (MNOs) and a multimodal platform powered by text and voice communications, GeoPoll enables organizations to gather insights in near real-time via mobile surveys[34].

In order to access mobile phone number to sample from in survey research, GeoPoll either gains access to the full database for each direct connection network operator, or the network operator provides a random sample from the database, ensuring that the GeoPoll samples are sufficiently randomized. The overall population distribution on the GeoPoll database is reflective of the mobile phone ownership in the various countries. Compared to the national representative sample, there is similarity in distribution across

[34] GeoPoll, 15 Aug 2017. GeoPoll's mission is to understand the world through mobile. https://research.geopoll.com/about-geopoll.html

demographics, but with higher skews amongst males and younger (under 30-year Olds) respondents.

Random-digit-dialed sample:

Besides the GeoPoll sample, this survey also encompassed use of random-digit-dialed sample on specific survey days. The RDD sample was generated by identifying all mobile prefixes used in each country and the market share (percentage) that each mobile network operator has of the SIMs, typically as reported to the national communications regulatory authority or the International Telecommunication Union (ITU). GeoPoll then randomized the digits following the prefixes in proportion to the market share of each network operator up to 100,000 mobile numbers per country.

Sample used in each country:

Kenya:

The total number of users in the GeoPoll database is 8,664,587. The data base is obtained from all the mobile network operators in Kenya; Safaricom, Airtel and Telkom. The RDD sample obtained was for 100,000 numbers that were used in the survey on specific days as directed by BFA.

Uganda:

The total number of users in the GeoPoll data base is 11,246,895. The data base is obtained from the following mobile network operators; Africell, Airtel, MTN, Smart, Uganda Telecom and Warid. The RDD sample obtained was for 100,000 numbers that were used in the survey on specific days as directed by BFA.

Tanzania:

The total number of users in the GeoPoll data base is 15,315,637. The data base is obtained from the following mobile network operators; Airtel, Smart, Tigo, Vodacom and Viettel Tanzania Limited. The RDD sample obtained was for 100,000 numbers that were used in the survey on specific days as directed by BFA.

Rwanda:

The total number of users in the GeoPoll data base is 1,465,356. The data base is obtained from the following mobile network operators; Airtel, MTN and Tigo. The RDD

sample obtained was for 100,000 numbers that were used in the survey on specific days as directed by BFA.

Burundi:

The total number of users in the GeoPoll data base is 753,553. The data base is obtained from the one network operator, Smart. The RDD sample obtained was for 100,000 numbers that were used in the survey on specific days as directed by BFA.

Qualitative research

Qualitative Sampling Methodology

We selected research locations in each country to provide rich and diverse insights into perceptions of and actual experiences with sending and receiving cross-border payments. We included urban and border locations in each country. Given the in-depth nature of the qualitative research, these sites were limited to three locations per country and were not meant to be representative. The specific locations for all four countries are listed in Table 20 below.

Table 20: Type and number of FGD and IDIs conducted in each country

	Kenya	Tanzania	Uganda	Rwanda
Locations	- Nairobi - Namanga (border town near Tanzania - Busia (border town near Uganda	- Dar es salaam - Kigoma (border town near [Burundi - Bukoba (border town near [Uganda]	- Kampala - Malaba (border town near [country] - Mutukula (border town near [Tanzania]	- Kigali - Rusumo (border town near [Tanzania] - Gatuna(border town near [Uganda]
Focus groups with non-mobile money users	0	3	3	2

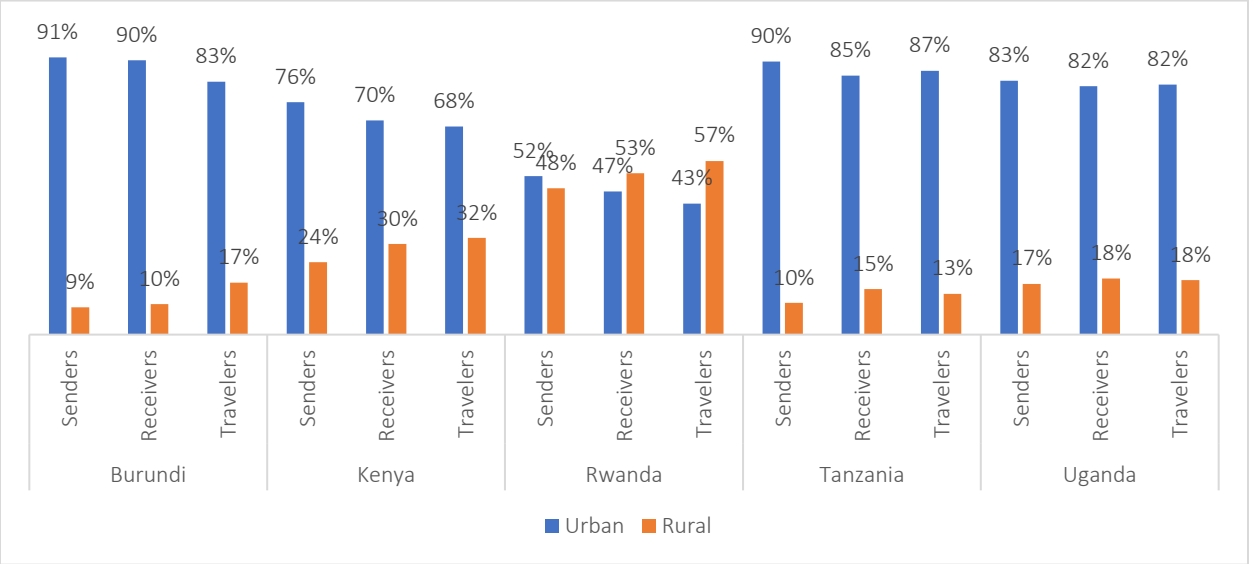
Focus groups with mobile money users for domestic transfer only	3	3	3	4
Focus groups with mobile money users for at least some international transfers	3	3	3	3
Focus groups with traders	2	2	2	2
Individual interviews travelers	5	5	5	5
Individual interviews with mobile money users for domestic transfer only	5	5	5	5
Individual interviews with mobile money users for at least some international transfers	5	5	5	5
Individual interviews with traders	5	5	5	5
Individual interviews with mobile money agents	6	6	6	6

Annex B: Additional charts

Demographics

The distribution of senders, receivers and travelers closely mirrors the population distribution across the country map. However, transactors were much more likely to describe themselves as urban than rural as shown in Figure 29, the reverse of the population distribution which is at least 70% rural in all East African countries.

Figure 29: Urban-rural distribution

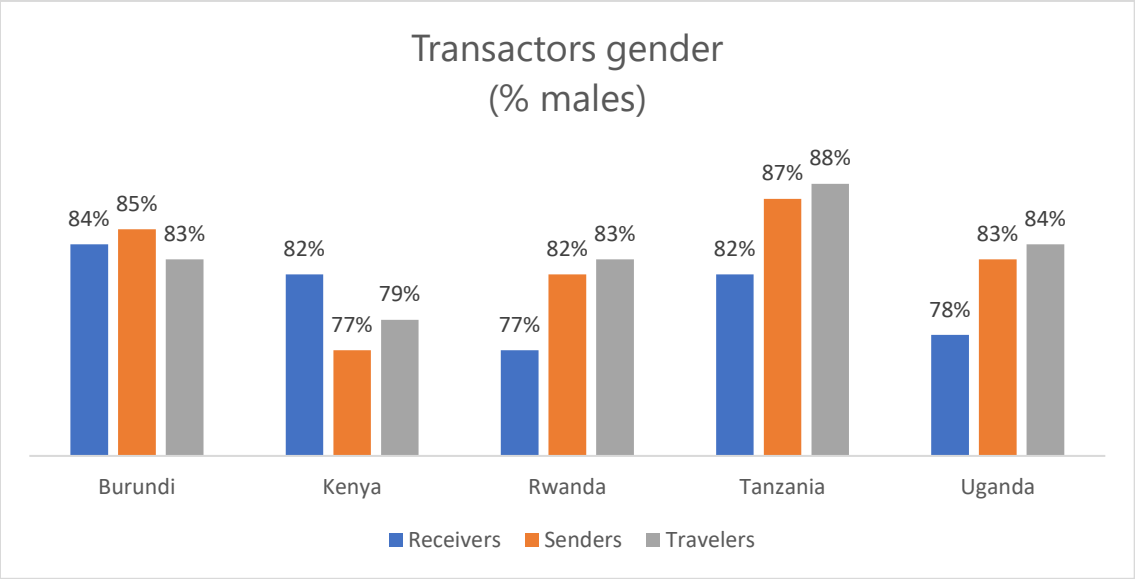


Senders, receivers and travelers are more likely to be male, have diverse ages and incomes, and are mostly citizens by birth

In all countries, the majority of senders, receivers and travelers are males (see Figure 30). In part, this reflects the gender distribution of the screener respondents, who also are predominantly male (Over 75%).[35]

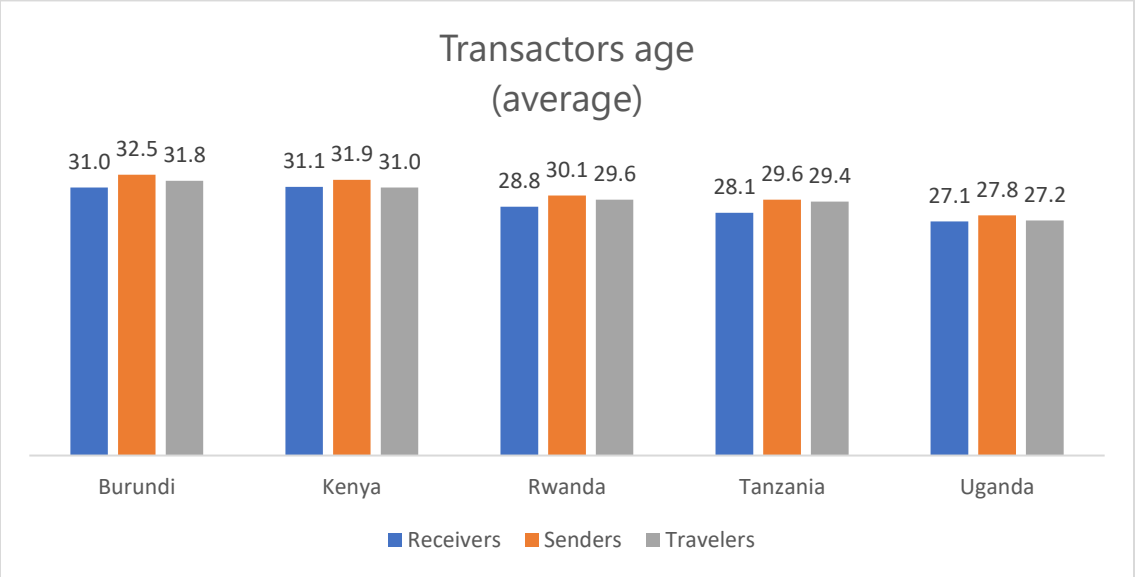
[35] This imbalance can be explained by males being more likely to be mobile phone owners, and thus more likely to have been called to participate in the survey. It is also possible that the women are less likely to pick up calls from unknown numbers, or be willing to have a phone conversation, especially on a sensitive topic such as sending and receiving money. And finally, the database of phone numbers may be biased towards males, although we are not aware of any such reasons.

Figure 30: Transactors by Gender



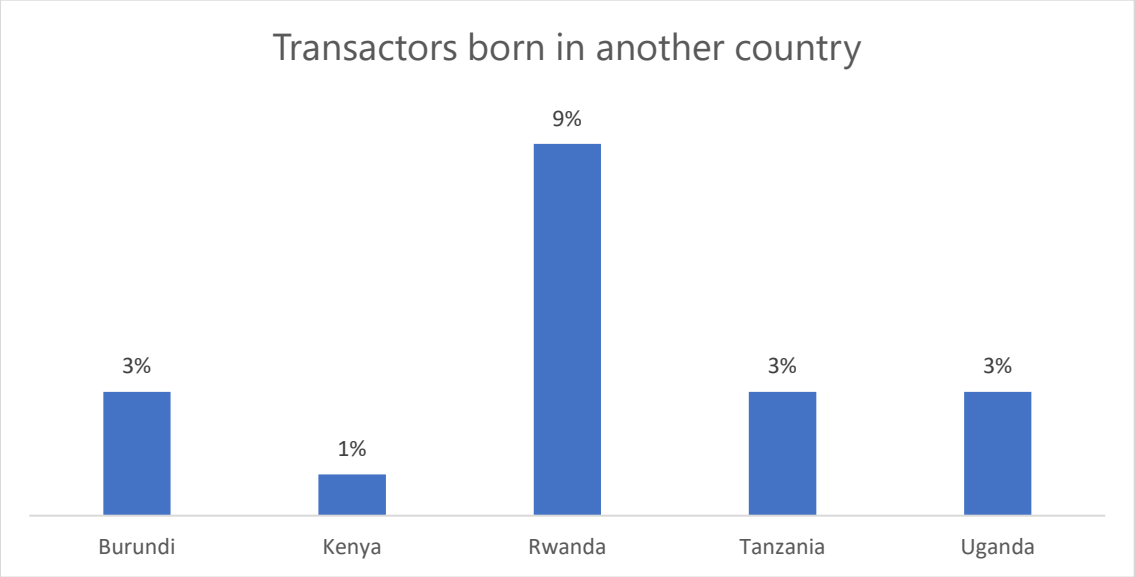
The average age of transactors varies little among countries, with Burundians being slightly older, and Ugandans slightly younger than the rest (Figure 31). A more detailed look at the age distribution shows that transactors span a large range of ages, although in most countries the distribution is somewhat skewed towards youth.

Figure 31: Transactors by Age



The large majority of transactors are national born, which is similar to International Organization on Migration population-level for these countries.[36] The exception was Rwanda, where 9% said they were born elsewhere -mostly in Uganda (Figure 32). This implies that it is mostly nationals who take part in cross-border transactions than immigrants. However, it is possible that more respondents were born in other countries, but are worried to admit their immigration status.

Figure 32: Transactors by Immigration Status

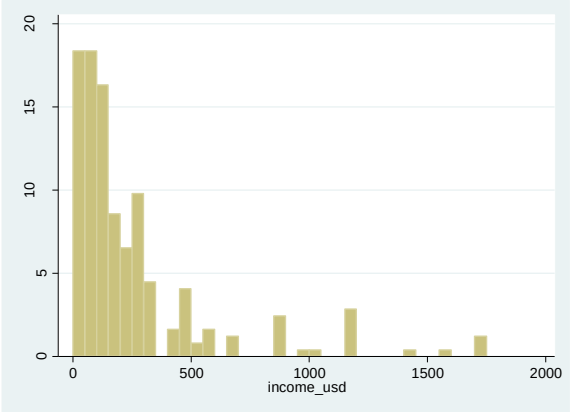


[36] See interactive map at https://www.iom.int/world-migration indicating 3.8% of Rwandans were born abroad; 1.92% of Ugandans, 3.25% of Kenyans and only 0.49% of Tanzanians.

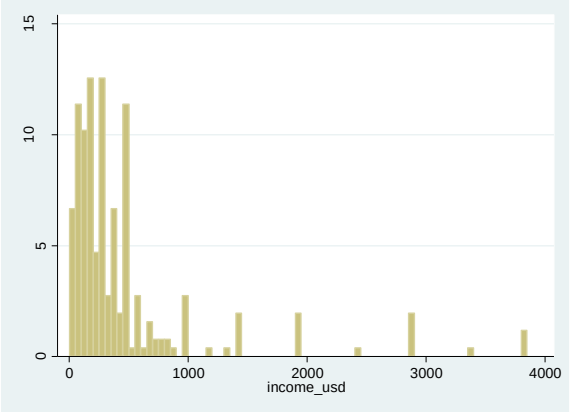
Below is the distribution of income of senders in each country. Top 2% of incomes were removed to improve the readability of the charts.

Figure 33: Distribution of income (USD) for senders

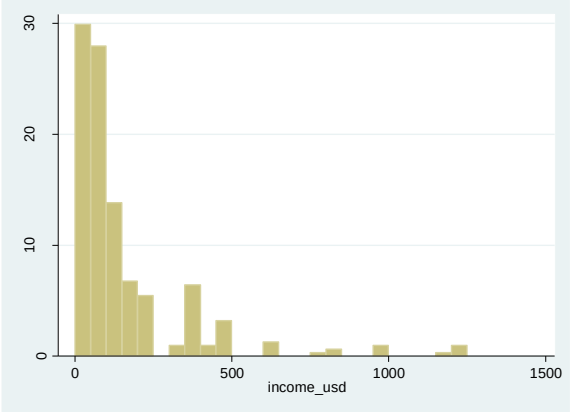
Burundi



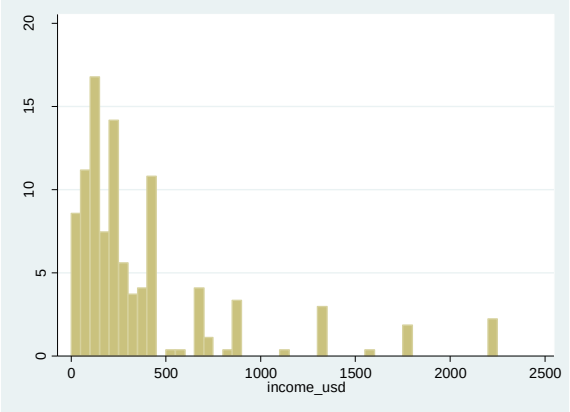
Kenya



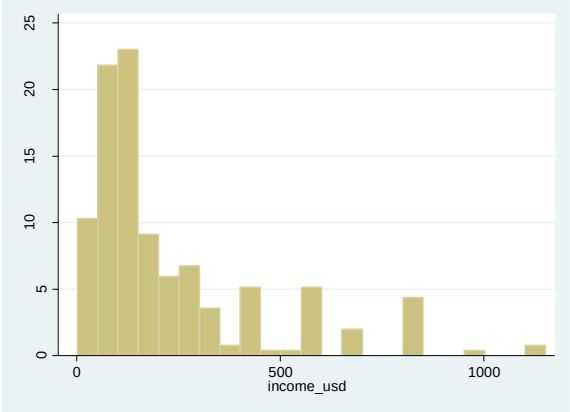
Rwanda



Tanzania



Uganda



Geographic corridors for cross-border transactions

Table 21: Percentage (%) of mobile phone owners from each country who have sent money to the other East African countries within the last twelve months

Sender country (across):

	Burundi (N=433)	Kenya (N=410)	Rwanda (N=544)	Tanzania (N=339)	Uganda (N=347)
Burundi		2%	9%	4%	1%
Kenya	17%		13%	73%	67%
Rwanda	31%	5%		6%	30%
Tanzania	24%	44%	8%		11%
Uganda	40%	57%	79%	22%	

Table 22: Percentage (%) of people from each country receiving money from the other East African countries

Receiver country (across):

	Burundi (N=412)	Kenya (N=402)	Rwanda (N=456)	Tanzania (N=460)	Uganda (N=442)
Burundi		2%	6%	4%	3%
Kenya	27%		21%	74%	63%
Rwanda	33%	9%		6%	27%
Tanzania	21%	45%	7%		14%
Uganda	26%	50%	70%	19%	

Table 23: Percentage (%) of people from each country traveling to the other East African

countries

Traveler's home country (across):

	Burundi (N=965)	Kenya (N=1241)	Rwanda (N=1116)	Tanzania (N=665)	Uganda (N=973)
Burundi		2%	16%	9%	4%
Kenya	13%		7%	72%	59%
Rwanda	61%	5%		11%	41%
Tanzania	39%	41%	11%		14%
Uganda	34%	63%	82%	22%	

Table 24: Overlap between different types of cross-border transactions

	Burundi	*Kenya*	*Rwanda*	*Tanzania*	*Uganda*
Sends and receives	5%	1%	5%	1%	2%
Sends and travels	9%	3%	9%	2%	5%
Receives and travels	8%	3%	7%	2%	5%
Sends, receives and travels	3%	1%	3%	1%	2%

Additional sample distribution maps for Burundi, Kenya, Tanzania and Rwanda

Figure 34: Distribution of sample of senders, receivers and travelers in Burundi

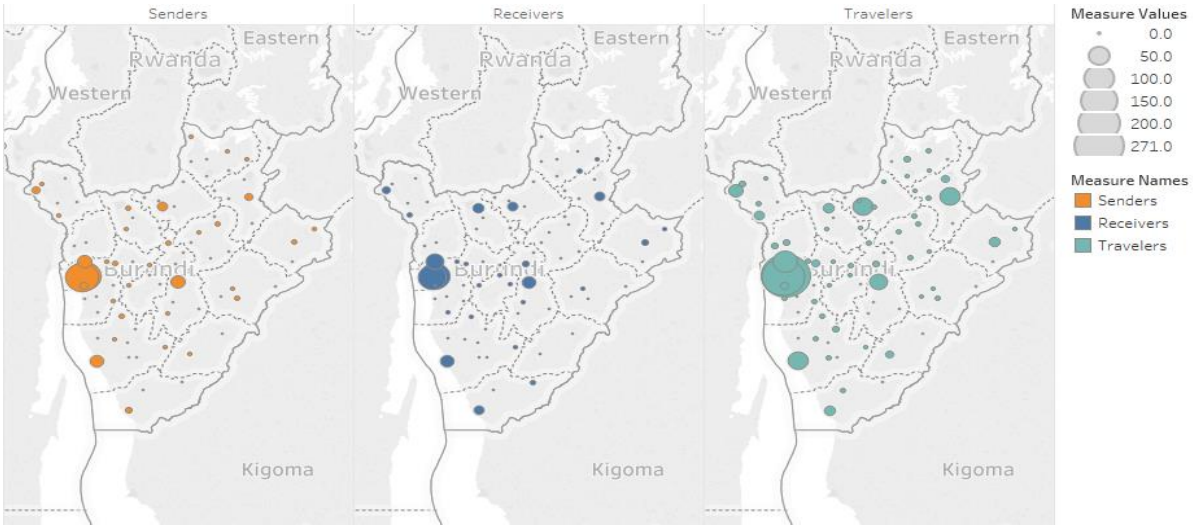


Figure 35: Distribution of sample of senders, receivers and travelers in Kenya

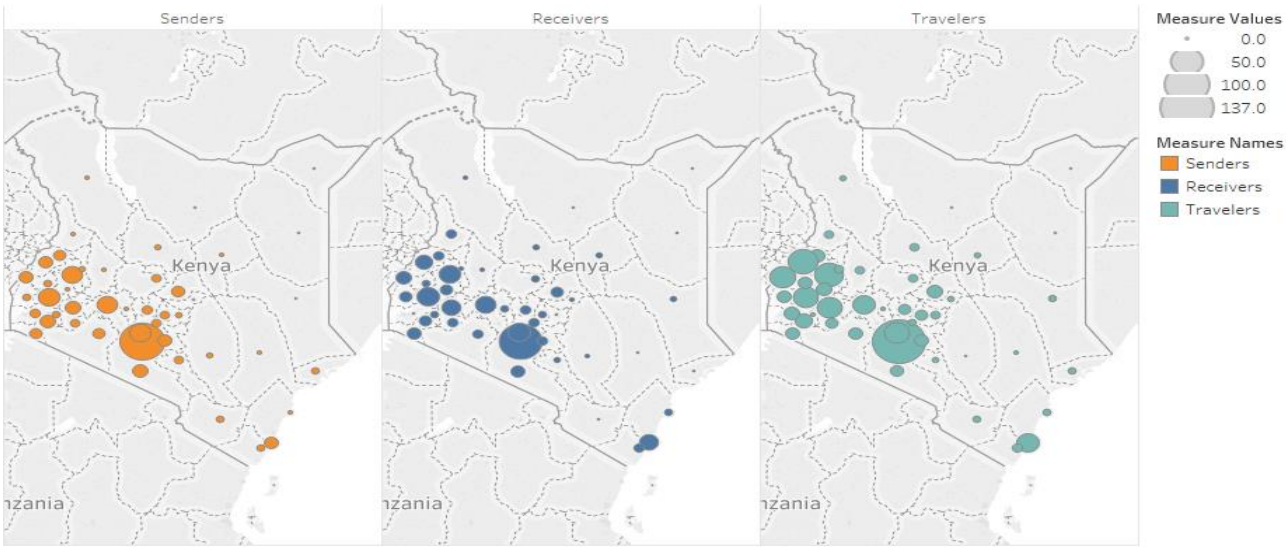


Figure 36: Distribution of sample of senders, receivers and travelers in Tanzania

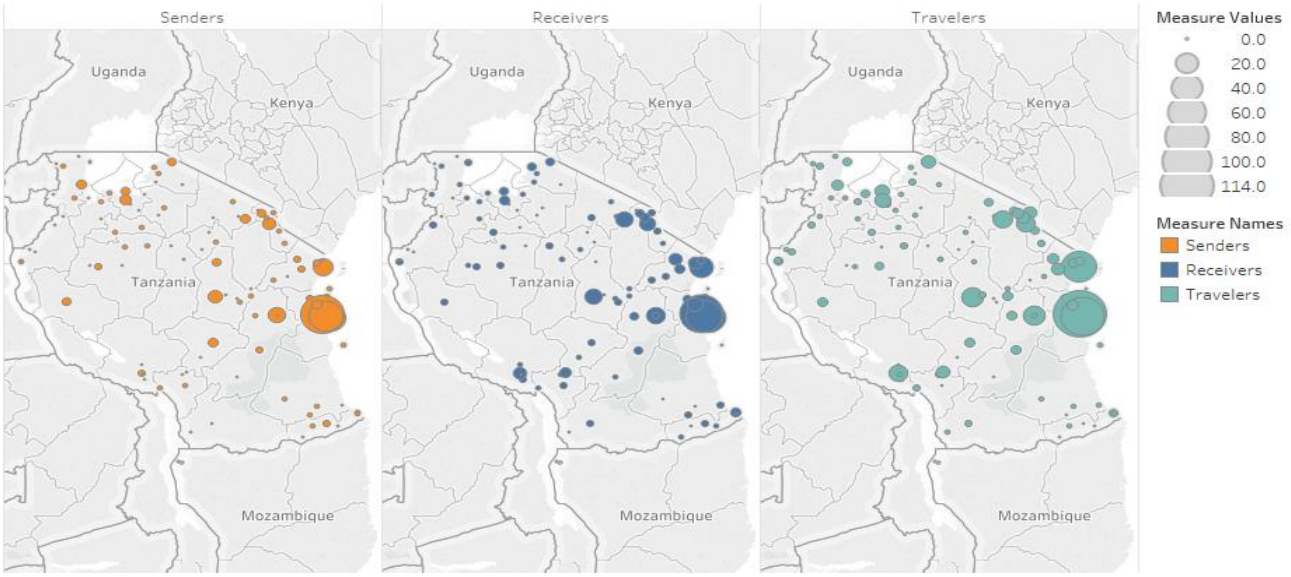
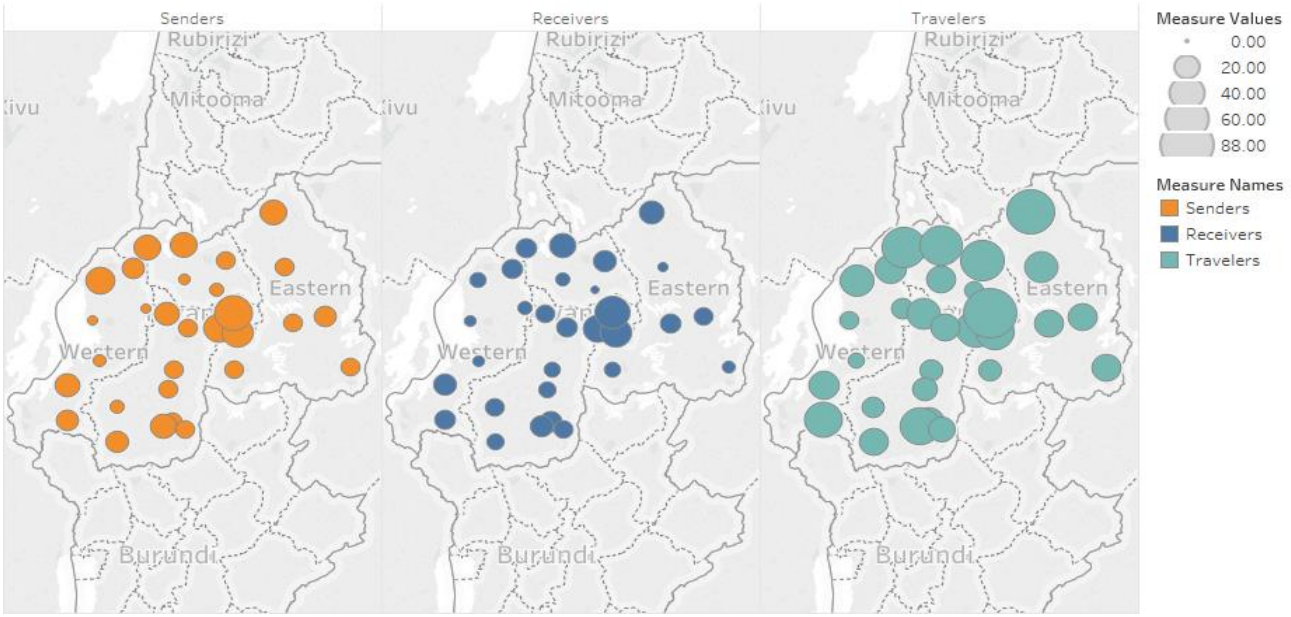


Figure 37: Distribution of sample of senders, receivers and travelers in Rwanda



Maps are based on Longitude and Latitude broken down by senders, receivers, and travelers in the different countries. Color shows details about senders, receivers and travelers. The size is proportionate to the number of senders, receivers and travelers within the sample. The view is filtered on sum of senders, receivers and travelers in each district.

Transaction sizes

Table 25: Median amounts sent

	Sender country across				
	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi		$80	$75	$45	
Kenya	$288		$121	$156	$111
Rwanda	$115	$269		$142	$260
Tanzania	$135	$168	$121		$111
Uganda	$150	$101	$91	$90	

Table 26: Median amounts received

	Receiver country across				
	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi		$158	$60	$223	$250
Kenya	$172		$100	$133	$95
Rwanda	$115	$153		$111	$96
Tanzania	$86	$115	$87		$122
Uganda	$86	$115	$142	$133	

Table 27: Reported cost of sending using different channels

Amount (US$)		Mode	Median cost (US$)
Burundi	0-100	Mobile money	2.9
		Other	2.6
	101-500	Mobile money	8.9
		Other	1
	501 and above	Mobile money	1
		Other	17
Kenya	0-100	Mobile money	1

		Other	2
	101-500	Mobile money	3
		Other	4
	501 and above	Mobile money	5
		Other	11
Rwanda	0-100	Mobile money	1
		Other	0.001
	101-500	Mobile money	6
		Other	3.4
	501 and above	Mobile money	24
		Other	9
Tanzania	0-100	Mobile money	1
		Other	2
	101-500	Mobile money	4
		Other	6
	501 and above	Mobile money	13
		Other	11
Uganda	0-100	Mobile money	1
		Other	0.8
	101-500	Mobile money	3
		Other	5
	501 and above	Mobile money	6
		Other	17

Use cases for cross-border transactions

Figure 38: Median amount received by purpose for receiving

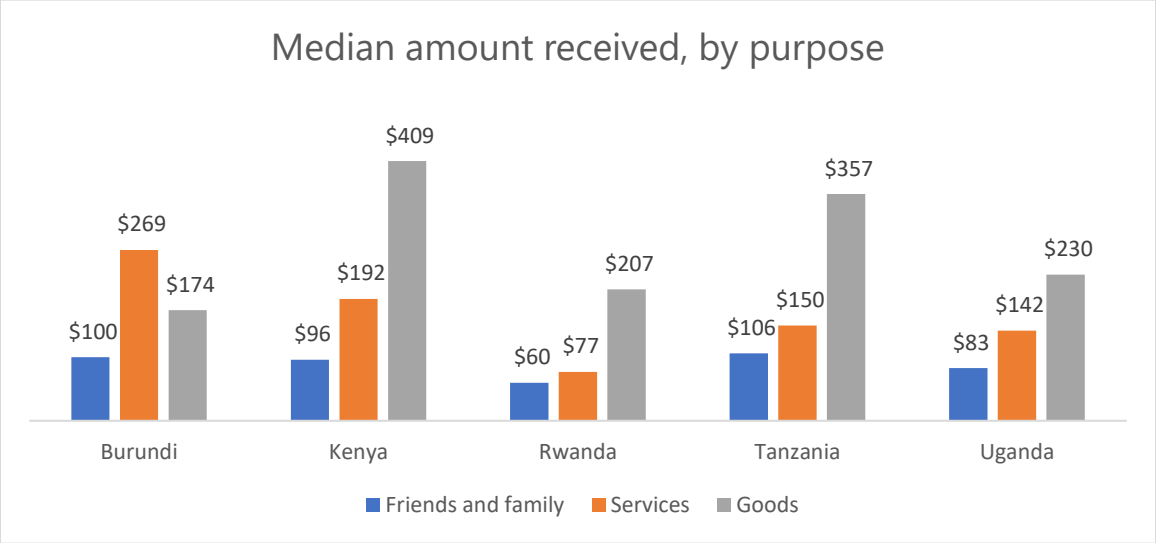


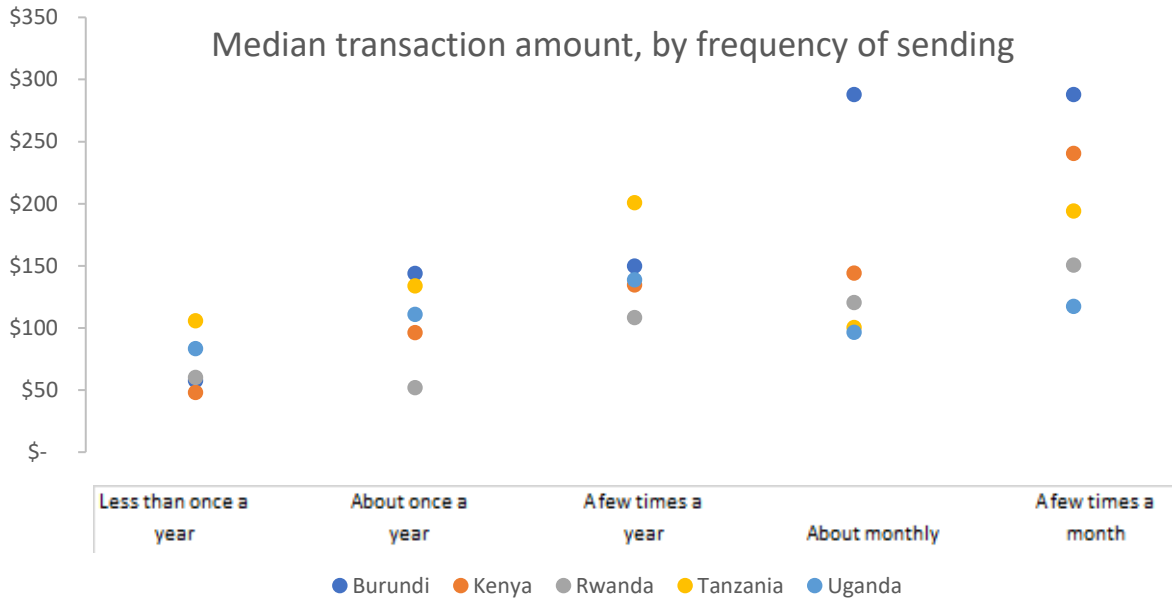
Table 28: How often respondents sent money to the friends and family they sent to most recently

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Less than once a year	13%	14%	11%	4%	14%
About once a year	21%	21%	33%	32%	18%
A few times a year	48%	41%	45%	51%	41%
About monthly	10%	15%	6%	8%	19%
A few times a month	8%	8%	3%	5%	7%

Table 29: How often respondents receive money from the country they received from most recently

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Less than once a year	13%	10%	10%	4%	15%
About once a year	30%	29%	39%	28%	20%
A few times a year	42%	34%	41%	57%	40%
About monthly	9%	15%	9%	3%	14%
A few times a month	6%	11%	1%	7%	8%

Figure 39: Transaction amount, by transaction frequency



Mobile money in cross-border transactions

Mobile money usage reported in Figure 40 is among mobile phone owners and hence higher than across the entire country populations.

Figure 40: Mobile money usage across all EA countries

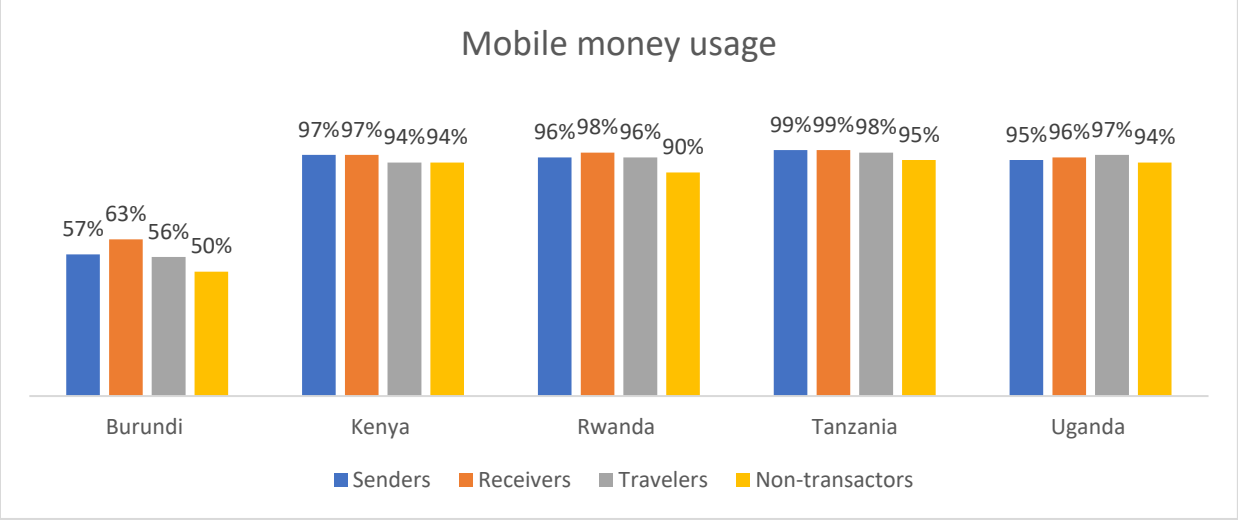


Table 30: The methods respondents used to receive money in their most recent transaction

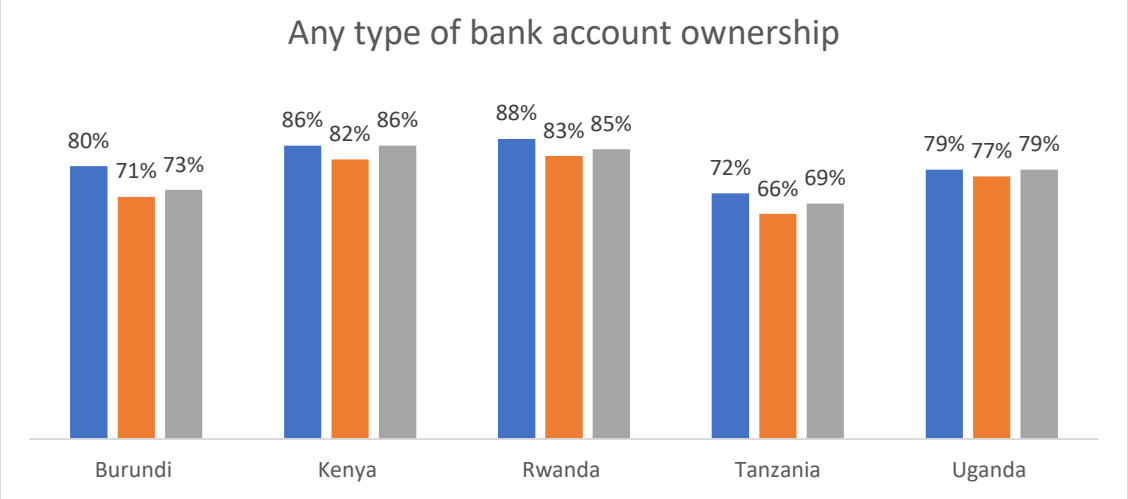
	Burundi	Kenya	Rwanda	Tanzania	Uganda
Person came here	22%	11%	1%	6%	11%
Commercial Bank	11%	16%	5%	6%	11%
Money Transfer	21%	15%	14%	6%	16%
Post Office	2%	2%	1%	0%	1%
Bus/Courier Company	17%	3%	9%	28%	4%
Friends/Relatives	14%	4%	17%	15%	4%
Mobile money	10%	45%	48%	37%	50%
Others	3%	4%	4%	2%	2%

Table 31: Mean amount received by method of receiving

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Person came here	$ 144	$ 96	$ 36	$ 156	$ 111
Commercial Bank	$ 500	$ 384	$ 96	$ 201	$ 244
Money Transfer Company	$ 115	$ 206	$ 145	$ 431	$ 142
Post Office	$ 50	$ 481	$ 72	$ 670	$ 235
Bus/Courier Company	$ 81	$ 368	$ 63	$ 178	$ 142
Friends/Relatives	$ 115	$ 192	$ 78	$ 223	$ 111
Mobile money	$ 48	$ 96	$ 36	$ 67	$ 56
Other	$ 144	$ 96	$ 57	$ 223	$ 167

Bank account

Figure 41: Any type of bank account ownership



Annex C: List of Acronyms

ATM	Automated Teller Machine
BIF	Burundian Franc
CATI	Computer Assisted Telephonic Interviewing
EAC	East African Community
FGD	Focus Group Discussions
GDP	Gross Domestic Product
IDI	In-Depth Interviews
KES	Kenyan Shilling
P2P	Person-to-Person
RWF	Rwandan Franc
SADC	Southern African Development Community
SIM	Subscriber Identification Module
TZS	Tanzanian Shilling
UGX	Ugandan Shilling
USD	United States Dollars
USSD	Unstructured Supplementary Service Data
WB	World Bank

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