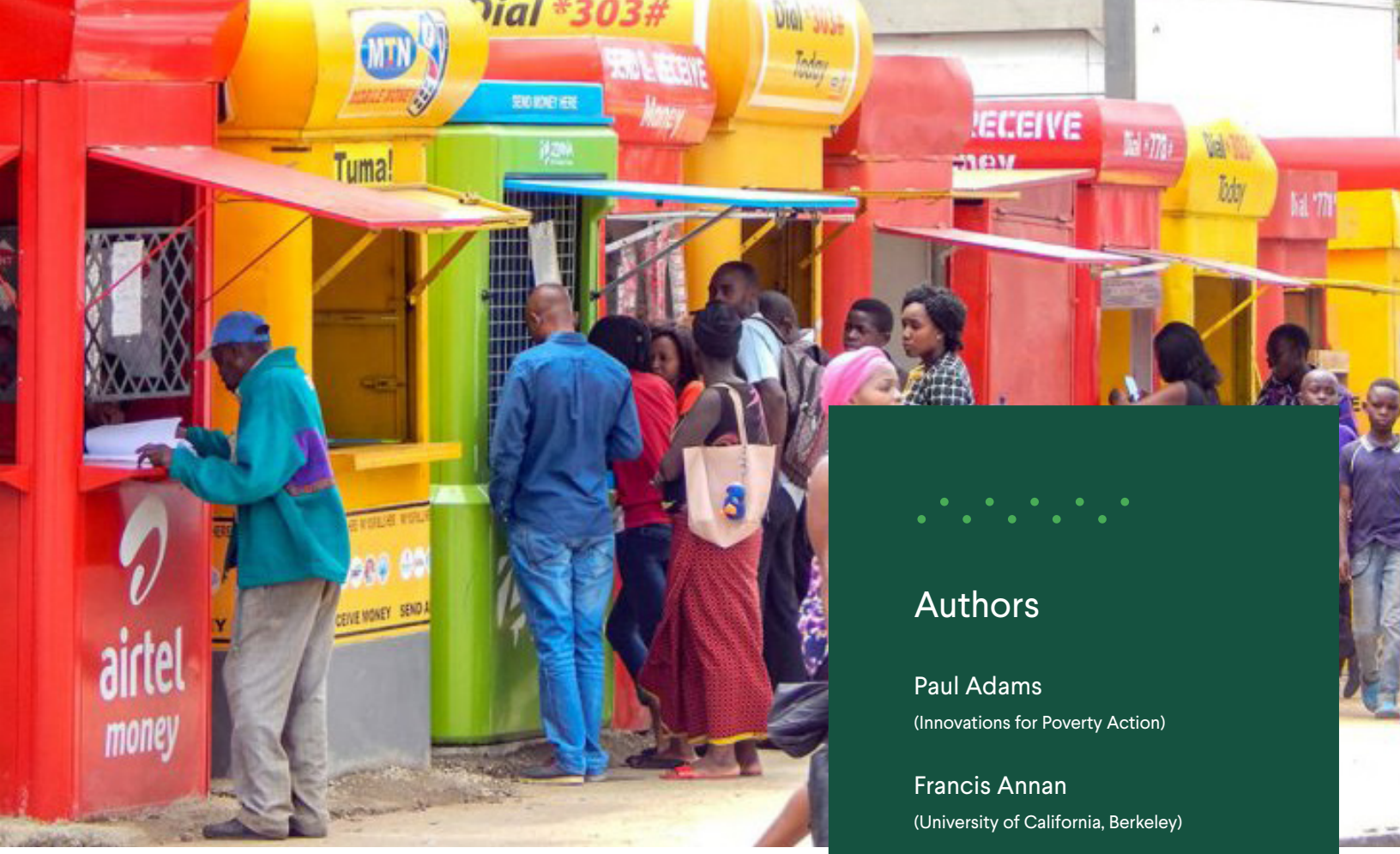
Transaction Cost Index

YEAR TWO COMPARATIVE REPORT

ipa Innovations for Poverty Action



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Photos

Front Cover: Street shot from Uganda. ©2014

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Executive summary

About the Transaction Cost Index

Costs are a leading driver of take-up and usage of digital financial services (DFS), yet little work has been done to measure these costs systematically. The Transaction Cost Index (TCI) seeks to fill this gap by systematically measuring the costs of using mobile money. We consider a broad definition of cost, inclusive of official fees and taxes, informal extra fees charged by agents, and non-pecuniary costs such as the opportunity cost of time wasted on failed transactions and exposure to consumer protection risks. This report presents results from our second and final year of data collection. This report builds on our Year 1 findings by incorporating an additional year of data. We additionally modified our data collection approach based on lessons learned in the first year of work, focusing on two key activities.

Photo: Fabien C

Measuring official prices and pricing policies

We systematically scraped official price lists from leading mobile money providers across 16 countries. We additionally collected information on tax treatment of mobile money transactions and regulations related to mobile money pricing. We additionally measured the ease of accessing providers' pricing information. The following countries were included in our desk review: Bangladesh, Colombia, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Mali, Myanmar, Nigeria, Pakistan, Paraguay, Peru, Philippines, Sierra Leone, Tanzania, and Uganda.

Methodology: We gathered official listed transaction prices from 33 major mobile money providers' websites across 16 low- and middle-income countries (LMICs). Where possible, automated data scraping techniques were used.

Transaction types:

Policy tracking: Alongside the listed prices exercise, IPA also tracked relevant regulations related to mobile money pricing to contextualize trends in providers' prices in specific markets. These included policies related to interoperability, pricing caps, pricing transparency, redress, taxation, market landscape, and agent networks.

Dates: Data was generally collected in the third quarter of 2023.

Results

Fee changes

We measured changes in prices between our Year 1 report (prices as of Quarter 4 2022) and our Year 2 report (quarter 3 2023). We note a few changes: providers increased some fees in Bangladesh while reducing fees in Mali, Tanzania, and Uganda. Government taxes increased in Kenya and decreased in Tanzania.

TABLE 1: Prices at reference value by transaction type and country as of end of Q3 2023[1]

COUNTRY	CASH-IN	CASH-OUT	ON-NETWORK TRANSFER	OFF-NETWORK TRANSFER
Bangladesh	0%	1.7% (+0.1%, P)	0.3%	0.7%
Colombia	0%	0%	0%	0%
Côte d'Ivoire	1.5%	2.5%	0.8%	12.1%
Ethiopia	0%	1.5%	0% (-0.5%,P)	NA
Ghana	0%	1.0%	0%	0%
Kenya	0%	2.0%	1.6%	1.6%
Mali	0%	1.0%	0.2% (-0.1%,P)	NA
Myanmar	0%	2.4%	0%	NA
Nigeria	1.1%	1.8%	0%	0.4%
Pakistan	0%	1.8%	0%	0%
Paraguay	0%	3.4%	3.5%	3.0%
Peru	0%	1.0%	0%	NA
Philippines	0%	1.1%	0%	1.2%
Sierra Leone	0%	2.5%	1.2%	NA
Tanzania	0%	8.6%	1.7% (-1%, G)	2.6% (-1.1%, G)
Uganda	0%	4.4%	1.6%	1.6%

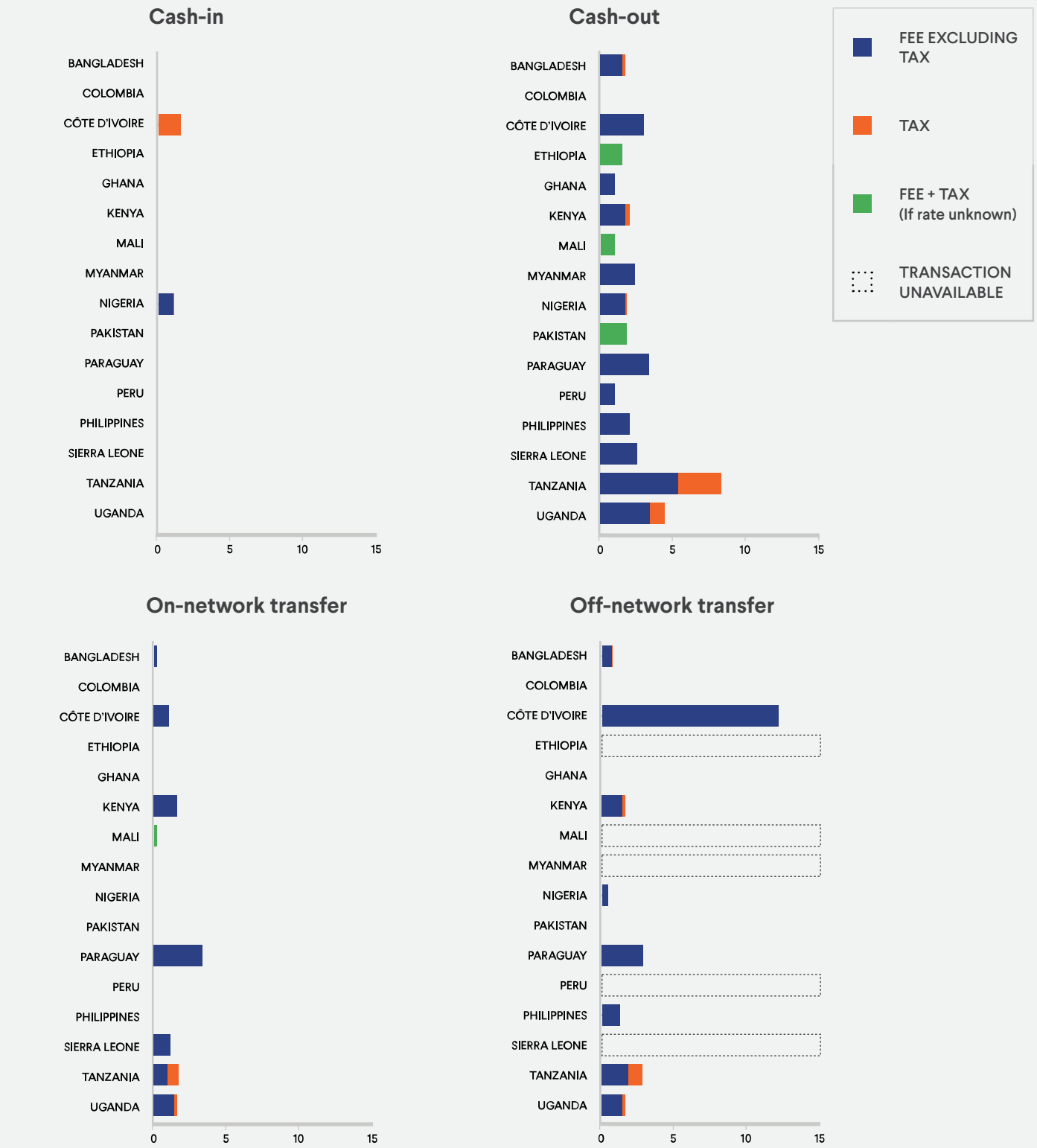
Note: Cells in green and red represent price decreases and price increases, respectively, from the Year 1 report which used the end of Q4 2022 data. A 'P' denotes that this was a provider led change, 'G' a government led change. Prices are shown as a percentage of the reference transaction value, which follows the existing general TCI reference value described in the Year 1 report. For Paraguay, providers charge an additional fee for withdrawing money coming from an off-network transaction which will result in a higher total cost than on-network.

1. For Ghana's Vodafone (in the middle of transitioning to Telecel), Cote d'Ivoire's MTN, Ghana's MTN, and Paraguay's Tigo, we were unable to record prices as of the end of the 3rd quarter in 2023 (September 30, 2023) because prices were unavailable during the reference period. For these 4 providers, we assumed Q2 2023 prices for the Q3 2023 round

Taxation

Despite some changes in some countries, tax on digital payment services continues to raise prices of simple transactions.

FIGURE 1: Fees and taxes by country and transaction type (at high reference value)



Price transparency and redress

We measured the ease of accessing pricing information and getting common queries addressed by customer care. Though price lists were generally fairly easily accessible, there were some important exceptions. 38 percent of emailed queries to customer care went unanswered, as did 28 percent of phone queries.

4 **of** **29** **providers did not have prices listed**

13% **of providers made it difficult to find their price list** (researchers took 3 minutes or more to find the price list)

FIGURE 2: Customer redress, email

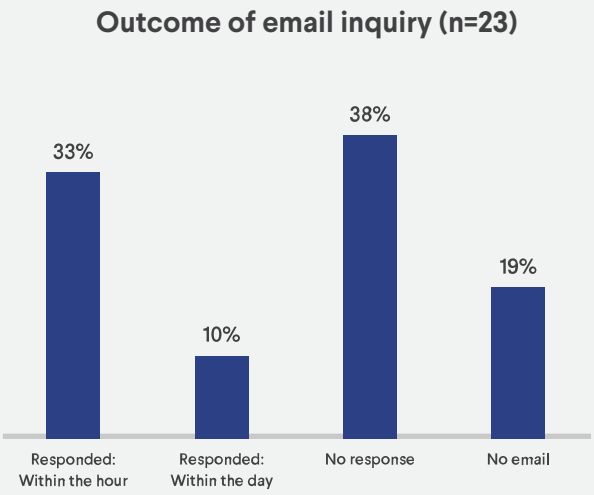
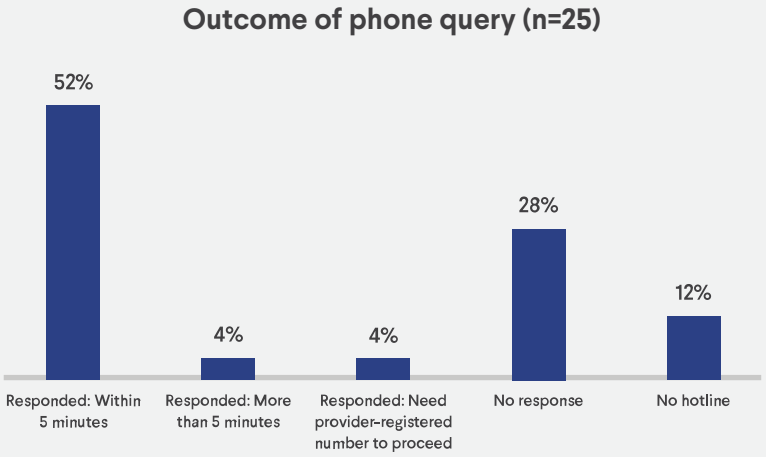


FIGURE 3: Customer redress outcomes via phone



Measuring costs when using mobile money agents

We selected one of three fieldwork approaches tested in Year 1 of the TCI to measure the true experience of consumers using mobile money agents – mystery shopping by locally recruited shoppers. Mystery shopping was conducted in Bangladesh, Tanzania, and Uganda.

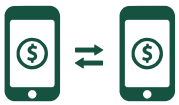
Methodology: Mystery shoppers conducted real transactions with mobile money agents, carefully recording fees charged and non-monetary costs, including rates of failed transactions.

Sampling: Mystery shopping visits were conducted in equal proportions across rural and urban markets, selected to represent a range of typical market conditions in each country.

Transaction types: Transactions were based on transaction frequency in consumer surveys. In Bangladesh, transactions were cash-ins, cash-outs, and agent-assisted person-to-person transfers. In Tanzania and Uganda, transactions were cash-ins, cash-outs, and over-the-counter cash transfers.

CASH-IN AT AN AGENT

CASH-OUT AT AN AGENT



ON-NETWORK PERSON-TO-PERSON TRANSFER

OFF-NETWORK PERSON-TO-PERSON TRANSFER

Transaction value: A single reference value that approximated the median transaction value (based on World Bank consumption data) was used for each country.

Shopper selection: Shoppers were selected through household surveys. In each market, equal numbers of female and male shoppers were included. Shoppers were required to be active mobile money users and at least 18 years old.

Providers

Shoppers used their preferred provider among top providers in each country

Bangladesh:
bKash, Nagad

Tanzania:
Vodacom, Tigo, Airtel

Uganda:
MTN, Airtel

Sample size

1565

Bangladesh:
mystery shopping visits

1540

Tanzania:
1540 mystery shopping visits

1543

Uganda:
1543 mystery shopping visits

Dates

Fieldwork was conducted between August and October 2023.

Results

Outcomes by country

Agent presence and success rates remain somewhat concerning, with important country variation. Agent overcharging is relatively rare in Bangladesh and Tanzania, while more than 1 in 10 transactions in Uganda are overcharged.

BANGLADESH

84.5% | 88.9%
AGENT PRESENT | SUCCESS RATE*

Overcharging rate

1.1%

Overcharging amount

1.4%

TANZANIA

84.7% | 77.3%
AGENT PRESENT | SUCCESS RATE*

Overcharging rate

0.3%

Overcharging amount

2.0%

UGANDA

76.3% | 77.2%
AGENT PRESENT | SUCCESS RATE*

Overcharging rate

12.1%

Overcharging amount

4.8%

Geography

Rural shoppers consistently experience worse outcomes than urban shoppers. In rural areas, agents are often less likely to be present and, if they are present, are typically less likely to successfully complete a transaction than their urban counterparts. In Uganda, rural agents are more likely to overcharge their customers than urban agents.

TABLE 2: Key outcomes by geography

	BANGLADESH		TANZANIA		UGANDA	
	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN
Agent present	79.3%***	89.7%***	80.3%***	89.0%***	75.8%	78.5%
Success rate (conditional on agent present)	89.6%	88.2%	72.4%***	81.7%***	68.6%***	83.3%***
Success rate (unconditional)	71.1%***	79.1%***	58.2%***	72.7%***	52.0%***	65.4%***
Overcharging rate (extensive margin)	0.9%	1.3%	0.4%	0.2%	15.0%*	9.9%*
Overcharging amount (intensive margin)	0.8%	1.2%	2.6%	0.8%	4.8%	4.8%
Observations	789	776	768	772	743	800

Note: Variable means. Stars indicate tests for difference in means between rural and urban mystery shopping visits. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Shopper gender

We find no significant variation in agent shopping by shopper gender, even in Uganda where overcharging is relatively common. In Bangladesh, female shoppers appear to achieve more success in completing transactions than their male counterparts.

TABLE 3: Key outcomes by shopper gender

	BANGLADESH		TANZANIA		UGANDA	
	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE
Agent present	85.0%	84.1%	85.8%	83.6%	79.3%*	74.9%*
Success rate (conditional on agent present)	92.6%***	86.3%***	75.9%	78.7%	77.4%	75.1%
Success rate (unconditional)	78.7%**	72.6%**	65.2%	65.7%	61.4%*	56.3%*
Overcharging rate (extensive margin)	0.8%	1.3%	0.4%	0.2%	11.0%	13.3%
Overcharging amount (intensive margin)	1.7%*	0.8%*	2.9%	0.3%	4.9%	4.8%
Observations	634	931	755	785	797	746

Note: Variable means. Stars indicate tests for difference in means. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Agent characteristics

Agents who operate another line of business were more likely to be present, but less likely to complete a transaction successfully. Mobile agents had higher transaction success rates than brick and mortar establishments. Recently opened agent locations had higher success rates, but also higher rates of overcharging, than more established agents.

TABLE 4: Key outcomes by agent characteristics

DEDICATED MOBILE MONEY AGENT	DEDICATED MOBILE MONEY AGENT	HAS OTHER LINE OF BUSINESS
Agent present	76.2%***	85.3%***
Success rate (conditional on agent present)	86.9%***	78.2%***
Success rate (unconditional)	66.3%	66.7%
Overcharging rate (extensive margin)	5.0%	3.5%
Overcharging amount (intensive margin)	4.7*	4.1*
Observations	1726.	3167.

AGENT LOCATION STRUCTURE	AGENT LOCATION IS A FIXED STRUCTURE	AGENT LOCATION IS MOBILE
Agent present	81.8%	84.2%
Success rate (conditional on agent present)	80.1%***	87.6%***
Success rate (unconditional)	65.5%***	73.8%***
Overcharging rate (extensive margin)	3.7%*	5.9%*
Overcharging amount (intensive margin)	4.2	4.8
Observations	4267.	626.

TIME IN MARKET	RECORDED IN YEAR 1 CENSUS	ENTERED MARKET IN THE LAST YEAR
Agent present	82.1%	82.0%
Success rate (conditional on agent present)	80.1%***	87.2%***
Success rate (unconditional)	65.8%**	71.5%**
Overcharging rate (extensive margin)	3.4%***	8.2%***
Overcharging amount (intensive margin)	4.2%	4.7%
Observations	4049.	599.

Note: Stars indicate tests for difference in means. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Price transparency

Posted price lists are nearly universal in Bangladesh, but less consistently available at agent locations in Tanzania and Uganda. Verbal disclosure is rare, though more common in Uganda than Bangladesh or Tanzania. Price lists are common at urban agents and newer agents, while verbal disclosure of fees is more common in rural areas and newer agents. Customers visiting agents they use regularly are more likely to report seeing a price list, perhaps because they know where to look.

TABLE 5: Price list and verbal disclosure of fees

	BANGLADESH	TANZANIA	UGANDA
Price list displayed	98.3%	77.7%	63.9%
Agent informed customer of fee without prompting (before or after transaction)	3.9%	2.2%	19.7%

TABLE 6: Price Transparency indicators

GEOGRAPHY	RURAL	URBAN
Price list displayed	79.2%***	83.6%***
Agent informed customer of fee without prompting (before or after transaction)	9.7%**	6.2%**

AGENT RELATIONSHIP	KNOWN AGENT	UNKNOWN AGENT
Price list displayed	75.9%***	68.5%***
Agent informed customer of fee without prompting (before or after transaction)	7.9%	7.8%

TIME IN MARKET	RECORDED IN YEAR 1 CENSUS	ENTERED MARKET IN THE LAST YEAR
Price list displayed	80.9%*	84.2%*
Agent informed customer of fee without prompting (before or after transaction)	6.8%***	13.8%***

Note: Price list indicator includes a sample of all agents recorded in the census. Fee informed indicator only for successful mystery shopping visits. Stars indicate tests for difference in means between agent types. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Service quality

Our shoppers generally reported high service quality with very low rates of inappropriate comments, discrimination, or other misconduct. Female shoppers reported slightly more suggestive comments from agents than male shoppers, but shoppers of both genders reported less than suggestive comments in less than 1 percent of agent interactions.

TABLE 7: Visit experience

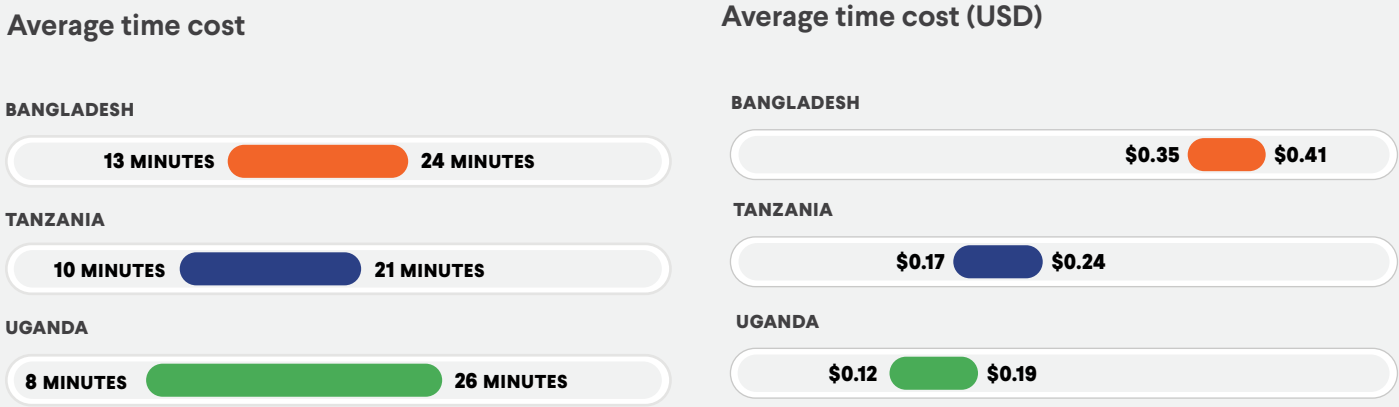
	BANGLADESH	TANZANIA	UGANDA
Visit experience			
Security (1-10)	8.2 (1.3)	7.9 (2.1)	7.4 (1.7)
Privacy (1-10)	8.1 (1.4)	7.5 (2.2)	7.2 (1.7)
Attitude (1-10)	8.2 (1.4)	8.1 (2.1)	7.6 (1.7)
Invasive	1.4%	1.1%	1.2%
Suggestive	0.6%	0.1%	0.1%
Teasing	0.2%	0.1%	0.3%
Rude	0.8%	0.4%	0.8%
Discrimination: gender	0.1%	0.2%	0.1%
Discrimination: age	0.2%	0.0%	0.2%
Discrimination: ethnicity	0.0%	0.0%	0.0%
Service quality index			
Service quality index (principal component analysis)	0.3 (1.2)	0.9 (1.8)	-0.4 (1.4)
Observations	1322	1304	1191

Note: Non-percentage values have standard deviations in parentheses. 'Invasive' is a binary variable equal to one if the respondent felt the agent invaded their personal space. 'Suggestive' is a binary variable equal to one if the respondent felt the agent made unwelcome sexually suggestive looks or gestures towards them. 'Teasing' is a binary variable equal to one if the respondent felt the agent made unwelcome sexually suggestive teasing, jokes or comments towards them. 'Rude' is a binary variable equal to one if the respondent felt the agent was rude or made harassing or unwelcome comments towards others."

Time cost

We computed the expected time cost – in minutes and dollars – to complete one transaction, taking into account the need to re-attempt failed transactions. This time cost is higher – sometimes dramatically so – than the direct monetary cost of making transactions.

TABLE 8: Time cost by country



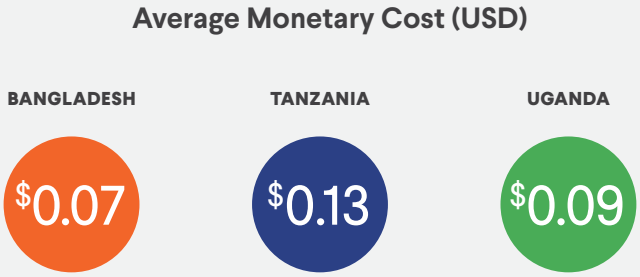


Photo: Simon Reza, Fiona Graham/WorldRemit, USAID

1. Introduction

Digital financial services (DFS) hold the promise of significantly enhancing the lives of the underprivileged, especially in low- and middle-income countries (LMICs).[2] One critical factor influencing the adoption and sustained use of these services is their cost.[3] To fully understand these costs, they need to be measured systematically, accurately, and in a way that can be scaled up without being too expensive. The Transaction Cost Index (TCI), now in its second year, was created to measure these costs from different angles, focusing on mobile money, the most commonly used financial service among low-income groups in the countries we studied.

The TCI looks at costs in a broad sense. It includes not just official fees and taxes, but also informal charges from agents and non-monetary costs like time lost from failed transactions and risks to consumer protection. By examining these costs in detail, the TCI provides valuable information to help create better strategies for increasing financial inclusion and protecting consumers.

Year 1 Methodology and Findings

In the first year of the study, we conducted two complementary exercises intended to assess costs of mobile money services.

First, we used desk research to measure official fees for mobile money services in 16 markets with significant mobile money penetration. In this exercise, we tracked official pricing information from service providers' websites. As we did so, we measured how difficult it was to find these prices, and how firms responded to requests for information. To add context to this pricing data, we also conducted a regulatory review in each of these countries, compiling information about policies related to the pricing of mobile money services.

Second, we conducted fieldwork in Bangladesh, Tanzania, and Uganda to explore the actual costs faced by mobile money users, including informal agent charges and non-monetary costs. Three methods were tested during this fieldwork. First, we conducted "**consumer intercept surveys**" – face-to-face surveys of consumers exiting mobile money agent locations. In these surveys, we asked consumers about the transaction they had just completed; most critically: what transaction were they attempting to make, was the transaction successful, and if so, how much did they pay in fees? Second, we conducted "**professional mystery shopping**" visits with agents, sending trained enumerators to agent locations to conduct real transactions and record the outcomes of those visits. As far as possible, we tried to minimize potential bias that might arise if agents were aware they were being observed for a study and tried to capture genuine customer-agent interactions. Finally, we conducted an adapted version of this mystery shopping technique, but making use of locally recruited and trained consumers as our mystery shoppers rather than professional enumerators. This "**local consumer mystery shopping**" was intended to be more reflective of real-world interactions.

Additionally, a remotely deployed variation of the local mystery shopping method was tested. Pre-trained consumers completed transactions and reported results via phone calls. However, this approach faced high attrition rates and proved to be as costly as traditional in-person methods. Findings from this method were excluded from Year 1 but are discussed in this Year 2 report.

The detailed analysis of Year 1 results, including a comparison of methods and their trade-offs, can be found in the TCI Year 1 Comparative Report. While each method has merits, local consumer mystery shopping emerged as the most balanced approach, combining high data quality with the practical advantages of local market knowledge.

Research datasets

Accompanying this report, we published all microdata collected as part of the Transaction Cost Index. All de-identified datasets are available on the Harvard Dataverse, here: https://doi.org/10.7910/DVN/ESPXFK. This includes data from Year 1 and Year 2, and data from all TCI methods: collection of providers' listed prices and all fieldwork methods.

2. See Gates (2021) for an overview. Examples of positive benefits of DFS include being able to transfer funds across long distances, allowing users to smooth their consumption by sharing risks across dispersed social networks (Jack and Suri, 2014), shift to higher-productivity employment (Wieser, Bruhn, Kinzinger, Ruckteschler and Heitmann, 2019) or migrate to high-wage urban centers while sending money back home (Batista and Vicente, 2020)

3. See for example Aker, Prina and Welch (2020) or Annan (2022)

Year 2 Objectives and Approach

Building on Year 1 findings, the focus in Year 2 was to refine and scale the local consumer mystery shopping methodology while continuing to track official prices and regulatory policies. Key improvements included: enhanced training and support for local shoppers, a streamlined recruitment process, and improved strategies to minimize observer effects and bias in agent interactions.

The Year 2 report offers a comprehensive analysis of these refinements and presents a nuanced understanding of the costs DFS consumers face. By examining official fees, informal charges, and non-monetary costs through this improved methodology, we provide insights that resonate with the lived experiences of typical consumers.

Our refined approach sets a new benchmark for measuring DFS costs, balancing accuracy, cost-effectiveness, and real-world applicability. These advancements are crucial for policymakers, financial service providers, and consumer advocates, offering actionable insights to enhance financial inclusion, protect consumers, and foster a more equitable digital financial ecosystem.

The rest of this report continues as follows. Section 2 revisits our work to measure official prices and policies, explains any adjustments to our approach and provides updated results. Section 3 reviews the fieldwork methodologies we used in Year 1, and why we chose to conduct local consumer mystery shopping in Year 2. It also provides extensive updated results using the chosen approach. Section 4 provides a discussion of the two year pilot to accurately measure the true costs of digital financial services.

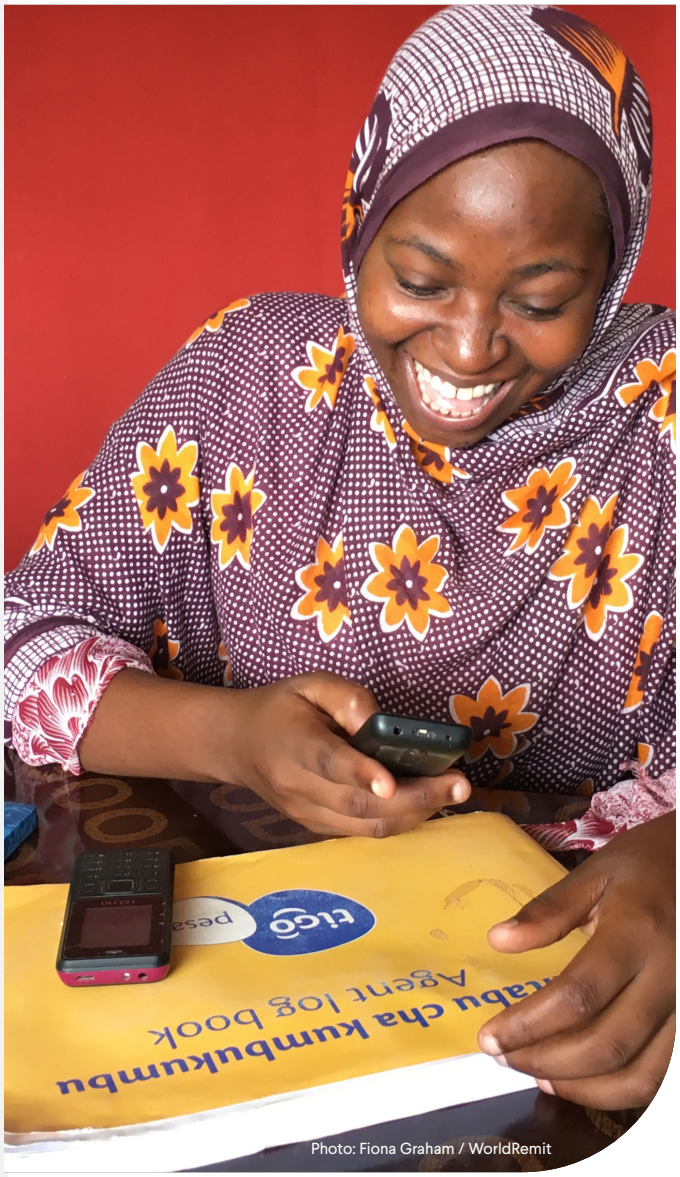


Photo: Fiona Graham / WorldRemit

2. Measuring official prices and policies

Methodology

Similar to Year 1, we gathered official, listed transaction prices from 33 major mobile money providers' websites across 16 (LMICs) using automated tools where possible.[4] We use the same reference value to benchmark our prices across countries, see Table 33 in Annex, and cover the same set of four transaction types – Cash-in, Cash-out, On-network person-to-person transfer and Off-network person-to-person transfer, see Table 34 in Annex.

Whereas we used quarterly monitoring in Year 1, we adopted a roughly annual approach in collecting data in Year 2, additionally using WayBack Machine, a digital archive of the internet, to track past versions of pricing pages. These prices include both fees charged directly by providers and government taxes, so fees presented cover the full monetary cost consumers incur when making transactions, excluding any extra fees levied by agents. Where taxes are not explicitly included, we conducted a separate review to determine the applicable tax rate which allowed us (in most cases) to separate out provider fees and government taxes.

The advantage of quarterly monitoring is that relatively complete data can be obtained from mobile money providers. However, this requires a high level of effort in running through the checks every set period. Providers present their fee schedule differently, and manual scraping still needs to be performed for formats that are shared as images, explained as part of their "Frequently Asked Questions" page, or embedded in a fee calculator form.

Making use of a web page archiving service – the WayBack Machine – allows researchers to recover price changes not recorded in real time. However, this approach has three main drawbacks. First, because WayBack Machine relies on users to manually suggest webpages to archive, not all webpages with mobile money fees are archived. Second, for the same reason, web pages with mobile money fees are not typically archived on a set schedule and long gaps can exist between archive dates, meaning some price changes may be missed. Finally, the Wayback Machine struggles to archive dynamic web pages, such as those that require the user to select items from a dropdown list before viewing prices. Paid services, including Archive It, address some but not all of these drawbacks.

The exercise reveals the variety of relatively accessible tools and adjustments regulators can use to conduct market monitoring depending on the set-up of the online prices. If price displays are properly stored in web archiving tools, then an annual review might be sufficient to track historical changes. If formats differ across providers, a more regular and thorough monitoring exercise would be more suitable to capture accurate and complete information, especially among sites that would require manual checks (See TCI Toolkit for details). As noted in the Year 1 report, regulators could require that providers make their price lists available online in a consistent, machine-readable format, which would allow them to carry out periodic reviews of DFS prices in a low-effort, automated manner. Nonetheless, advances in data analytics and monitoring present opportunities to improve the accuracy, speed and coverage of online information that can be tracked, which will ultimately help regulators push toward preventative interventions.

4. We used the programming language R to develop a process for tracking pricing data available on providers' websites and monitoring for changes in prices. This is explained in detail in the Year 1 report.

While collecting official price data from provider websites, we systematically recorded key indicators about the experience of collecting pricing information to yield insights into the transparency of mobile money prices. As was the case last year, we also audited consumer redress processes. Whereas previously we assessed redress quality through email only, which may be an uncommon channel used to reach customer services in these markets, this year we also conducted a phone call for the same inquiry.[5] Given that the person conducting the exercise varies per country, there are limitations in analyses relating to comparison between countries and between telephone calls and emails, despite our attempts at standardizing the process. For this reason, we will avoid comparisons from Year 1 data. Nonetheless, we believe this additional "sludge audit" provides important information about the quality of service providers offer consumers, an important aspect of consumer protection.

Alongside the listed prices exercise, we tracked the relevant regulatory changes related to mobile money and assessed the relationship of such changes with prices. We expanded the themes covered in Year 1—interoperability, pricing caps, pricing transparency, redress and taxation—to include questions on market landscape indicators and agent network. For the policy tracking exercise, we collected data from 14 countries, four of which provided incomplete responses, namely Mali, Myanmar, Peru, and Sierra Leone. No data was collected in Pakistan and Paraguay.

TABLE 9: Methodology Comparison: Year 1 vs Year 2

	YEAR 1	YEAR 2
Listed prices components		
A. Data collection of official prices	Q3-Q4 2022	Q3 2023
B. Desk exercise on price transparency	Experience of collecting pricing information, customer care inquiry through email	Experience of collecting pricing information, customer care inquiry through email and phone
C. Mobile money policy tracker	Interoperability, pricing caps, pricing transparency, redress and taxation	Interoperability, pricing caps, pricing transparency, redress, taxation, market landscape indicators and agent network
Countries	Bangladesh, Colombia, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Mali, Myanmar, Nigeria, Pakistan, Paraguay, Peru, Philippines, Sierra Leone, Tanzania, Uganda	
Transaction types	Cash-in, Cash-out, On-network person-to-person transfer, Off-network person-to-person transfer	

5. The hypothetical inquiry is similar to Year 1: "Hi, if I accidentally send money to the wrong phone number, can you tell me what I should do to correct it? Would it be possible to get my money back? Thank you."

Results

In this section, we focus on documenting the price movements from Q1-Q3 2023, including any changes in tax regimes that have been implemented during the period. We then discuss regulatory updates during the same research period, covering interoperability, taxation and price caps. Finally we discuss the sludge transparency audit that was conducted at the end of Q3 2023.

Fee changes

We documented changes in the official, listed transaction prices from major mobile money providers' websites across 16 LMICs from the end of Q4 2022 (Year 1 report's reference period) to the end of Q3 2023. The prices include both fees charged directly by providers and government taxes (where applicable), so fees presented here cover the full monetary cost consumers incur when making transactions, exclusive of any extra fees levied by agents.

Overall, transaction fees have become more affordable particularly among the countries that experienced the highest prices in Year 1 (See Table 2). Most of the changes between Q4 2022 and Q3 2023 were provider-led – these include price changes of cash-out transactions in Bangladesh, and on-network transfers in Ethiopia and Mali. Tanzania observed mainly government-led price changes for on-network and off-network transfers, which were previously identified as among the highest fees. Nevertheless, previously identified high fees, such as Tanzania's cash-out transactions, Paraguay's cash-out transactions and person-to-person transfers, and Cote d'Ivoire's off-network transfers, still remained unmoved. We recorded below the specific fee changes per country.

Photo: Kay McGowan, USAID

TABLE 10: Prices at reference value by transaction type and country as of end of Q3 2023[6]

COUNTRY	CASH-IN	CASH-OUT	ON-NETWORK TRANSFER	OFF-NETWORK TRANSFER
Bangladesh	0%	1.7% (+0.1%, P)	0.3%	0.7%
Colombia	0%	0%	0%	0%
Côte d'Ivoire	1.5%	2.5%	0.8%	12.1%
Ethiopia	0%	1.5%	0% (-0.5%,P)	NA
Ghana	0%	1.0%	0%	0%
Kenya	0%	2.0%	1.6%	1.6%
Mali	0%	1.0%	0.2% (-0.1%,P)	NA
Myanmar	0%	2.4%	0%	NA
Nigeria	1.1%	1.8%	0%	0.4%
Pakistan	0%	1.8%	0%	0%
Paraguay	0%	3.4%	3.5%	3.0%
Peru	0%	1.0%	0%	NA
Philippines	0%	1.1%	0%	1.2%
Sierra Leone	0%	2.5%	1.2%	NA
Tanzania	0%	8.6%	1.7% (-1%, G)	2.6% (-1.1%, G)
Uganda	0%	4.4%	1.6%	1.6%

Note: Cells in green and red represent price decreases and price increases, respectively, from the Year 1 report which used the end of Q4 2022 data. A 'P' denotes that this was a provider led change, 'G' a government led change. Prices are shown as a percentage of the reference transaction value, which follows the existing general TCI reference value described in the Year 1 report. For Paraguay, providers charge an additional rate for withdrawing money coming from an off-network transaction which will result in a higher total cost than on-network.

6. For Ghana's Vodafone (in the middle of transitioning to Telecel), Cote d'Ivoire's MTN, Ghana's MTN, and Paraguay's Tigo, we were unable to record prices as of the end of the 3rd quarter in 2023 (September 30, 2023) because prices were unavailable during the reference period. For these 4 providers, we assumed Q2 2023 prices for the Q3 2023 round

Bangladesh

Bangladesh's BKASH increased its cash-out fee in Q2 2023. The equivalent cash-out fee is 1.8 percent of the reference transaction value, which was higher than the 1.6 percent fee in Q4 2022.[7] Despite the change, mobile money demand in Bangladesh remained unperturbed as the volume and value of transactions rose by 35 percent and 42 percent respectively, in the 12 months to the end of June 2023 (Bangladesh Bank, 2024).

TABLE 11: Mobile money data from Bangladesh

	JUNE 2022	JUNE 2023
Number of agents (million)	1.40	1.58
Number of registered customers of MFS (million)	178.4	207.27
Total number of transactions (millions)	4104	5539
Total value of transactions (billion, in BDT)	8564	12174

Source: Bangladesh Bank

Ethiopia

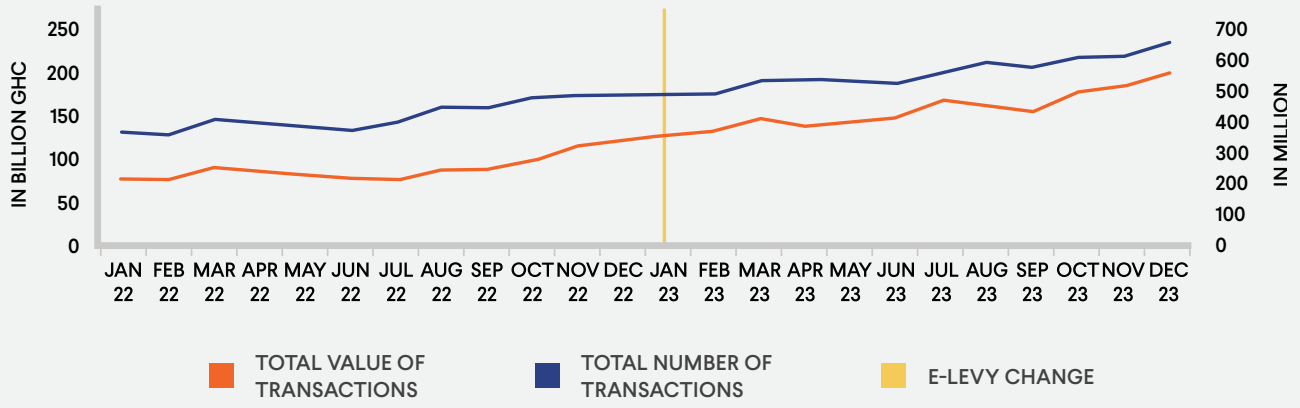
Ethiopia's Telebirr reduced its on-network transfer fee for transaction values up to 1,000 bir from 0.5 percent in Q4 2022 to 0.005 percent in Q3 2023, equivalent to a 0.5 percent decrease on the fee as a share of the reference transaction value.

Ghana

In Ghana, the government's e-levy decreased from 1.5 percent to 1 percent in January 2023. Prices at reference value were unchanged as the electronic transaction levy kicks in at above the reference value. The exemption threshold for transactions below GHS 100 a day remained in place – the Parliament rejected the E-levy proposal to withdraw the threshold. This exemption is meant to cushion vulnerable groups, though it has not been adjusted since 2022 and has eroded in real value (GHS 100 in 2022 would be equivalent to roughly GHS 120 in 2023 if it kept up with inflation).

No unusual spike in mobile money demand was observed as a result of the e-levy change mid-January 2023 (Figure 4). Mobile money accounts and volume of transactions continued its upward trend in Q1 2023 and throughout the rest of the year. By December 2023, registered mobile money accounts and volume of mobile money transactions were around 66 million and 657 million, respectively.

FIGURE 4: Value and number of mobile money transactions in Ghana: 2022-2023



Source: Summary of Economic and Financial Data, Bank of Ghana

7. In September 2023, Nagad introduced additional fees on person-to-person transfers and cash-out.

Ghana's MTN doubled the maximum cash-out fees in July 2023. MTN previously charged a variable fee of 1 percent for cash-out transactions up to 1,000 GHS, and a fixed fee of 10 GHS for all cash-out transactions exceeding 1,000 GHS. Under the new fee structure the 1 percent fee will apply to amounts below GHS 2,000, while a flat fee of GHS 20 will be charged for all transactions above GHS 2,000. There is no impact in our study's reference transaction value (75 GHS or 5.8 USD), which retained the 1 percent charge.

Kenya

In July 2023, the excise duty rate in Kenya on fees for money transfer services by cellular phone service providers and payment service providers increased from 12 percent to 15 percent. This did not lead to a significant increase in total fees and the fee as a share of the reference transaction value remained at 2 percent.

Based on the data from the Central Bank of Kenya, the value of mobile money transactions in Kenya rose to 7.95 trillion shillings ($49 billion) in 2023, compared with 7.91 trillion shillings in the previous year. This 0.5 percent growth in the value of transactions in 2023 represents the slowest pace since the introduction of mobile money in 2007. This slowdown in mobile transactions comes at the height of challenging economic conditions, including rising inflation, in Kenya.

Mali

Mali's Orange decreased its on-network transfer fee in Q2 2023. Orange reduced its on-network fee from 1 percent of the reference value in Q4 2022 to 0.6 percent in Q2 2023. Despite this reduction, the charge still was higher than other major providers in Mali, Moov Africa and SAMA, that provided free on-network transfers.

Sierra Leone

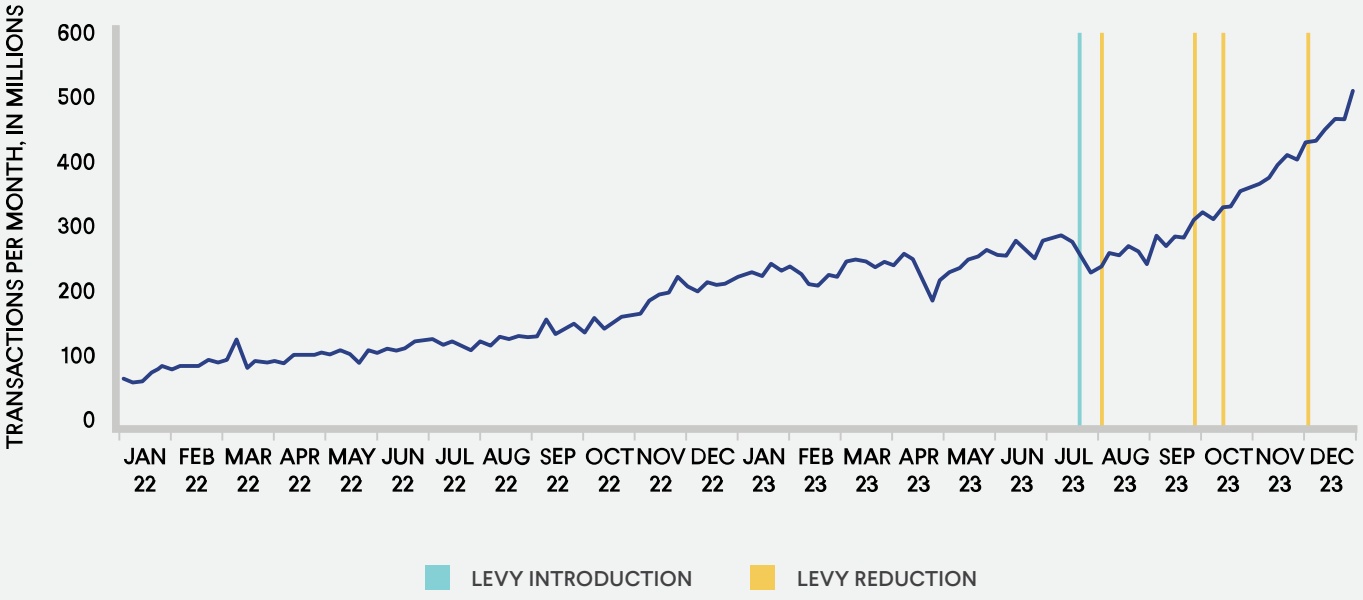
There were no changes to regulatory or tax policy during the research period (Q1 - Q3 2023). However, there was a significant change in taxation immediately after the research period that we believe is worth noting. Effective October 2023, a 15 percent goods and services tax (GST) is applied to all fees associated with mobile money transactions in Sierra Leone. Mobile money providers Africell and Orange implemented a corresponding increase in their cashout and P2P fees. In terms of price transparency, we observed that Africell reflected the new fees in their online page, while Orange did not, though they have released announcements of a fee hike on social media and other news platforms. Importantly, the prices listed in Table 22 above do not reflect these changes as they occurred outside of the research period.

Tanzania

In Tanzania, the electronic money levy was restricted to withdrawal transactions effective July 2023. The issuance of the Finance Act 2023 has removed the electronic money levy on transactions involving sending and receiving money electronically. This led to a reduction in the total effective off-network transfer fee from 3.7 percent in Q4 2022 to 2.6 percent of the reference transaction value across all mobile money providers in Q3 2023, while on-network transfer fees dropped from 2.7 percent to about 1.7 percent. By the end of Q4 2023, volume of mobile payments had hit an all-time high of half a billion transactions per month, signaling positive results of government efforts to stimulate electronic payments (Figure 5).

By the end of Q4 2023, the volume of mobile payments had hit an all-time high of half a billion transactions per month.

FIGURE 5: Monthly volume of mobile payments in Tanzania

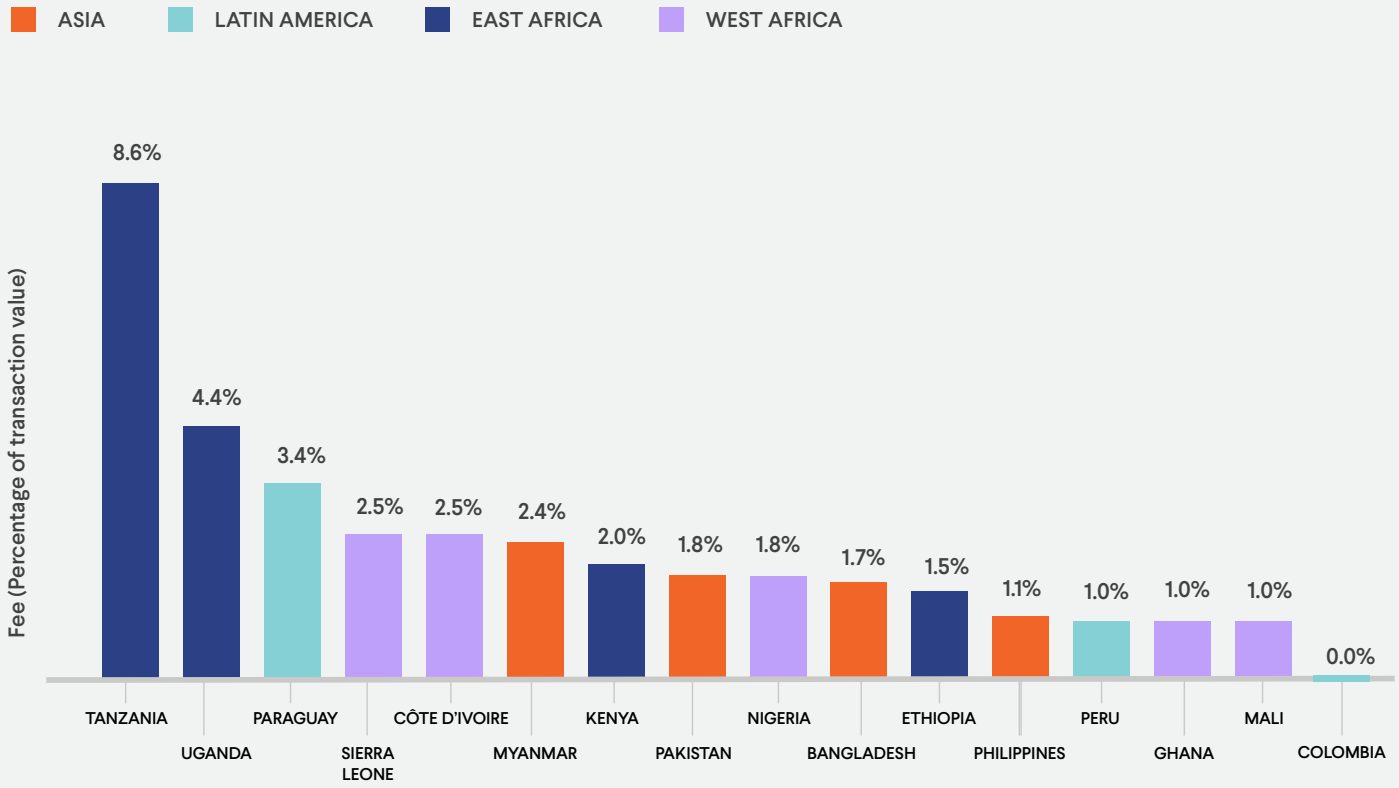


Source: Statistics on Payment Systems, Bank of Tanzania

Cash-out fee by country

Cash-out fees remained the same for all countries, except Bangladesh. Similar to Q4 2022, providers in Tanzania, Uganda and Paraguay continued to charge the highest fees among all countries covered. Cash-out fees in Tanzania are between 6.1 and 9.4 percent for a weighted average of 8.6 percent. This is nearly double the average fees for Uganda and Paraguay, at 4.4 percent and 3.4 percent respectively. On the other hand, Colombia has the lowest withdrawal fees with no charge, followed by Ghana, Mali, and Peru at one percent.

FIGURE 6: Cash-out fee by country



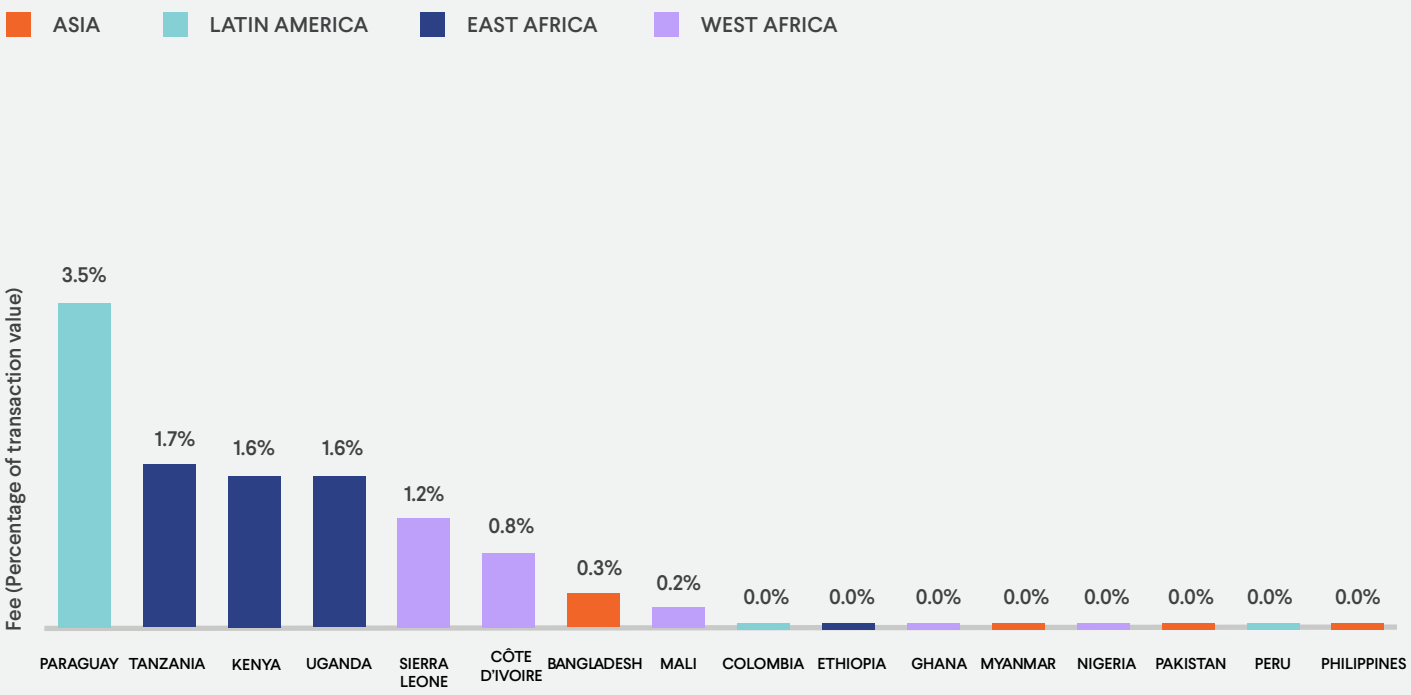
As was the case in 2022, providers in Tanzania, Uganda and Paraguay continued to charge the highest cash out fees.

On-network fee by country

Though on-network fees in Tanzania were reduced by 1.1 percent between Q4 2022 and Q3 2023, the country still had the second highest fee for this transaction type in our sample, surpassed only by Paraguay. In Paraguay, providers Billetera Personal and Giros Claro both charged 3 percent, while Tigo charged 4 percent for on-network transfers.[8]

Meanwhile, Ethiopia joined the eight countries in our sample that imposed minimal or no fees for on-network transfers, while Mali's fees dropped below those of Bangladesh.

FIGURE 7: On-network P2P fee, by country

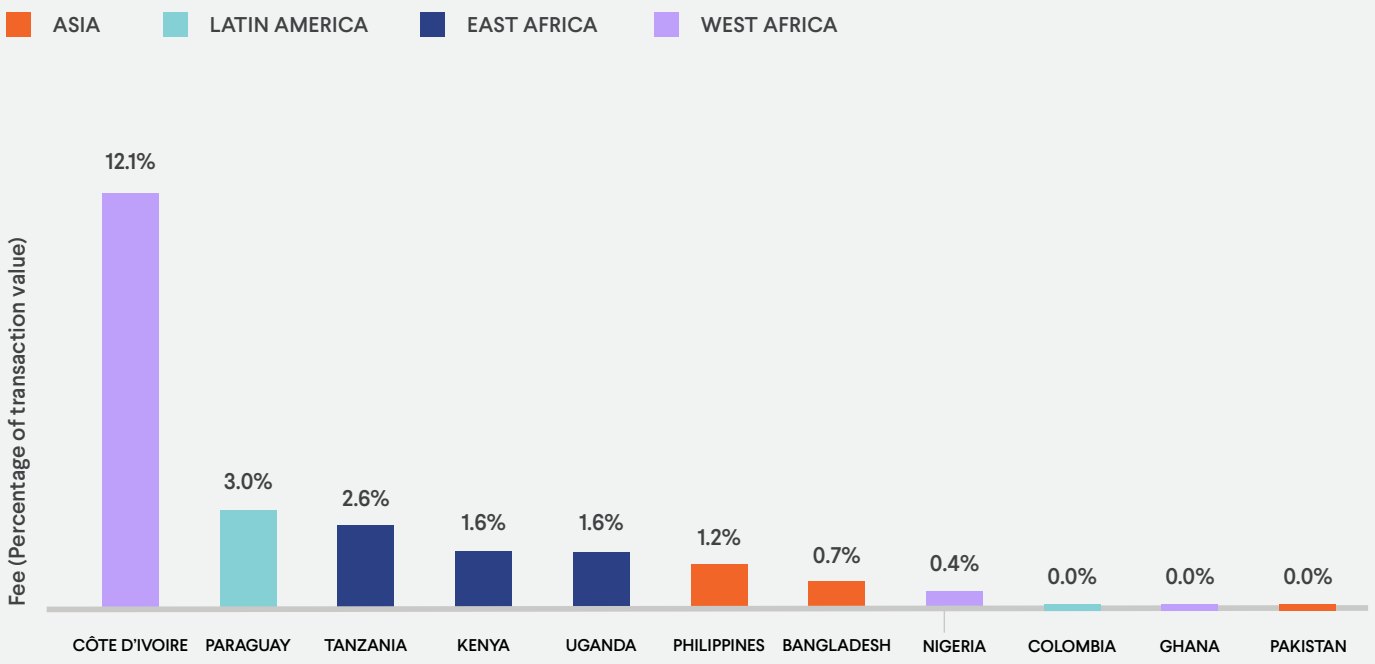


8. Note that we were unable to record prices for Paraguay's Tigo as of the end of the 3rd quarter in 2023 (September 30, 2023) because prices were unavailable during the reference period. We assumed Q2 2023 prices for the Q3 2023 round

Off-network fee by country

Between Q4 2022 and Q3 2023, fees for off-network transfers in our sample remained largely unchanged, except in Tanzania. A government-led reduction in off-network transaction levies in Tanzania lowered the country's ranking below Paraguay, making Paraguay the second-highest and Tanzania the third-highest in fees for this transaction type.

FIGURE 8: Off-network P2P fee, by country



A government-led reduction in transaction levies reduced off-network fees in Tanzania, making it cheaper than Paraguay.

Regulatory Tracker

Price caps

The status of price cap regulations during the research period remained the same since the end of the Q4 2022. As before, we find that only three countries - Bangladesh, Ghana and Nigeria - put a cap on prices for certain types of transactions.[9] See the Annex for the Policy Tracker summary tables.

Taxation

During the research period, three countries - Ghana, Kenya and Tanzania- reported changes in mobile money taxation. See the Annex on the Policy Tracker summary tables.

Ghana: In January 2023, the government reduced the e-levy from 1.5 percent to 1 percent. The exemption threshold for transactions below GHS 100 per day remained unchanged after the Parliament rejected a proposal to eliminate it.

Kenya: In July 2023, the excise duty on fees for money transfer services by cellular phone and payment service providers increased from 12 percent to 15 percent.

Tanzania: In July 2023, the electronic money levy was restricted to withdrawal transactions only. The issuance of the Finance Act 2023 has removed the electronic money levy on transactions involving sending and receiving money electronically.

Though outside of our research period, a notable change was also observed in Sierra Leone. Effective October 2023, a 15 percent goods and services tax (GST) is applied to all fees associated with mobile money transactions in Sierra Leone.

Figure 9 displays total fees at our high reference value for each country, broken down by transaction type. Note that our high reference value is below the thresholds at which some taxes are applied in Colombia, Ghana, and Nigeria. In our 12 countries where tax rates are known, we plot fees excluding taxes (blue) and taxes (red) separately. In countries where tax rates are unknown, we plot the total price inclusive of taxes in green.

We find that only three countries - Bangladesh, Ghana and Nigeria - put a cap on prices for certain transactions.

During our research period, three countries - Ghana, Kenya and Tanzania - changed taxation on mobile money.

9. Pakistan had a price cap in the Year 1 review, but was not included in the Year 2 review and so we cannot confirm this.

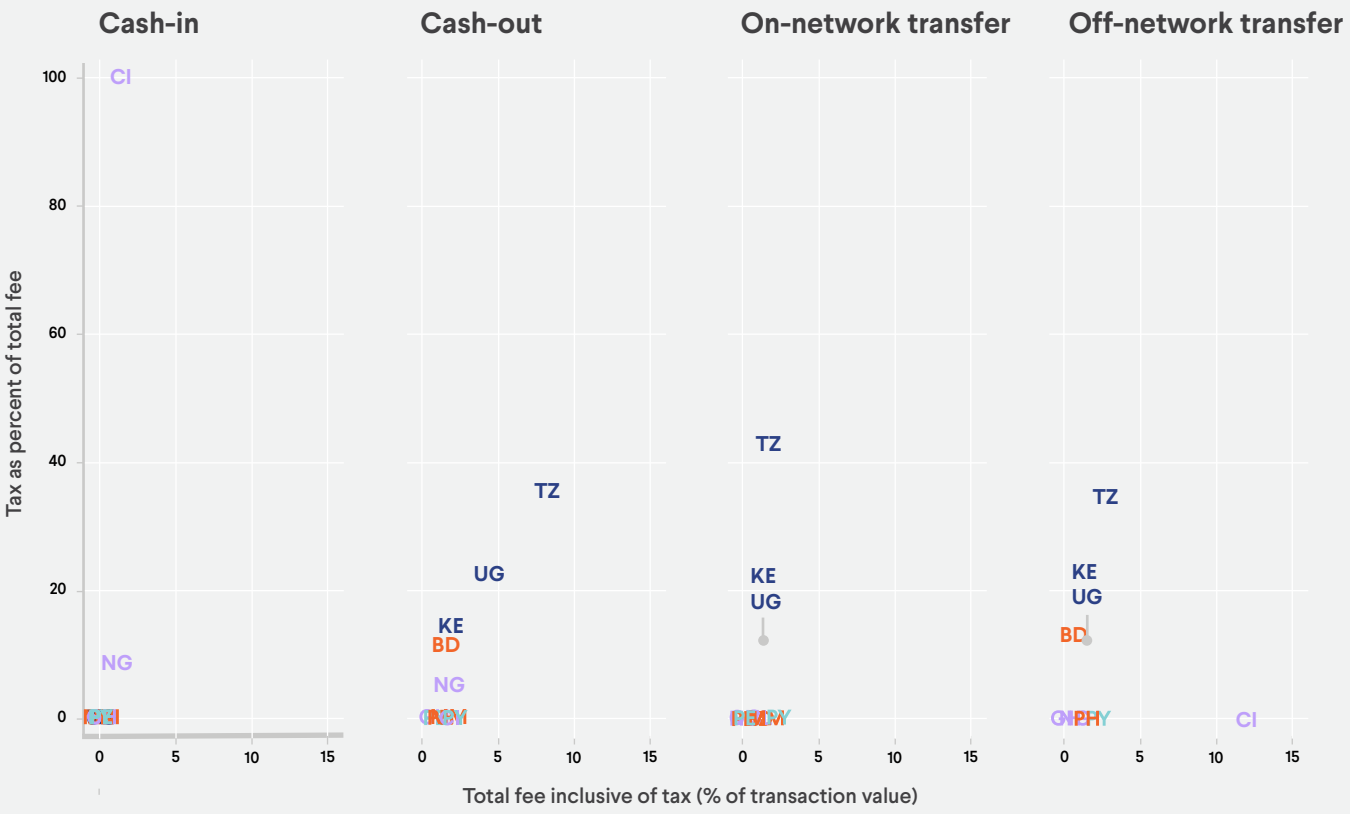
FIGURE 9: Fees and taxes by country and transaction type (at high reference value)

Relative to Year 1, the most notable change has been the decrease in taxes on on-network and off-network transfer fees in Tanzania, primarily due to the removal of the slab-based mobile money e-levy for these transactions. In Year 1, taxes in Tanzania accounted for more than half the cost of on- and off-network transfers. However, as of Q3 2023, these taxes have fallen to less than half of the total fees (see Figure 10, which presents fee and tax information for countries where tax rates are known).

Despite this reduction, taxes remain high in Tanzania in Tanzania due to the application of VAT and Excise Tax on mobile money transactions, currently set at 18 percent and 10 percent of the transaction fee, respectively. Compared to other countries, Tanzania still has one of the highest shares of taxes for cash-out, and person-to-person transfers. For cash-in, Cote d'Ivoire remains unique in that it is one of only a few countries that impose a fee for cashing-in, which is exclusively made up of a stamp tax (no provider fees).

Bangladesh, Kenya, Nigeria, and Uganda also have notable proportions of their fees consisting of taxes, though significantly lower than Tanzania's rates.

FIGURE 10: Taxes as a percent of total cost (at high reference value)



Note: (0;0: Bangladesh, Ghana, Kenya, Myanmar, Paraguay, Peru, Philippines, Sierra Leone, Tanzania, Uganda)

Note: (0;1: Ghana, Peru), (0;2: Philippines), (0;2.35: Myanmar), (0;2.5: Sierra Leone), (0;2.97: Côte d'Ivoire), (0;3.33: Paraguay)

Note: (0;0: Ghana, Myanmar, Nigeria, Peru, Philippines), (0;3.33: Paraguay), (0;.2: Bangladesh), (0;1.03: Côte d'Ivoire), (0;1.15: Sierra Leone)

Note: (0;0: Ghana), (0;0.4: Nigeria), (0;1.2: Philippines), (0;2.83 Paraguay),

Interoperability

During the research period, three countries – Myanmar, Sierra Leone and Tanzania – observed changes in their interoperability infrastructure. See the Annex on the Policy Tracker summary tables.

Myanmar: In 2023, Myanmar began the process of implementing the Digital Payment Switch, Myanmar Pay. Since 2016, Myanmar implemented the Central Bank of Myanmar Financial Network System (CBM-NET), a payment and settlement system that provides centralized, real-time interbank fund and securities settlement. Despite this, sending funds across mobile money wallets is still not possible on most networks in the country. Only Wave Money has bilateral interoperability with affiliated banks, which allows its customers to conduct off-network transfers to select banks that it works with. In late 2023, the Central Bank was set to introduce the Digital Payment Switch that will allow customers to pay using QR codes, regardless of the mobile money wallet they have (Myanmar National Portal, 2023).

Sierra Leone: In May 2023, Sierra Leone launched its National Payment Switch. Off-network fund transfers are still not possible as the first phase of the new infrastructure focuses on processing of card transactions carried out through point-of-sale and Automated Teller Machines managed by different financial institutions. Phase two will cover instant payment, which will allow interoperability between Mobile Money Operators (MNOs), fintechs and banks.

Tanzania: The Bank of Tanzania (BoT) continued onboarding payment services providers to the Tanzania Instant Payment System (TIPS). After the successful pilot in June 2021, the BoT started the rollout of TIPS in 2022 which continued until 2023. By March 2024, the BoT had incorporated all providers to the system – as of January 2024, about 39 banks and six telecoms had been integrated with TIPS (Daily News Tanzania, 2024). Throughout 2023, the base fees for off-network transfers remained the same.

For Mali, Kenya and Nigeria, updates were made to the categorization of their interoperability infrastructure, though the underlying infrastructure remained the same.

Mali: Previously unknown in Year 1, their interoperability infrastructure has now been identified as private-led.

Kenya: Initially categorized as private-led interoperability in Year 1, this was updated to reflect a model that is both government-led and private sector-led. This change acknowledges the Central Bank's efforts to facilitate seamless interoperability among players and launch the national switch.

Nigeria: Previously categorized as a government-led infrastructure, this has been revised to both government-led and private sector-led. The update reflects the shared ownership of the infrastructure by the Central Bank and all licensed banks.

Price transparency and redress

The status of price transparency and redress regulations during the research period remained largely unchanged from the end of the Q4 2022.

However, updates were made for Cote d'Ivoire and Mali, where previously unknown information on these regulations was clarified.

Côte d'Ivoire: It was confirmed that providers are required to list prices. However, there is no requirement to maintain a dedicated phone line for customer complaints.

Mali: Providers must display prices at each transaction point. Similar to Cote d'Ivoire, providers are also not required to have a dedicated phone line.

For Ethiopia, a more accurate reference from the National Bank of Ethiopia was identified, leading to the updated findings:

Prices must be listed on the provider's website, a change from Year 1, where the requirement was limited to displaying prices at the agent's premises in a visible manner.

The resolution for complaints is now capped at 3 working days, a change from the Year 1 report, which allowed up to 30 working days from the date of the complaint.

Across all countries, there is a consistent requirement for providers to list prices, though the specified platforms and formats vary. See Annex 1 for the full Policy Tracker summary tables.

Price transparency and redress audit

To complement the tracking of regulations related to price transparency and redress, we also conducted an audit, where we recorded key indicators about the experience of collecting price data. This provided insights into transparency of mobile money prices and the quality of redress mechanisms. An addition to the Year 1 report is the use of phone calls to assess redress, which may be a more common channel to reach customer support in these markets.

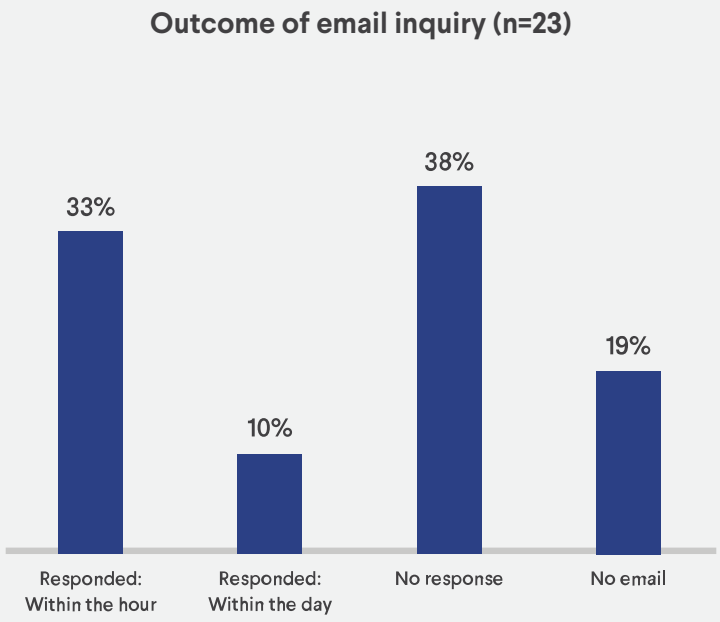
We received data for most countries in our sample, except Pakistan, Paraguay, and Peru.[10] As of September 2023, 4 of the corresponding 29 providers did not have a fee list on their websites: MTN in three countries (Côte d'Ivoire, Ghana and Nigeria) and Nigeria's Opay. The unavailability of MTN's fee pages in the three West African countries happened only in Q3 2023, as we accessed the prices for this provider until Q2 2023. The issue of fee unavailability did not seem to be a MTN-wide issue as price information for Uganda's MTN was available. Meanwhile, the fee list of Nigeria's Opay has remained unavailable since 2022. Most price lists were easy to find, taking an average of one to two minutes to find the price list. For 13 percent of the providers it took more than three minutes to find the price list. The time for the average consumer to find price lists is likely longer than for our highly digitally literate staff.

Although regulations typically require that mobile money providers list their fees, regulations are usually silent on whether taxes need to be included in these prices, or otherwise specified. Of the 19 providers in countries where mobile money transactions are taxed and price lists are provided, three providers (16 percent) separated the charges from the government fees, two providers (11 percent) noted whether the taxes are inclusive or exclusive, and four providers (21 percent) did both. Ten providers (53 percent) neither listed taxes separately from provider fees nor specified whether taxes were included or excluded, leaving consumers without a way of knowing the true total fees they should expect to pay.

10. We asked IPA Country Offices or partner organizations in areas where IPA is not present to identify a representative who can fill out our survey for the Price Transparency Audit. Unfortunately, we did not hear back from representatives in Pakistan, Paraguay and Peru. Despite this, we still retained the fees we tracked from these providers as seen in Table 22.

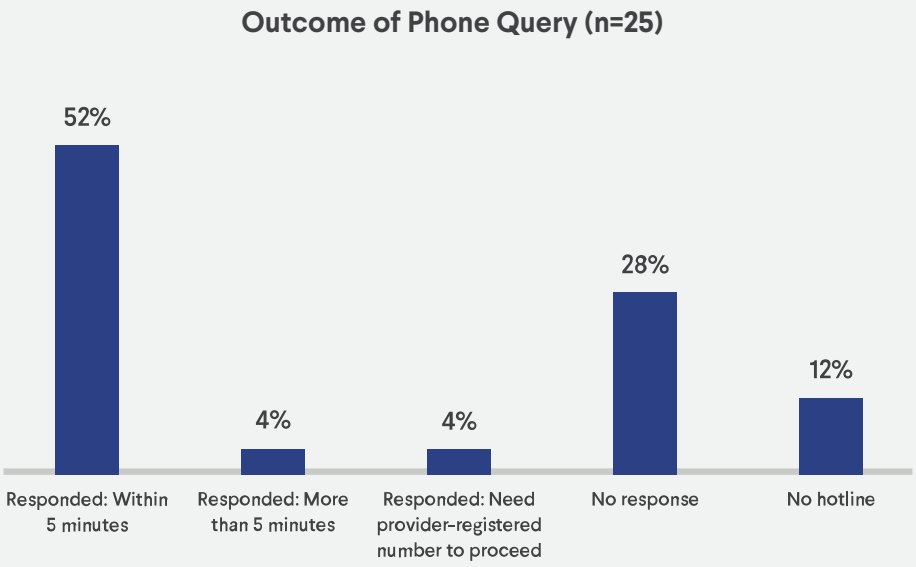
On channels for customer redress, of the 23 providers where we looked for a customer service email, we found 19 had one. For a customer care phone line, 22 out of 25 providers we checked had one. 17 providers had both an email address and a phone line. Our data indicated that a hotline (88 percent) was the most common customer care channel, followed by email (83 percent) in the markets we covered. Results from our email inquiries reveal a range of outcomes on turnaround time. 17 percent of the providers did not list an email dedicated to customer queries (this includes Philippines' GCASH and providers in Colombia which have an AI chatbot instead); 35 percent never responded to our request; 9 percent responded the same day; 30 percent responded within the hour; and for 9 percent of the providers, there was an email but the price audit exercise was not conducted due to limited resources. To assess the quality of response, we asked our colleagues to rate their level of satisfaction by using the following simple rubric: a) "Fully Satisfied" if a clear decision and resolution process is shared, b) "Moderately Satisfied" if the provider is asking for further information but no decision and overview were shared, and c) "Not Satisfied" if they cannot help at all. Those that responded generally offered helpful and clear information: 78 percent received the "Fully Satisfied" rating and 22 percent received "Moderately Satisfied".

FIGURE 11: Customer redress outcomes via email



Finally, we wanted to check if there are providers where we were unable to reach customer care either through phone or email, either because they lacked a customer care phone line or email address, or we received no response on either channel. Our Year 2 results showed that firms are not allowing customers the opportunity for redress: both modes were unavailable for Colombia's Daviplata; both modes were available but yielded no response for Ghana's MTN, Nigeria's Opay and Tanzania's Airtel; email only was available but yielded no response for Nigeria's MTN; and only a phone hotline was available but yielded no response for Philippines' GCASH. Accessibility of customer support channels remains an issue in some markets, despite regulations on consumer protection. A caveat here is that we did not consider the full range of platforms one could reach customer care for. Based on these providers' websites, other options to contact the provider include chatbots (AI- or human-powered), Whatsapp, and other social media channels.

FIGURE 12: Customer redress outcomes via phone



We were unable to reach a quarter of the companies we approached via either email or telephone.

3. Measuring costs when using mobile money agents

Recap of Year 1 methods

In the first year of the study, we piloted four distinct fieldwork approaches: consumer intercept surveys, professional mystery shopping, local consumer mystery shopping, and remotely deployed local mystery shopping. The goal was to develop, refine, and compare these methods with the goal of producing a menu of options – each with their benefits and drawbacks – for use by policymakers and others interested in measuring the costs consumers face when using mobile money. This section provides a short recap of the methods that we used in the year one report. For full details of these methods, please refer to the Year 1 report and the TCI Toolkit.

In Year 1, we tested four different mystery shopping approaches. In Year 2, we refine and expand our local consumer mystery shopping.

Consumer intercept surveys

IPA enumerators conducted "intercept" surveys with consumers outside of all agent locations in our sample. We include questions about the success of the transaction, fees incurred, and quality of service received.

Professional mystery shopping

IPA enumerators conducted mystery shopping visits with each agent in our sample, trying to balance for shopper gender and transaction types. We record information about transaction success, fees and service quality.

Local consumer mystery shopping

This method involved mystery shopping by regular consumers who live in the study areas rather than by trained IPA enumerators. Local consumers – a subset of consumers interviewed as part of the consumer intercept surveys discussed above – were trained by IPA enumerators to conduct mystery shopping visits very similar to the professional mystery shopping visits described above.

Remote local consumer mystery shopping

Here the same set of local shoppers that conducted the local mystery shopping visits were given mystery shopping assignments via phone call and/ or SMS and asked to complete the mystery shopping visits independently. This was carried out a few months after the initial in-person work and allowed us to explore whether consumers are able to recall the mystery shopping process without the need for additional in-person refresher training.[11]

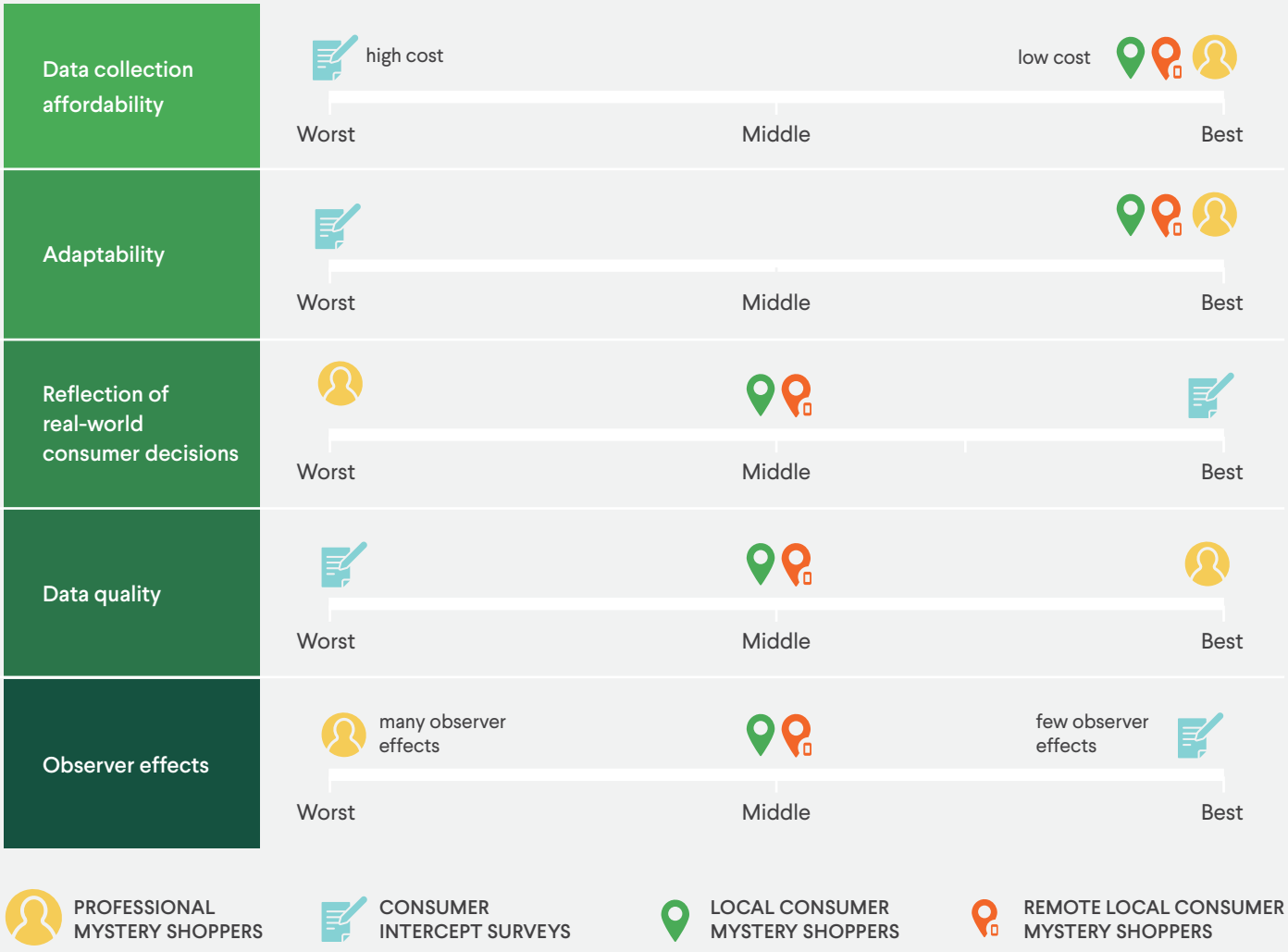
11. Note that data from this work is published for the first time as part of this Year 2 report because this exercise was still being conducted when our Year 1 report was published.

Year 2 methods selection

Selecting the optimal method for the second year of the TCI involved navigating various trade-offs inherent to each data collection method. For example, professional mystery shopping, though cost-effective compared to methods involving local consumers, does not fully capture the nuances of typical, regular, consumer-agent interactions. This limitation is particularly pronounced in rural areas, where agents are wary of unfamiliar faces, leading to significant "observer effects." On the other hand, consumer intercept surveys provide a more accurate reflection of the average consumer's experience but come with high costs. The recruitment process is sluggish, and data reliability is often compromised by recall bias. Additionally, this method lacks the versatility to capture a comprehensive range of transaction outcomes.

Table 12 summarizes the advantages and disadvantages of the four main methods described above across five dimensions: data collection affordability, adaptability, reflection of real-world consumer decisions, data quality, and observer effects. Full details and discussion of this comparison can be found in the Year 1 report.

TABLE 12: Comparison of methods

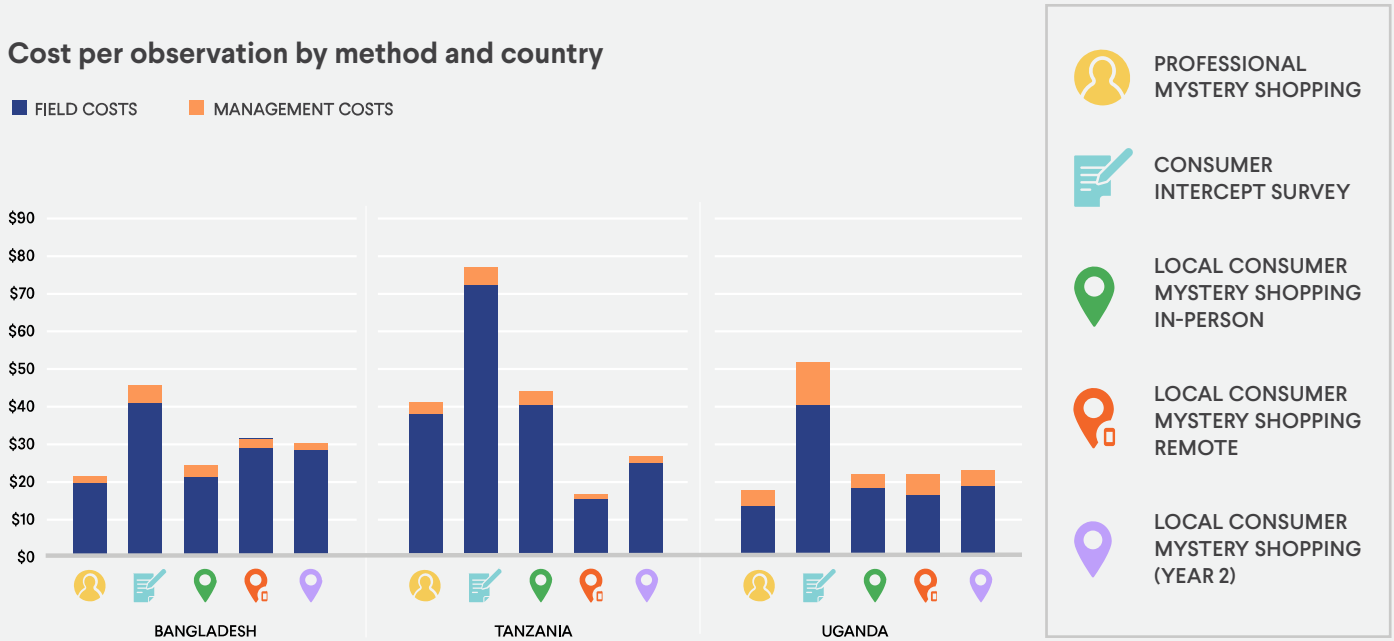


Ultimately, the choice of method depends on specific research objectives and unique study factors. For our Year 2 work, we wanted an approach that reflected real-world conditions, was cost-effective, and allowed for comparisons between shopper interactions with old and new agents. Therefore, we decided to refine and improve on the **local consumer mystery shopping** method for the second year.

We discuss our refined approach in more detail in the methodology section. In essence it had three aims: enhance data accuracy reported by local shoppers; broaden our data collection reach; and improve our cost efficiency. To do this, we introduced rigorous verification processes, involving IPA-trained enumerators assisting shoppers in accurately recalling and reporting fee components, although from a distance in order to minimize observer effects. This approach resulted in nearly 100 percent consistency of reported fees with official fees across all countries. We also extended our reach beyond urban areas to include rural regions and transitioned from agent intercept recruitment (recruiting consumers immediately after they visited an agent) to household recruitment. Switching to household recruitment was intended to reduce costs by eliminating time enumerators spent waiting for agents to receive customers they could intercept. It also sought to produce a more representative sample of shoppers, as agent intercept recruitment tended to attract consumers with above-average DFS usage. Overall, costs per mystery shopping visit stayed roughly similar as in Year 1, as cost savings from the change in recruitment strategy were roughly counteracted by an increase in cost associated with a more robust enumerator presence. As shown in Figure 13, the costs per mystery shopping visit were USD $27 in Tanzania (compared to $30 in Year 1), $23 in Uganda (compared to $22 in Year 1), and $30 in Bangladesh (compared to $24 in Year 1).

To minimize observer effects, we streamlined the number of visits each agent received and removed uncommon transaction types from the shopper scenarios, reducing the likelihood of shoppers being identified as part of a research study and thereby preserving the integrity of the research setting. Shoppers also had autonomy over which agents they visited and when, intended to encourage the real-world behavior of consumers.

FIGURE 13: Cost per observation, by method and country



Methodology

The next section describes in detail the design decisions for our Year 2 fieldwork, in particular emphasizing changes compared with the Year 1 fieldwork.

Market and agent selection

For the second round of mystery shopping, we returned to our Year 1 urban and rural markets. Markets are areas with a roughly 300-meter radius, typically situated around trading centers or other areas with dense agent distributions. In urban areas, our markets referred to physical marketplaces where food and other items are sold. However, in less densely populated areas, our "markets" often encompassed the central area of a town or even an entire village. For rural markets, we selected locations through a geospatial analysis which took into account variations in population density (described in more detail in our Year 1 report). A census was conducted to confirm the presence of previously visited agents and to make updates to the descriptions that would help the shoppers to identify them.

We found significant agent turnover between the first and second year of data collection, with an average of 15 percent of agents either permanently closing or relocating between the first and second year census. Our definition of agent locations relates to their physical structure, meaning that "old" agents who had moved to another location in the market were also recorded as new agents. Uganda experienced the highest turnover rate, with nearly 20 percent of agents ceasing operations, while Tanzania had the lowest at 12 percent. For mystery shopping purposes, we replaced each closed or moved agent with another agent in the market, to keep the agent count per market consistent with Year 1.

TABLE 13: Number of urban and rural markets and agents included for each country

COUNTRY	URBAN MARKETS			RURAL MARKETS		
	NUMBER OF MARKETS	MEAN NUMBER OF AGENTS PER MARKET	TOTAL NUMBER OF AGENTS	NUMBER OF MARKETS	MEAN NUMBER OF AGENTS PER MARKET	TOTAL NUMBER OF AGENTS
Bangladesh	19	11.3	207	58	6.2	202
Tanzania	10	19.4	193	30	11.1	192
Uganda	10	20.0	200	38	11.2	191

Transaction types

In Year 2, we selected transaction types that reflected the typical transactions consumers conducted as revealed in our Year 1 consumer intercept data. In Bangladesh, the predominant transaction types identified were cash-ins, cash-outs, and on-network agent-assisted transactions and therefore we adopted these for Year 2. In Uganda and Tanzania, the leading transactions were cash-ins, cash-outs, and over-the-counter transactions (OTC), and these are what we included for Year 2. In Tanzania, we inadvertently also included agent assisted, off-network account-to-account transfers although these types of transactions are uncommon in Tanzania.

Our methodology in choosing the transaction types from consumer intercept surveys in Year 1 aligns with additional findings from the household survey we conducted for recruitment purposes. In this survey, respondents were asked about their last successful transaction type. The survey revealed that cash-outs and cash-ins were indeed the most reported transactions across all countries (see Table 14). We also see that in Bangladesh, no one reported having done an OTC transaction, while in Uganda, the same held true for off-network transfers. This backs up our decision to exclude these uncommon transactions in Year 2.

Amounts and providers

In Year 2, we modified our protocol to use a single transaction value for all transactions within each country, moving away from the previous approach of utilizing two transaction values. This chosen value aligns with the median transaction size as determined by the consumer intercept surveys conducted in Year 1.

TABLE 14: Reported transaction types in household survey

TRANSACTION TYPE	BANGLADESH	TANZANIA	UGANDA
Cash-in	12.8%	21.6%	30.4%
Cash-out	75.7%	53.8%	51.3%
On-network transfer	9.9%	6.9%	1.6%
Off-network transfer	0.3%	1.9%	0.0%
OTC transfer (any type)	0.0%	13.2%	16.2%
Other	1.3%	4.1%	0.5%

Shoppers had the freedom to choose which providers they wanted to use for transactions at the different agents they were assigned. Once a mystery shopping visit commenced, shoppers were not allowed to change their chosen provider. If a shopper discovered that the agent did not serve their pre-selected provider during a visit, they were still not permitted to switch to an alternative provider. Instead, they were instructed to mark the transaction as failed. Coincidentally, shoppers made choices that mirrored the actual market share of the respective provider in all cases except for Tanzania, where half of all visits were done with Airtel even though only 23 percent of agents served this provider. See Table 15 for details on the transaction values utilized and the providers chosen by customers during their visits.

TABLE 15: Mystery shopping transaction values and providers

		BANGLADESH	TANZANIA	UGANDA
Transaction	Transaction value (local currency)	1000 BDT	10000 TZS	20000 UGX
Value assigned	Transaction value (USD)	$9.1	$3.9	$5.1
Actual provider used (based on shoppers' decisions)	Nagad	18%	-	-
	bKash	82%	-	-
	Tigo	-	32%	-
	Vodacom	-	18%	-
	Airtel	-	49%	27%
	MTN	-	-	73%

Shopper recruitment

In Year 1, we recruited local mystery shoppers exclusively in urban areas. However, in Year 2, we broadened our approach to include rural areas as well. Local mystery shopping participants were recruited through a household survey, aiming for two female and two male mobile money customers from different households in each market. Enumerators conducted door-to-door recruitment in the nearest residential areas—typically within 200-400 meters in Tanzania and Uganda, and about 4 kilometers in Bangladesh. To be eligible, individuals needed to be over 18, own a mobile money account, not be a mobile money agent, and be available during the visit. This method was adopted for two main reasons: first, to reduce logistical and budgetary constraints associated with waiting for customers outside of agent locations, as we did in Year 1 when we used an "intercept" approach to recruit local shoppers, and second, to achieve a more representative sample by moving away from predominantly "heavy user" participants that are most likely to be intercepted in a market place.

Despite these efforts, achieving gender balance presented challenges. In Uganda and Tanzania, male participants were harder to recruit due to their lower availability at home during survey times. This required us to extend recruitment efforts into weekends and beyond typical working hours. In contrast, in Bangladesh, cultural factors made it difficult to recruit enough female participants.

Eligible mystery shoppers were assessed through a simple numeracy test, where they had to calculate net amounts after mobile money fees were subtracted from a hypothetical transaction. The purpose was to assess their ability to accurately handle the computations needed to report fees from typical mobile money transactions. About five percent were excluded based on this test. Those who passed were also questioned about their experience using mobile money services to gather comprehensive baseline data on them.

In total we recruited 984 individuals in Bangladesh, 384 in Tanzania, and 356 in Uganda. From these, 312 in Bangladesh, 164 in Tanzania, and 192 in Uganda were randomly selected as local mystery shoppers, with oversampling to account for attrition, which was notably high in the first year, especially in Uganda.

Mystery shopping visits

Recruited consumers were assigned a set of transactions that they carried out with every agent in their nearby market. In total, four shoppers conducted mystery shopping visits in each market over a two-day period at their convenience, resulting in four visits per agent. Prior to the start of visits, shoppers received training by professional enumerators that involved a question-by-question review of the survey and the study protocols, usually taking place at the shopper's home. Following the visit, a survey was filled out that captured their experience of the transaction, including whether the agent was present, if the transaction was successful, what was paid in fees, and agent conduct. Contrary to Year 1, IPA trained enumerators waited outside the agent location and worked with the mystery shopper to complete the post-visit survey. While the added enumerator presence incurred some additional costs and may have increased the risk of potential observer effects, it addressed the data quality concerns in Year 1 stemming from shopper's inexperience with filling out surveys and the often poor quality of their phones on which the survey was administered. Enumerators were instructed to remain out of sight of the agent throughout the activity.

In total, we completed 1322 visits where the agent was present in Bangladesh, 1304 in Tanzania, and 1191 in Uganda, equivalent to 85 percent (Bangladesh), 85 percent (Tanzania) and 77 percent (Uganda) of their assigned visits.

This section presents our Year 2 results starting off with those from the field work, and then the desk review exercise.

Results

Shopper demographics: Year 2, Year 1, and Findex comparison

In this section, we compare our Year 2 sample with the World Bank's 2021 Global Findex data to evaluate its representativeness. This comparison allows us to align our sample with Findex, a nationally representative sample of mobile money users in each country.

Our refined recruitment strategy in Year 2, which shifted to recruitment via household surveys, aimed to achieve a more representative demographic profile. As shown in Table 16, this adjustment led to more balanced gender distribution across countries, closely matching the Findex data. For instance, in Bangladesh and Tanzania, the gender distribution of our Year 2 shoppers is now more aligned with the national figures, and in Uganda, the balance has improved significantly.

In terms of education, our Year 2 sample also shows better alignment with the Findex data. In Bangladesh, the educational attainment level of our shoppers moved closer to that of the Findex participants, although it is still a long way from the Findex average. In Tanzania and Uganda, the adjustments in our recruitment strategy have resulted in educational levels that are much more representative of the general population.

By expanding our coverage to include rural areas in Year 2, we have ensured a more comprehensive representation of different market types. Unsurprisingly markets in rural areas have fewer agents than those in urban areas. Because our sampling strategy called for inclusion of equal numbers of rural and urban agents, we included more (small) rural markets than (large) urban markets. We recruited exactly four shoppers per market regardless of market size, which led us to a sample of shoppers that skewed heavily rural.

TABLE 16: Demographics comparison by country and method

Note: Year one local shoppers were recruited through a recruitment survey that did not ask for their educational level. The education variable in the consumer intercept survey was added after Uganda data collection was complete.

Shopper characteristics by country

The revised approach of recruiting shoppers using a household survey in Year 2 afforded us the opportunity to collect more granular background characteristics and experiences reported in Tables 16 and 17, and explored below.

Demographics

Across key demographic indicators, the profiles of our mystery shoppers reveal diverse patterns. In Bangladesh, the level of education stands out, with 90.5 percent of our shoppers having completed some secondary education, a figure significantly higher than that in Uganda, where the rate is 60.2 percent, and 33.8 percent in Tanzania. We also see that the typical mystery shopper in East Africa is slightly younger than in Bangladesh.

For smartphone ownership Bangladeshi shoppers are substantially more likely to own a smartphone in comparison to shoppers in our two East African countries. Conversely, shoppers from East Africa have typically owned mobile money accounts for at least four years, reflecting greater familiarity and long-term usage. In contrast, the median mobile money account ownership tenure in Bangladesh is just two years. Finally, bank account ownership remains low across all regions, although marginally higher in Tanzania.

Mobile money usage

A vast majority of the local shoppers are comfortable conducting person-to-person (P2P) transfers, with 80-90 percent capable of completing these transactions on their own. This high rate indicates a common preference for and reliance on mobile money as a means of personal payments.

Utility bill payments through mobile money are also prevalent, though adoption rates vary by country. In Tanzania and Bangladesh, 41.3 percent and 38.2 percent of shoppers use mobile money for bills payment respectively, which is substantially higher than in Uganda which is at 22.5 percent. On the other hand, digital loans are uncommon; no shoppers in Bangladesh reported having a digital loan, whereas in Tanzania and Uganda, only 8.8 percent and 3.1 percent did respectively.

Looking at wage payments, a notable portion of shoppers in Uganda (38.7 percent) and Tanzania (16.9 percent) receive their wages via mobile money, whereas in Bangladesh only 8.2 receive wage payment through mobile money.

Finally, we also see a stark disparity in shoppers' knowledge of transaction fees across countries. Only 6 percent of participants in Tanzania and 8 percent in Uganda could correctly name the official withdrawal fee of a common transaction value, in contrast to 75 percent in Bangladesh.

Challenges and redress

Across all the three countries, we generally find a low incidence of DFS challenges among the mystery shoppers, between 5 and 11 percent.[12] However, the likelihood of seeking redress to these challenges shows marked differences. For instance, in Bangladesh, although only a small fraction (4.9 percent) encountered challenges, nearly all affected shoppers (97.7 percent) sought redress, sharply contrasting with Uganda, where only 12.5 percent of those who experienced a challenge pursued resolution.

Across countries, 80 - 90 percent of local shoppers were comfortable conducting person-to-person transfers.

12. These levels contrast sharply with findings from other work exploring consumer protection challenges, including surveys conducted by IPA in 2020 and 2021 in Uganda and Bangladesh that found much higher rates of experiencing challenges. In this survey, we asked consumers to report experiencing a "significant problem" which may have discouraged consumers from reporting relatively small, but potentially impactful, problems.

TABLE 17: Characteristics of Local Mystery Shoppers

	BANGLADESH	TANZANIA	UGANDA
Demographics			
Female (%)	37.8%	50.6%	50.3%
Median age (years)	26 (7.2)	34 (11.1)	28 (8.2)
Some secondary education (%)	90.5%	33.8%	60.2%
Secondary education or more (%)	80.9%	10.0%	20.9%
Median distance from home (minutes)	6 (3.9)	4 (6.9)	5 (11.7)
Owns smartphone	90.5%	29.4%	28.3%
DFS Usage			
Median duration of MM account ownership (years)	2 (1.5)	5 (5.5)	4 (3.8)
Mean frequency of agent transactions (last 90 days)	6.4 (9.3)	14.7 (23.9)	11.2 (20.6)
Mean number of agents with whom individual typically transacts	2.0 (1.0)	2.0 (0.9)	2.2 (1.4)
Has digital loan (%)	0%	8.8%	3.1%
Knows how to send money to someone else's account using their own device (%)	91.4%	80.6%	78.5%
Knows the fee of a typical cash-out transaction (%)	74.8%	5.6%	8.3%
Ever received wage payments via mobile money (%)	8.2 %	16.9%	38.7%
Ever paid bills (e.g. electricity, water, taxes, etc.) via mobile money (%)	38.2 %	41.3%	22.5%
Owns bank account (%)	15.1%	20.0%	14.1%
Challenges & redress			
Experienced challenge while using a mobile money agent in last 90 days (%)	4.9%	11.3%	8.4%
Contacted someone to resolve the problem, conditional on experiencing a challenge (%)	97.7%	44.4%	12.5%
Problem was resolved (%)	38.5%	87.5%	0.0%
Observations	304	160	191

Note: Non-percentage values have standard deviations reported in parentheses.

Shopper demographics by shopper segment

Table 18 summarizes shopper characteristics and how they vary by key consumer segments —gender, geography, and the duration of mobile money account ownership—across all countries.

Our analysis reveals that men significantly outpace women in several aspects: they have owned mobile money accounts for longer durations, are more likely to own smartphones, and use their mobile money accounts more extensively for paying bills and conducting P2P transactions. Men also possess a significantly greater awareness of transaction fees and typically engage with slightly but significantly more agents for their transactions. Moreover, when men face challenges with DFS they are significantly more likely to seek redress.

We find that compared to rural shoppers, urban shoppers are significantly more likely to have completed secondary education, have owned mobile money accounts for longer, have higher smartphone ownership, and own a bank account. Moreover, we also see that the urban users are much more sophisticated in how they use mobile money services with significant usage patterns in terms of receiving wage and salary payments, making utility payments, number of transactions conducted in the last 90 days, number of agents used for transactions, and ability to do P2P payments on their own. Urban dwellers are also significantly more likely to seek redress when they face a challenge than shoppers in rural areas. Finally, rural shoppers are more likely to know the cash-out fee.

When we compare users in terms of being above or below the median tenure for mobile account ownership, we find that experienced users are significantly more likely to be male, own a bank account, receive wages and pay bills via mobile money, make more transactions, have a digital loan and interact with more agents.

TABLE 18: Characteristics of Local Mystery Shoppers

	ALL COUNTRIES					
	FEMALE	MALE	RURAL	URBAN	LOW EXPERIENCE	HIGH EXPERIENCE
Demographics						
Female (%)	100.0	0.0	43.9	46.8	50.7***	37.7***
Median age (years)	28	28	28	27.5	26	30
Some secondary education (%)	64.4	70.5	62.1***	85.9***	68.9	66.6
Length of MM account ownership (years, mean)	4.0*	4.6*	4.2*	4.9*	1.9***	7.1***
Owns smartphone	52.1*	61.7*	49.9***	81.4***	59.9	54.5
Owns bank account	14.4	17.4	8.8***	39.1***	7.8***	25.3***
Mobile money usage						
Receives payment from employer/wages	17.1	20.9	17.0*	26.3*	15.9*	23.1*
Pays bills (electricity, water, taxes, etc)	29.1*	38.6*	25.9***	61.5***	30.5*	38.6*
Number of transactions done in the last 90 days	10.0	9.7	6.7***	19.8***	7.7**	12.2**
Has digital loan	3.5	2.8	2.7	4.5	1.5**	5.0**
Number of agents with whom individual typically transacts	1.9*	2.1*	1.9***	2.6***	1.9***	2.2***
Can do P2P transfer	79.4***	89.5***	82.6**	92.9**	83.2	87.0
Knows cash-out fee	32.8***	48.9***	48.3***	19.4***	44.4	38.1
Challenges & redress						
Experienced a challenge	6.5	8.3	8.2	5.2	6.4	8.8
Contacted anyone to solve problem conditional on experiencing challenge	84.6	74.3	43.9***	96.3***	82.8	75.0
Challenge was resolved (1=yes)	27.3*	75.0*	44.4	80.0	41.7	63.6
Observations	292	363	499	156	347	308

Note: High experience = above median mobile money account ownership (in years). Outliers of number of agents with whom typically transact are dropped. Stars indicate tests for difference in means. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Outcomes

Key outcomes

In Year 2, we maintained the five key outcomes related to reliability and monetary costs that we focused on in Year 1:

Agent present: Was an employee present at the agent location when the mystery shopper attempted a transaction? This outcome is reported as a percentage.

Success (conditional on agent being present): If the agent was present, was the attempted transaction successfully completed? This outcome is reported as a percentage.

Success (unconditional): This evaluates whether the attempted transaction was successful, independent of the agent's presence.

Overcharging rate: For transactions that were successfully completed, this measures whether the total fees reported by the mystery shopper exceeded the official fees set by the provider, including taxes if applicable. The outcome is expressed as a percentage.

Overcharging amount: Of transactions with any overcharging, what is the value of the total excess fees paid above the official fee. This amount is reported as a percentage of the transaction amount. For example, if a $100 transfer incurred an extra charge of $5 beyond the official fee, the overcharging amount would be reported as $5/$100, or 5%.

Outcomes by country and method of data collection

In table 9 below we present how our key outcomes vary by country, and also compare our Year 2 results to the different methodologies we used in Year 1. You can find more country specific results in the country briefs for Bangladesh, Tanzania and Uganda.

Our Year 2 results show marked variation for the key outcomes across the three countries. For example, Uganda has the lowest agent availability, with agents present in 77 percent of attempted transactions, while the other countries have a higher presence rate of approximately 85 percent. When agents are available, transaction success rates in Bangladesh reach up to 90 percent, whereas Tanzania and Uganda have success rates of 77 percent and 76 percent, respectively. Furthermore, overcharging by agents is significantly higher in Uganda at 12 percent, compared to rates of 1 percent or less in Tanzania and Bangladesh

We can explore how our Year 2 outcomes compare with outcomes recorded using the various methods we used in Year 1. For example, in Year 1, we found that Bangladesh professional shoppers were more likely to find agents present than the local shoppers in Year 1. In Year 2 we see that the agent present rate increases by about 10 percentage points edging closer to that realized by professional suppers in Year 1. This could be because our incentive structure in Year 2 encouraged shoppers to use their market knowledge and paid them an additional fee per agent present. A similar trend is observed in Uganda and Tanzania where shoppers in Year 2 were more likely to find agents present than local shoppers in Year 1.

Success rates follow a slightly different pattern. In Bangladesh, we do not see any difference between what was reported by local shoppers in Year 1 and those in Year 2, and the success rate recorded in both instances is comparable to that reported by professional shoppers. In Tanzania, our local shoppers in Year 2 have a much lower success rate compared to professional and local shoppers in Year 1. In Uganda, the success rate is comparable across local shoppers in Year 2, and professional and local shoppers in Year 1.

Overcharging rates vary significantly by country. In Bangladesh, we found 1 percent of transactions were overcharged in Year 2, consistent with Year 1 results from professional and local mystery shopping, though in Year 1 consumer intercept data suggested a 20 percent overcharging rate, suggesting that consumer perception of overcharging may be higher than actual overcharging. In Tanzania, Year 2 results show a 0.3 percent overcharging rate, much lower than results from all methods in Year 1. Uganda was the only country where we found significant overcharging in Year 2, with 12 percent of transactions recorded as overcharged, somewhat lower than the 17 and 23 percent overcharging rate recorded by professional mystery shoppers and intercepted consumers, respectively (we were unable to collect overcharging data from local mystery shoppers in Year 1).

TABLE 19: Key outcomes by method of data collection

PROFESSIONAL MYSTERY SHOPPING | CONSUMER INTERCEPT SURVEYS | YEAR 1 LOCAL MYSTERY SHOPPING | YEAR 2 LOCAL MYSTERY SHOPPING

	BANGLADESH				TANZANIA				UGANDA			
Agent present	90.4%	.	75.6%	84.5%	75.4%	.	77.2%	84.7%	88.9%	.	69.2%	77.2%
Success rate (conditional on agent present)	83.6%	100.0%	88.8%	88.9%	82.1%	96.0%	88.8%	77.3%	76.3%	96.7%	79.3%	76.3%
Success rate (unconditional)	75.5%	100.0%	67.1%	75.1%	61.9%	96.0%	68.6%	65.5%	67.8%	96.7%	54.9%	58.9%
Overcharging rate (extensive margin)	0.6%	20.7%	0.9%	1.1%	9.0%	7.6%	3.8%	0.3%	16.8%	22.9%	.	12.1%
Overcharging amount (intensive margin)	1.0%	5.4%	0.3%	1.4%	0.4%	4.2%	2.4%	2.0%	2.7%	14.8%	.	4.8%
Observations	1660	609	1016	1565	1642	819	1771	1540	1632	512	1598	1543

Note: Mean values by country. Consumer intercept survey data is excluded from means of agent presence and unconditional success because consumer intercepts by definition are conducted only when an agent is present. Year 1 Local mystery shopping data from Uganda relating to overcharging outcomes is excluded because of known data quality issues stemming from the use of WhatsApp-based surveys.

TABLE 20: Key outcomes by country

	BANGLADESH	TANZANIA	UGANDA
Agent present	84.5%	84.7%	77.2%
Success rate (conditional on agent present)	88.9%	77.3%	76.3%
Success rate (unconditional)	75.1%	65.5%	58.9%
Overcharging rate (extensive margin)	1.1%	0.3%	12.1%
Overcharging amount (intensive margin)	1.1%	2.0%	4.8%

Outcomes by geography

In Table 21, we look at our main outcomes by country and urbanicity. We find that, in Bangladesh, there is a marked difference in the presence of agents, with urban areas reporting a higher presence at 89.7 percent compared to rural areas at 79.3 percent. Higher customer volumes and higher living costs for agents could explain this increased agent presence in urban areas. However, if agents are present, then transaction success rates are not statistically different in urban versus rural areas. Overcharging rates and amounts do not differ statistically by geography.

In Tanzania, agent presence again is significantly higher in urban areas (89.0 percent) than in rural areas (80.3 percent). Transaction success rates are also statistically significantly higher in urban areas, and like in Bangladesh, there is no statistical difference in overcharging rates or amounts by geography.

In Uganda, the urban-rural divide is less pronounced in terms of agent presence, with urban areas at 78.5 percent and rural at 75.8 percent, a difference that is not statistically significant. However, there is a substantial and statistically significant difference in the success rate (when an agent is present) with urban areas achieving 83.3 percent success compared to 68.6 percent in rural areas. Uganda notably stands out for statistically significant differences in overcharging in rural and urban areas, with overcharging more likely to happen in rural areas than in urban areas (15.0 percent vs 9.9 percent). There is no statistical difference in overcharging amount by geography.

TABLE 21: Key outcomes by geography

	BANGLADESH		TANZANIA		UGANDA	
	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN
Agent present	79.3%***	89.7%***	80.3%***	89.0%***	75.8%	78.5%
Success rate (conditional on agent present)	89.6%	88.2%	72.4%***	81.7%***	68.6%***	83.3%***
Success rate (unconditional)	71.1%***	79.1%***	58.2%***	72.7%***	52.0%***	65.4%***
Overcharging rate (extensive margin)	0.9%	1.3%	0.4%	0.2%	15.0%*	9.9%*
Overcharging amount (intensive margin)	0.8%	1.2%	2.6%	0.8%	4.8%	4.8%
Observations	789	776	768	772	743	800

Note: Variable means. Stars indicate tests for difference in means between rural and urban mystery shopping visits. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Outcomes by shopper gender

Table 22 summarizes our main outcomes by shopper gender. Overall, we find that there are no significant differences in these outcomes between females and males, except in Bangladesh. There, female shoppers are more likely to be able to complete transactions, with a success rate six percentage points higher than their male counterparts, a statistically significant difference. Moreover, although females are slightly less likely to be overcharged compared to males—a difference that is not statistically significant—when overcharging does happen to females, the amount overcharged represents a significantly larger portion of the transaction value.

There are no significant differences in overcharging rates between males and females.

TABLE 22: Key outcomes by shopper gender

	BANGLADESH		TANZANIA		UGANDA	
	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE
Agent present	85.0%	84.1%	85.8%	83.6%	79.3%*	74.9%*
Success rate (conditional on agent present)	92.6%***	86.3%***	75.9%	78.7%	77.4%	75.1%
Success rate (unconditional)	78.7%**	72.6%**	65.2%	65.7%	61.4%*	56.3%*
Overcharging rate (extensive margin)	0.8%	1.3%	0.4%	0.2%	11.0%	13.3%
Overcharging amount (intensive margin)	1.7%*	0.8%*	2.9%	0.3%	4.9%	4.8%
Observations	634	931	755	785	797	746

Note: Variable means. Stars indicate tests for difference in means. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Outcomes by shopper education and poverty likelihood

Table 23 highlights notable patterns in how the main outcomes vary by education and poverty, revealing significant disparities, particularly across education levels and, to a lesser extent, poverty likelihood.

In Panel A, we see that shoppers with less than secondary education have lower conditional success rates and higher rates of overcharging than their more educated counterparts. They are also far less likely to report seeing price lists at agent locations. Additionally, they are more likely to report that other customers overheard their interactions with agents during transactions, highlighting their increased vulnerability. Most critically, their understanding of official prices is significantly lower than that of those who have completed secondary education.

Looking at poverty likelihood in panel B, we find similar but less pronounced patterns. Shoppers with high poverty likelihood show moderately lower conditional success rates and report seeing price lists less. Additionally, they report more frequent privacy concerns, though interestingly, knowledge of official prices remains similar regardless of poverty likelihood.

TABLE 23: Key outcomes by shopper education and poverty likelihood

	LEVEL OF EDUCATION		POVERTY LIKELIHOOD	
	COMPLETED SECONDARY EDUCATION	LESS THAN SECONDARY EDUCATION	LOW LIKELIHOOD OF BEING POOR	HIGH LIKELIHOOD OF BEING POOR
Agent present	84.0**	80.7**	82.9	81.2
Success rate (conditional on agent present)	86.0***	76.8***	82.5*	79.4*
Success rate (unconditional)	72.2***	62.0***	68.4**	64.5**
Overcharging rate (extensive margin)	2.8***	5.3***	3.9	4.3
Overcharging amount (intensive margin)	3.6***	4.8***	4.2	4.5
Saw pricelist	82.2***	65.8***	78.2***	68.0***
Knows the official price of a hypothetical cash-out transaction	41.5***	16.7***	28.9	27.2
Perceived that other customers overheard transaction details (conditional on other customers present)	36.4**	43.0**	37.5*	42.3*
Observations	2059	2569	2410	2238

Note: Mean values aggregated across countries. Stars indicate tests for difference in means. * p ‹ 0.05, ** p ‹ 0.01, *** p ‹ 0.001. Panel B: An individual has a high poverty likelihood if they live in a household that has an above-sample median likelihood of living below the national poverty line.

Outcomes by shopper-agent relationship

Table 24 offers insights into the relationship between local shoppers and mobile money agents, distinguishing between "known" and "unknown" agents. Known agents are those with whom local shoppers are familiar, specifically regarding their operating hours. In the first year of our study, we observed that local shoppers' knowledge did not correspond with higher presence rates of agents, and there was negligible distinction in the reliability between known and new agents. This led us to hypothesize that the existing incentive structure at the time may have impacted these results. In our second year of data collection, we adjusted our shopper incentive structure so that shoppers received larger payments for visits when an agent was present, creating a monetary incentive for shoppers to visit agents when they believed they would be available.

The changes appear to have made a difference. Our findings reveal that presence rates for known agents increased, with these agents present 90 percent of the time in Tanzania and Bangladesh, and 83 percent in Uganda. This contrasts with the presence rates of the typical unknown agents, which remained consistent with Year 1 figures—73 percent in Bangladesh, 76 percent in Tanzania, and 69 percent in Uganda. These findings suggest that incentives for mystery shoppers is a crucial factor in ensuring the accuracy of agent availability data, and that the previous year's figures likely underestimated the actual presence rates that a regular consumer might experience, given their familiarity with agent schedules.

Transaction success rates, however, presented a more complex pattern. In Bangladesh, shoppers making transactions where the agent was present had a nine percentage point higher likelihood of completing a successful transaction with a known agent than with a new agent. The opposite is true in Tanzania, where transactions conducted with new agents were four percentage points more likely to be successful than transactions with known agents. Success rates were not statistically different in Uganda. Although it is difficult to explain these country differences, it is revealing that we see a much stronger and consistent finding for agent presence than for transaction success. This suggests that while customers can optimize using their knowledge about agents they use frequently in terms of when the agent will be available, they are less likely to be able to use that information to predict when transactions will be successful (e.g., by using information about when certain agents are likely to run out of float). Alternatively, this could be driven by our incentive structure; while we did incentivize shoppers to visit agents when they were available, we did not pay higher rewards for completed transactions than for failed transactions.

We saw little fluctuation in overcharging outcomes. Theoretically you might expect that regular customers would receive preferential pricing, or alternatively, that they might be more willing to pay extra fees to agents they regularly interact with (perhaps because they offer other non-monetary benefits). We do not see evidence that either of these factors dominate, though it is possible that both occur with similar intensity, yielding an average difference of near-zero. In Bangladesh, both

TABLE 24: Key outcomes by agent relationship

	BANGLADESH		TANZANIA		UGANDA	
	NEW AGENT	KNOWN AGENT	NEW AGENT	KNOWN AGENT	NEW AGENT	KNOWN AGENT
Agent present	73.1%***	90.0%***	76.4%***	90.6%***	69.1%***	83.1%***
Success rate (conditional on agent present)	82.3%***	91.5%***	80.0%**	75.6%**	77.1%	75.8%
Success rate (unconditional)	60.2%***	82.3%***	61.1%	68.6%	53.3%***	63.0%***
Overcharging rate (extensive margin)	1.1%	0.4%	0.3%	0.3%	11.4%	14.2%
Overcharging amount (intensive margin)	1.5%	1.3%	0.5%	5.0%	4.7%	5.0%
Observations	510	1055	643	897	651	892

Note: Variable means. Stars indicate tests for difference in means. * p ‹ 0.05, ** p ‹ 0.01, *** p ‹ 0.001. Agent present and success outcomes: The agent is assumed to be known if the shopper knew the agent's opening hours. Overcharging outcomes: The agent is assumed to be known if the shopper visited the agent 3 or more times in the past 90 days.

new and known agents overcharged at similar low rates, with new agents charging slightly more when they did overcharge. In Uganda, the likelihood of known agents overcharging was marginally higher, but not to a statistically significant extent.

Outcomes by agent characteristics

In Table 25, we examine our main outcomes by two distinct agent operational models: dedicated mobile money agents and those who run an additional business alongside mobile money services. This analysis aims to understand how an agent's focus on mobile money exclusively, compared to managing a dual business, affects transactional success and the likelihood of overcharging.

As shown in Part A of Table 25, we find that agents who operated another line of business were more likely to be present, but less likely to complete a transaction successfully, compared to agents who only dealt with mobile money. A possible explanation for this result is that agents who operate another line of business need to be present to conduct that business, however dedicated agents are more careful about maintaining float, the cash or mobile money account balance needed to complete the transaction (the biggest reason for transaction failure), since it is their only line of business.

This points towards potential solutions that could improve the success rates of visits to agents, such as tools for increasing consumer awareness of sole agent opening times and how to encourage better float management or liquidity sharing for dual business agents.

Part B of Table 25 delves into the structural aspects of agent locations, distinguishing between static and mobile operational set-ups. Agent locations can be a fixed static structure, in the form of a building, stall, or kiosk. Or agents can have mobile structures which typically come in the form of umbrellas where customers are served outside. We find that success rates were higher for agents operating from a mobile location. It is common practice for agents to ask each other for float when they run out–this might be easier and quicker for agents working from outside, especially in urban markets where they tend to be crowded together.

Part C of Table 25 compares agents who we had previously included in our first round of mystery shopping with agents that were added in the second round of data collection because they had recently started operations in the market. We find that newly established agents are able to complete transactions successfully at a higher rate, but are also more likely to overcharge customers than more established agents.

TABLE 25: Key outcomes by agent characteristics

	DEDICATED MOBILE MONEY AGENT	HAS OTHER LINE OF BUSINESS	AGENT LOCATION IS A FIXED STRUCTURE	AGENT LOCATION IS MOBILE	RECORDED IN YEAR 1 CENSUS	ENTERED MARKET IN THE LAST YEAR
Agent present	76.2%***	85.3%***	81.8%	84.2%	82.1%	82.0%
Success rate (conditional on agent present)	86.9%***	78.2%***	80.1%***	87.6%***	80.1%***	87.2%***
Success rate (unconditional)	66.3%	66.7%	65.5%***	73.8%***	65.8%**	71.5%**
Overcharging rate (extensive margin)	5.0%	3.5%	3.7%*	5.9%*	3.4%***	8.2%***
Overcharging amount (intensive margin)	4.7*	4.1*	4.2	4.8	4.2%	4.7%
Observations	1726.	3167.	4267.	626.	4049.	599.

Note: Stars indicate tests for difference in means. * p ‹ 0.05, ** p ‹ 0.01, *** p ‹ 0.001

Outcomes by transaction type

In Table 26, we examine how our main outcomes vary by the different transaction types we conducted in each country.

For Bangladesh, account-to-account transfers stand out with the highest statistically significant success rate of 97.7 percent, compared to cash-in and cash-outs at 87 percent and 88 percent respectively. Account-to-account transfers also have the highest overcharging rate at 2.9 percent, while cash-outs feature the lowest overcharging rate at 0.7 percent, and the smallest amount overcharged at 0.3 percent–a difference that is statistically significant.

In Tanzania, success rates are higher for account to account and OTC transfers than for cash-in transactions. We do not see any incidence of overcharging for OTC and account to account transactions, but we do, at a small scale, for cash-in and cash outs, at 0.4 percent and 0.8 percent respectively. Moreover, our data reveals that cash-ins see a much higher actual amount overcharged as a percentage of the actual transaction at 5.0 percent, although the sample is too small to determine whether this is a significant difference.

In Uganda, OTC transactions have a higher success rate compared to other transaction types, but they also carry a dramatically higher risk of "overcharging" than other transaction types and a hefty 5 percent fee. This pattern aligns with our initial hypothesis from Year 1. We speculated that since agents do not receive a formal commission for these transactions—due to the lack of official charges—and because these services are unregulated and offered for free by agents, there is a heightened opportunity for agents to charge customers direct fees. The term "overcharging" here is not quite appropriate because there is no formal fee to "overcharge" and in fact technical OTC transactions are prohibited (despite being quite common). Surprisingly, we see that nearly 5 percent of cash-ins were overcharged in Uganda, quite different from the near-zero overcharging of cash-ins recorded in Year 1 and in other countries.

TABLE 26: Key outcomes by transaction type

CASH-IN | CASH-OUT | ACCOUNT-TO-ACCOUNT TRANSFER | OTC

	BANGLADESH				TANZANIA				UGANDA			
Agent present	84.2%	83.6%	88.4%		83.6%	85.0%	86.5%	84.0%	79.4%	73.4%*		80.8%
Success rate (conditional on agent present)	87.2%	87.8%	97.7%***		71.2%	76.0%	86.2%***	78.1%*	69.3%	80.3%***		82.1%***
Success rate (unconditional)	73.5%	73.4%	86.4%***		59.5%	64.6%	74.5%***	65.6%	55.0%	58.9%		66.3%***
Overcharging rate (extensive margin)	0.9%	0.7%	2.9%		0.4%	0.8%	0.0%	0.0%	4.6%	0.3%***		45.4%***
Overcharging amount (intensive margin)	1.7%	0.3%***	1.2%		5.0%	0.5%	N/A	N/A	4.8%	0.1%		4.9%
Observations	603.	763.	199.		444	401	326	369	596	635		312

Note: Mean values by transaction type. Significance stars for t-test cash-in = other transaction type. * p ‹ 0.05, ** p ‹ 0.01, *** p ‹ 0.001. Over-the-counter transactions not conducted in Bangladesh fieldwork. Agent-assisted transfers not conducted in Uganda fieldwork.

Time cost

For this study, we take a broad view of the costs that consumers face when making mobile money transactions and therefore include the opportunity cost of time. This section reports the updated time cost estimates for Year 2.

Estimates in the Year 1 report assumed that consumers returned home if a transaction failed, returning to re-attempt the transaction at a later time. These estimates should be considered an upper bound of the time cost as consumers may choose to re-attempt a failed transaction at a nearby agent rather than traveling home and re-attempting the transaction later with the same agent. In this scenario, the time cost of a failed transaction would include only a single trip to the agent, plus the walking time to the next nearest agent. The average walking distance to the nearest agent was on average four minutes in rural markets and one minute in urban markets. We report this lower bound estimate (visit a nearby agent) alongside the updated upper bound estimates (go home and re-attempt with the same agent later) and the total monetary costs.

Upper and lower bounds were calculated using the following formulas:

$$\text{Estimated total time cost Upper} = \left[\frac{T_V}{(P_P P_S)} + \frac{T_w}{P_S} + T_T \right] * W * FX$$

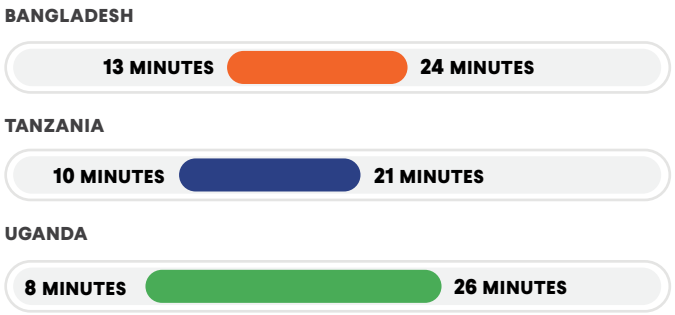
$$\text{Estimated total time cost Lower} = \left[T_V + T_A * \left(\frac{1}{(P_P P_S)} - 1 \right) + \frac{T_w}{P_S} + T_T \right] * W * FX$$

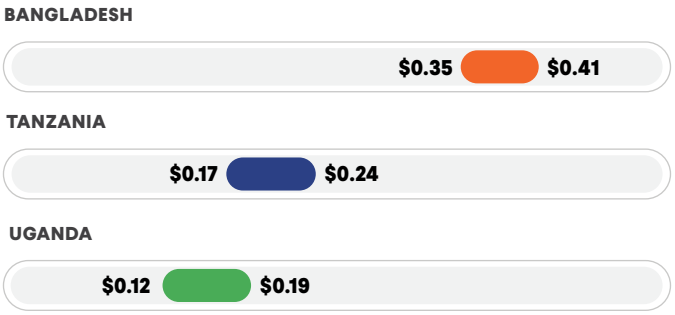
T_V = Travel time to agent, round-trip (in minutes)
T_A = Walking distance to nearest agent (in minutes)
T_W = Wait time at the agent location before completing the transaction (minutes)
T_T = Transaction time (minutes)
P_P = Probability agent will be present
P_S = Probability agent will successfully complete the transaction, conditional on being present
W = Median wage rate (local currency per minute)
FX = Nominal exchange rate, local currency to USD (on January 1, 2023)

A first observation is that the maximum time costs, assuming that shoppers return to their home, were smaller than in Year 1 (24 minutes in Year 2 versus 40 minutes in Year 1 in Bangladesh, 21 versus 31 minutes in Tanzania, and 26 versus 42 minutes in Uganda) The main driver of the difference is travel time - consumers in Year 2 reported shorter distances to the agent (a median distance of five minutes, compared to 15 minutes in Year 1), likely at least somewhat driven by the different recruitment strategy used in Year 2. Still, in Year 2 the dollar value of the opportunity costs is still significantly higher than the monetary cost of completing a transaction. The largest difference can be seen in Bangladesh, where the time cost was between 3 and 6 times greater than the monetary costs. In Tanzania and Uganda, these maximum time costs were twice as large. Lower bounds in those countries were on par with the monetary cost.

TABLE 27: Time cost by country

Average time cost



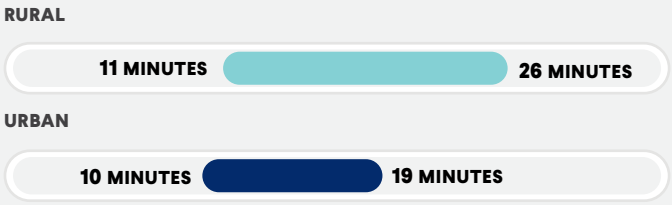


Average Monetary Cost (USD)

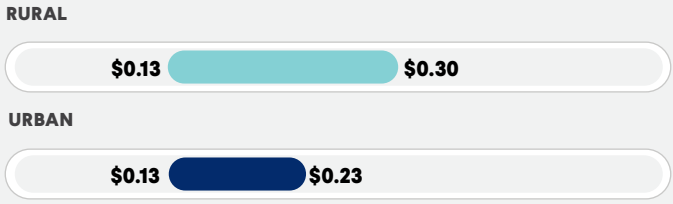
When we segment our time and monetary cost estimates by urbanicity and shopper gender, we find that rural and male consumers face somewhat higher time costs, primarily due to reported longer travel times to the agent where their last successful transaction was made. Both upper and lower bounds for all segments are larger than the monetary cost of completing a transaction.

TABLE 28: Time cost by geography and shopper gender

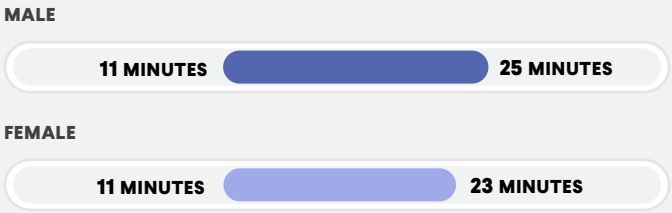
Average time cost



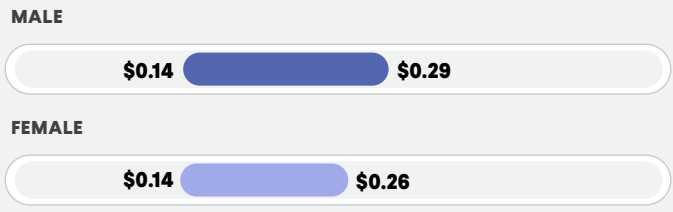
Average time cost (USD)



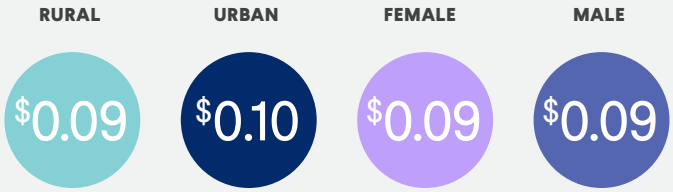
Average time cost



Average time cost (USD)



Average Monetary Cost (USD)



Price transparency

Below we report our two primary indicators of pricing transparency: first, whether a significant number of shoppers reported seeing a price list displayed at the agent's location, and second, whether agents verbally disclosed the fees without being asked.

For Bangladesh, the data shows an impressive compliance rate with 98.3 percent of agents reported to have displayed price lists. However, only 3.9 percent of agents proactively informed customers of the fee without prompting. Tanzania fairs slightly worse – 77.7 percent of agents had price lists displayed and an even lower percentage of 2.2 percent informed customers of fees. Uganda had the lowest display rate at 63.9 percent but had a notably higher rate of agents verbally disclosing fees at 19.7 percent.

We anticipated that the percentage of agents displaying price lists would remain consistent with the Year 1 findings. However, in Tanzania, there is a noticeable decline; the proportion of agents with visible price lists has decreased to 77.7 percent from the 85 percent reported in Year 1. This discrepancy could stem from professional mystery shoppers being more attentive in observing price lists than local shoppers, despite their training.

TABLE 29: Price list and verbal disclosure of fees

	BANGLADESH	TANZANIA	UGANDA
Price list displayed	98.3%	77.7%	63.9%
Agent informed customer of fee without prompting (before or after transaction)	3.9%	2.2%	19.7%

When we segment our key transparency indicators by urbanicity, whether an agent is known to the shopper or not, and whether the agent was present during our Year 1, or has recently entered the market, we uncover some interesting patterns discussed below.

We find that overall rural agents displayed price lists less frequently (79.2 percent) than urban ones (83.6 percent) but were more likely to inform customers about the fee (9.7 percent vs. 6.2 percent). Similarly, agents known to the customers were more likely to display price lists (75.9 percent) and inform them of fees (7.9 percent) than unknown agents. Additionally, agents recorded in the first-year census had a lower display rate (80.9 percent) and fee disclosure (6.8 percent) compared to those who entered the market in the last year, with 84.2 percent displaying price lists and 13.8 percent informing customers of fees.

TABLE 30: Price transparency indicators

GEOGRAPHY	RURAL	URBAN
Price list displayed	79.2%***	83.6%***
Agent informed customer of fee without prompting (before or after transaction)	9.7%**	6.2%**

AGENT RELATIONSHIP	KNOWN AGENT	UNKNOWN AGENT
Price list displayed	75.9%***	68.5%***
Agent informed customer of fee without prompting (before or after transaction)	7.9%	7.8%

TIME IN MARKET	RECORDED IN YEAR 1 CENSUS	ENTERED MARKET IN THE LAST YEAR
Price list displayed	80.9%*	84.2%*
Agent informed customer of fee without prompting (before or after transaction)	6.8%***	13.8%***

Note: Price list indicator includes a sample of all agents recorded in the census. Fee informed indicator only for successful mystery shopping visits. Stars indicate tests for difference in means between agent types. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Does the presence of a displayed price list influence the likelihood of overcharging by agents? Table 31 examines this relationship across the three countries. If we control for transaction type and provider, we see that in Bangladesh, displaying a price list corresponds with a significant reduction in overcharging by 18 percentage points. Similarly, in Tanzania, there's a modest but significant decrease of 1.2 percentage points. In contrast, Uganda shows a negligible change of 0.27 percentage points, indicating no substantial impact.

Table 32 sheds light on the correlation between verbal disclosure of prices by agents and overcharging. In Bangladesh, transactions where an agent discloses the fee verbally are 13.5 percentage points more likely to involve overcharging than those with no verbal disclosure of the fee. Although this could suggest that verbal disclosure does not help curb overcharging and in fact worsens the problem, another explanation is that verbal disclosure is simply more necessary when the agents decide to overcharge, since extra fees are typically paid in cash so customers must be told how much to pay (versus official fees which are automatically deducted from consumers' accounts). Agents are not disclosing the official fee, but rather telling customers that they must pay an additional fee in cash. In contrast to Bangladesh, in Tanzania and Uganda there is no relationship between fee disclosure and overcharging.

TABLE 31: Influence of price list on overcharging

	BANGLADESH	TANZANIA	UGANDA
Price list	-0.18*** (0.047)	-0.012** (0.0048)	-0.0027 (0.019)
Controls...			
Transaction type	[Included]	[Included]	[Included]
Provider	[Included]	[Included]	[Included]
Observations	1175	1008	909
Mean value of dependent variable	0.011	0.003	0.121

Note: Dependent variable is the overcharging rate. Price list is an agent-level indicator variable equal to 1 if the majority of shoppers reported seeing a price list when visiting the agent. SD in parentheses. *** p<0.01, ** p<0.05, * p<0.1

TABLE 32: Influence of agent disclosure of fees on overcharging

	BANGLADESH	TANZANIA	UGANDA
Agent verbal disclosure of fees (unprompted, before or after transaction)	0.135*** (0.021)	-0.0047 (0.020)	-0.00087 (0.012)
Controls...			
Transaction type	[Included]	[Included]	[Included]
Provider	[Included]	[Included]	[Included]
Observations	715	503	483
Mean value of dependent variable	0.018	0.006	0.228

Note: Dependent variable is the overcharging rate. Agent disclosure of fee is an indicator variable equal to 1 if the agent informed the shopper of the fee at any point during the visit (unprompted). Agent disclosure of fee is only available when visits were successful and shoppers incurred a non-zero. SD in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Service quality outcomes

As in year one, we try to assess subjective service quality by asking shoppers for ratings of security, privacy, and attitude of the agent (on a scale from 1-10, where 10 was best), as well as questions on discrimination and harassment. We also asked shoppers to indicate whether agents made invasive, suggestive, teasing, or rude comments. Finally, we asked whether shoppers felt discriminated against by their agent because of their gender, age, or ethnicity. Similar to our Year 1 results, local shoppers gave their transaction experience a relatively high rating: scores between 7-8 out of 10 across all countries in terms of security, privacy, and attitude. Few shoppers reported instances of discrimination or harassment, all of which had rates typically at or below 1 percent. An overall service quality index was computed using principal component analysis, based on the security, privacy and attitude indicators. The PCA has a mean of zero and a standard deviation of 1. Negative values indicate a lower than average score.

TABLE 33: Visit experience

	BANGLADESH	TANZANIA	UGANDA
Visit experience			
Security (1-10)	8.2 (1.3)	7.9 (2.1)	7.4 (1.7)
Privacy (1-10)	8.1 (1.4)	7.5 (2.2)	7.2 (1.7)
Attitude (1-10)	8.2 (1.4)	8.1 (2.1)	7.6 (1.7)
Invasive	1.4%	1.1%	1.2%
Suggestive	0.6%	0.1%	0.1%
Teasing	0.2%	0.1%	0.3%
Rude	0.8%	0.4%	0.8%
Discrimination: gender	0.1%	0.2%	0.1%
Discrimination: age	0.2%	0.0%	0.2%
Discrimination: ethnicity	0.0%	0.0%	0.0%
Service quality index			
Service quality index (principal component analysis)	0.3 (1.2)	0.9 (1.8)	-0.4 (1.4)
Observations	1322	1304	1191

Note: Non-percentage values have standard deviations in parentheses. Security, Privacy, and Attitude are ranked on a scale from 1-10, where 1 is worst and 10 is best. 'Invasive' is a binary variable equal to one if the respondent felt the agent invaded their personal space. 'Suggestive' is a binary variable equal to one if the respondent felt the agent made unwelcome sexually suggestive looks or gestures towards them. 'Teasing' is a binary variable equal to one if the respondent felt the agent made unwelcome sexually suggestive teasing, jokes or comments towards them. 'Rude' is a binary variable equal to one if the respondent felt the agent was rude or made harassing or unwelcome comments towards others.

When we look at shopper gender and whether agents were known or new agents. In terms of gender, we see virtually no differences in experience, apart from one important dimension. Females found that agents made slightly more suggestive comments to them, than male shoppers, although this was still very low - at 0.4% of female shoppers experiencing this. Known agents consistently received higher ratings of security, privacy, and agent attitude compared to unknown agents.

TABLE 34: Visit experience

	FEMALE SHOPPERS	MALE SHOPPERS	KNOWN AGENT	NEW AGENT
Visit experience				
Security (1-10)	7.8	7.9	7.9**	7.7**
Privacy (1-10)	7.6	7.7	7.7***	7.4***
Attitude (1-10)	8.0	8.0	8.0**	7.8**
Invasion	1.1	1.4	1.0	1.7
Suggestive	0.4*	0.1*	0.3	0.2
Teasing	0.2	0.2	0.2	0.2
Rude	0.8	0.5	0.8	0.4
Discrimination: gender	0.1	0.2	0.2	0.1
Discrimination: age	0.1	0.1	0.1	0.1
Discrimination: ethnicity	0.0	0.0	0.0	0.0
Service quality index				
Service quality index (principal component analysis)	-0.0	0.0	0.1***	-0.2***
Observations	1819	1998	2503	1314

Note: Non-percentage values have standard deviations in parentheses. Security, Privacy, and Attitude are ranked on a scale from 1-10, where 1 is worst and 10 is best. 'Invasive' is a binary variable equal to one if the respondent felt the agent invaded their personal space. 'Suggestive' is a binary variable equal to one if the respondent felt the agent made unwelcome sexually suggestive looks or gestures towards them. 'Teasing' is a binary variable equal to one if the respondent felt the agent made unwelcome sexually suggestive teasing, jokes or comments towards them. 'Rude' is a binary variable equal to one if the respondent felt the agent was rude or made harassing or unwelcome comments towards others. $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Discussion

In its first year of work, the Transaction Cost Index developed methodologies for measuring the true cost to consumers of using mobile money, including tracking price lists from providers' websites, conducting mystery shopping visits at agent locations by trained professionals, intercepting local consumers at agent locations, and recruiting local consumers to carry out their own mystery shopping visits.

In its second year, the Transaction Cost Index further refined and updated these methodologies, with a focus on price tracking and mystery shopping conducted by local consumers. These methods provide a broad range of indicators on the costs of digital financial services - official listed prices that users can (sometimes) find on providers' websites. Actual prices charged by agents, including the frequency and extent of overcharging. Non-financial costs associated with having to make repeated attempts to complete a transaction, including waiting and travel times. And, if things go wrong, how easy is it to reach a customer service agent to help resolve things. These are important aspects of consumers' experience of both the financial cost and the quality of services they receive.

We discussed a number of policy implications in the previous report. Many of these remain valid based on the updated year two results. We just touch on a couple of policy implications that are new, or updates from the previous report.

This two year project was intended as a pilot, testing out some methods in the first year and establishing best practice in the second year. We have learnt a lot through this process, and have distilled some of the key practical and logistical aspects into the toolkit that accompanies this report. We believe this can provide a starting point for continued tracking of DFS costs, not only in our focus markets, but beyond, and would be happy to support those efforts.

Low-effort improvements to disclosure formatting could lead to large benefits. We continued to struggle to find and accurately identify prices listed on provider websites for basic services. Regulations requiring firms to post up-to-date pricing information, in a machine readable format on a prominent place on the website (no more than 1 click away from the homepage) could help both regulators and consumers to access and assess prices, helping to boost competition. Encouraging third parties to use this data to help consumers make more informed decisions would further enhance competition.

Firms do not change prices often. Across 33 providers in 16 markets, we observe just three price changes from providers at our reference value over a nine-month period. This seems relatively little for mobile money markets which are often described as dynamic and fast moving. It is possible that firms are adapting prices in other ways that are not captured by our search, for example by offering discounts to new users or under certain circumstances. However the lack of price movements could suggest that competition is weak in these markets, and efforts to increase competition could yield positive results.

There have been mixed developments in the taxation of DFS. On the positive side, in Tanzania the government removed the digital money levy for on- and off-network transactions and in Ghana the government reduced the e-levy from 1.5 percent to 1 percent. However in Kenya the excise duty rate on fees increased from 10 percent to 15 percent. Outside of the price tracking observation window, we also note the introduction of a goods and services tax (GST) of 15 percent on all transaction fees in Sierra Leone. Governments have difficult trade-offs to make between encouraging the adoption and usage of DFS through lower taxation versus earning higher government revenues through higher taxation. More research is needed to more fully understand these trade-offs and develop sustainable taxation regimes which can meaningfully balance these two aims.

Providers continue to make it difficult to get in touch with them. In our audit of providers, two in five emails and three in ten telephone calls went unanswered. Although not directly related to prices, this lack of service from providers is another way in which consumers may be deterred from using digital financial services. Regulators can ensure that firms offer and respond to a range of different free communication channels, and monitor compliance through similar audits. Firms themselves can set themselves apart from the market as a high quality provider, by ensuring that they make customer service a priority.

Annex 1:

Listed Prices and policy tracker

TABLE 35: High reference values

COUNTRY	HIGH REFERENCE VALUE (local currency)	HIGH REFERENCE VALUE (USD, using nominal exchange rate)
Paraguay	PYG 300,000	$40.46
Peru	PEN 120	$31.32
Philippines	PHP 1,300	$22.94
Colombia	COP 80,000	$19.60
Nigeria*	NGN 6,000	$7.72
Bangladesh	BDT 1,400	$12.56
Kenya*	KSH 1,400	$9.40
Myanmar	MMK 23,000	$10.85
Côte d'Ivoire	XOF 6,500	$10.49
Ethiopia	ETB 550	$9.92
Tanzania	TZS 23,000	$9.15
Pakistan	PKR 2,200	$7.63
Uganda	UGX 31,000	$8.21
Mali	XOF 5,000	$8.07
Sierra Leone	SLE 120	$5.28
Ghana	GHS 75	$6.47

* The World Bank does not have data for Kenya and Nigeria on income per capita for the bottom 40 percent of the population, so we adopted Ghana's income per capita (bottom 40 percent) in the calculations as it is the most similar economy in terms of GDP per capita for these two countries.

Note: Oanda.com was used to convert the values from local currency to USD. This was accessed on September 30, 2023.

TABLE 36: Transaction types

TRANSACTION TYPE	DESCRIPTION
Cash-in at an agent	depositing cash into a mobile money wallet with an agent
Cash-out at an agent	withdrawing cash from a mobile money wallet with an agent
On-network person-to-person transfer	transferring money from one mobile money wallet to another wallet with the same provider (self-serve, no agent needed)
Off-network person-to-person transfer	transferring money from one mobile money wallet to another wallet with a different mobile money provider (self-serve, no agent needed)

Policy tracker summary tables

TABLE 37: Price cap policy

COUNTRY	STATUS OF PRICE CAPS IN YEAR 2 (09/2023)	CHANGE FROM YEAR 1 (12/2022)
Bangladesh	Price caps are set for off-network transactions. It is capped by the national switch at 0.5 percent per transaction.	None
Colombia	No price caps set by the regulator.	None
Cote d'Ivoire	No price caps set by the regulator.	None
Ethiopia	No price caps set by the regulator.	None
Ghana	The government has guaranteed a waiver for transactions below GHs 100 a day. In addition, price caps are set for off-network transactions. It is capped by the national switch at 1 percent per transaction.	None
Kenya	No price caps set by the regulator.	None
Mali	No price caps set by the regulator.	None
Myanmar	No price caps set by the regulator.	None
Nigeria	Guidelines on agent-initiated and self-service, customer-initiated transactions under mobile money operators prescribe N100 fee for cash-in via agent, minimum of N50 subject to 1 percent of transaction value or N500 (whichever is lower) for cash-out borne by the sender, N100 for off-network transfer. Due to competition, most mobile money operators charge zero fee for on-network transfer and cash-in. For off-network transfers, providers mostly adopted the NIBSS instant payment transfer which is tiered as follows: 0-N5,000: N10, N5,001-N50,000:N25 and above N50,000:N50.	None
Pakistan	[We were unable to review price cap information in Year 2 for this country]	As of Year 1 (12/22): Guidelines indicate that banks are to provide free of cost digital fund transfer services to individuals for up to Rs25,000 per account/wallet a month. However, the SBP said, banks may charge individuals a transaction fee of no more than 0.1 percent or Rs200 for fund transfer exceeding the aggregate limit of Rs25,000.
Paraguay	[We were unable to review price cap information in Year 2 for this country]	As of Year 1 (12/22): No price caps set by the regulator.
Peru	[We were unable to review price cap information in Year 2 for this country]	As of Year 1 (12/22): No price caps set by the regulator.
Philippines	No price caps set by the regulator.	None
Sierra Leone	No price caps set by the regulator.	None
Tanzania	No price caps set by the regulator.	None
Uganda	No price caps set by the regulator.	None

TABLE 38: Taxation policy

COUNTRY	STATUS OF TAXATION IN YEAR 2 (09/2023)					
	MOBILE MONEY TAX?	BROAD-BASED TAXES?	TARGETED TAXES?	LISTED PRICES ARE INCLUSIVE OF TAX?	LISTED PRICES SEPARATE TAX AND FEES?	TCI ABLE TO DETERMINE TAX RATES?
Bangladesh						
	Yes	**VAT:** 15% of transaction fee	None	Yes	No	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	No change					
Colombia						
	Yes	None	**"4X1000 tax:"** 0.4% of transaction value for amounts exceeding approximately $598 per month	No	No	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	No change					
Cote d'Ivoire						
	Yes	None	**Stamp fee:** 100F charged for deposits over 5000 FCFA.	Yes	Yes	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	No change					
Ethiopia						
	None	None	None	N/A	N/A	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	No change					
Ghana						
	Yes	None	**E-levy:** 1% of transaction amount for transfers only (not cash-in or cash-out). First 100 cedi per day are excluded.	Yes	Yes	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	E-levy changed to 1% from 1.5%					

COUNTRY	STATUS OF TAXATION IN YEAR 2 (09/2023)					
	MOBILE MONEY TAX?	BROAD-BASED TAXES?	TARGETED TAXES?	LISTED PRICES ARE INCLUSIVE OF TAX?	LISTED PRICES SEPARATE TAX AND FEES?	TCI ABLE TO DETERMINE TAX RATES?
Kenya						
	Yes	None	**Excise tax:** 15% of the transaction fee	Yes	No	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	Excise tax changed to 15% from 12% of the transaction fee.					
Mali						
	None	**VAT:** unknown rate	Unknown	Yes	No	No
	CHANGE FROM YEAR 1 (12/2022)					
	[We were unable to review price cap information in Year 1 for this country]					
Myanmar						
	None	None	None	N/A	N/A	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	No change					
Nigeria						
	Yes	**VAT:** 7.5% of transaction fee	**Stamp duty:** N50 on all transactions above N10,000	No	No	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	No change					
Pakistan						
	[We were unable to review tax information in Year 2 for this country]					
	CHANGE FROM YEAR 1 (12/2022)					
	As of Year 1 (12/22): there is mobile money tax, while broad-based tax and targeted tax are unknown. Listed prices are also inclusive of tax, though the tax is not separated and cannot be determined.					
Paraguay						
	[We were unable to review tax information in Year 2 for this country]					
	CHANGE FROM YEAR 1 (12/2022)					
	As of Year 1 (12/22): taxation and inclusion of tax in listed prices are unknown. The tax is not separated and cannot be determined.					

COUNTRY	STATUS OF TAXATION IN YEAR 2 (09/2023)					
	MOBILE MONEY TAX?	BROAD-BASED TAXES?	TARGETED TAXES?	LISTED PRICES ARE INCLUSIVE OF TAX?	LISTED PRICES SEPARATE TAX AND FEES?	TCI ABLE TO DETERMINE TAX RATES?
Peru						
	Unknown	Unknown	Unknown	Unknown	No	No
	CHANGE FROM YEAR 1 (12/2022)					
	No change					
Philippines						
	None	None	None	N/A	N/A	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	No change					
Sierra Leone						
	None	**VAT:** 15% of transaction fee	None	Yes	No	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	Imposition of 15% VAT was introduced in October 2023 [outside of the research period]					
Tanzania						
	Yes	**VAT:** 18% of transaction fee	**Excise tax:** 10% of transaction fee **Mobile money levy:** Variable, slab-based (removed for P2P transfers)	Yes	Partially	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	E-levy for P2P transfers was removed in July 2023					
Uganda						
	Yes	None	**Excise:** 15% of transaction fee **Mobile money levy:** 0.5% of transaction amount for withdrawals only.	Yes	Partially	Yes
	CHANGE FROM YEAR 1 (12/2022)					
	No change					

Note: Data collected are as of September 2023.

TABLE 39: Price transparency and redress policies

COUNTRY	STATUS OF YEAR 2 PRICE TRANSPARENCY AND REDRESS REGULATION (09/2023)		CHANGE FROM YEAR 1 (12/2022)
	REQUIRED TO LIST PRICES AND WHERE	REQUIRED TO HAVE DEDICATED PHONE LINE FOR COMPLAINTS AND TURNAROUND TIME	
Bangladesh			
	Yes; all retail outlets, customer care centers and websites	**Yes**; resolved within 10 working days	No change
	References		
	Bangladesh Mobile Financial Services (MFS) Regulations, 2022		
Colombia			
	Yes; prior conclusion of contract, website, quarterly in national and regional newspapers	**Maybe**, providers are required to have a System for Financial Customer Services (not specifically a phone line) ; resolved within 1 5 business days	No change
	References		
	Circular Externa 052 / 2007 Law 1328 / 2009		
Cote d'Ivoire			
	Yes	**No**; providers are not required to have a dedicated phone line.	[We were unable to review price transparency and redress information in Year 1 for this country]
	References		
	[No link was provided by the representative]		
Ethiopia			
	Yes; on its website	**Yes**; resolved within a maximum of 3 working days.	**As of Year 1 (12/22):** An older reference (Regulation of Mobile and Agent Banking Services 2019) was used. The prices were required to be listed at the premise of the agent in a visible manner. Providers are required to have a dedicated line for complaints. Turnaround time for receiving and processing customers' complaints was not more than 30 working days from date of complaint.
	References		
	Oversight of the National Payment System, 2020		
Ghana			
	Yes; at head office, branches as well as premises of its agents	**Yes**; resolved within 5 working days of lodging and an additional 10 working days is permitted provided customer is informed	No change
	References		
	Bank of Ghana's Guidelines for E-money Issuers in Ghana 2003 (updated 2015)		

COUNTRY	STATUS OF YEAR 2 PRICE TRANSPARENCY AND REDRESS REGULATION (09/2023)		CHANGE FROM YEAR 1 (12/2022)
	REQUIRED TO LIST PRICES AND WHERE	REQUIRED TO HAVE DEDICATED PHONE LINE FOR COMPLAINTS AND TURNAROUND TIME	
Kenya			
	Yes; upon opening their e-money accounts	**Yes**; address complaints within a period of 60 days from receipt of complaint	No change
	References		
	Central Bank of Kenya's E-money Regulation 2013		
Mali			
	Yes; required to display prices at each transaction point.	**No**; providers are not required to have a dedicated phone line.	[We were unable to review price transparency and redress information in Year 1 for this country]
	References		
	[No link was provided by the representative]		
Myanmar			
	Yes; at all customer service centers as well as premises of its agents	**Yes**; resolve within 5 business days from the date of receipt of complaint	No change
	References		
	Central Bank of Myanmar's Regulation on Mobile Financial Services 2016		
Nigeria			
	Yes; at agents	**Yes**; not later than 48 hours from date of reporting	No change
	References		
	Central Bank of Nigeria's Regulatory Framework for Mobile Money Services in Nigeria 2021		
Pakistan			
	[We were unable to review price transparency and redress information in Year 2 for this country]		**As of Year 1 (12/22):** According to the State Bank of Pakistan's Branchless Banking Regulations 2019, prices are required to be listed at all branches, agent locations and websites. Providers are required to have a dedicated line for complaints. Turnaround time for receiving and processing customers' complaints is 24 hours.
Paraguay			
	[We were unable to review price transparency and redress information in Year 2 for this country]		[We were unable to review price transparency and redress information in Year 1 for this country]

COUNTRY	STATUS OF YEAR 2 PRICE TRANSPARENCY AND REDRESS REGULATION (09/2023)		CHANGE FROM YEAR 1 (12/2022)
	REQUIRED TO LIST PRICES AND WHERE	REQUIRED TO HAVE DEDICATED PHONE LINE FOR COMPLAINTS AND TURNAROUND TIME	
Peru			
	[We were unable to review price transparency and redress information in Year 2 for this country]		[We were unable to review price transparency and redress information in Year 1 for this country]
Philippines			
	Yes; in public domains (e.g., websites)	**Yes**; processing and resolution within 7 days for simple complaints and 45 days for complex complaints	No change
	References		
	Bangko Sentral ng Pilipinas' Regulations on Financial Consumer Protection 2018		
Sierra Leone			
	Yes; at mobile money account opening. 30 days notice to consumer (including SMS), at a conspicuous place	**Yes**; within 10 working days of the complaint	No change
	References		
	Guidelines for Mobile Money Services 2015, Guidelines on Use of Agents 2020		
Tanzania			
	Yes; display and disclose charges and fees for its services to its customers and any changes thereof (no locations mentioned)	**No explicit mention of phone line**; address complaints within 21 days from receipt of complaint	No change
	References		
	The Bank of Tanzania's The National Payment Systems Act 2015 or the Electronic Money Regulations 2015		
Uganda			
	Yes; a schedule of fees or charges availed to a consumer, materials displayed at the licensee's office, social media pages or website; or in any other document as the licensee may determine	**Yes**; within 21 working days from the date of lodging the complaint	No change
	References		
	The Bank of Uganda's National Payment Systems (Consumer Protection) Regulations 2022		

Note: Data collected are as of September 2023.

TABLE 40: Interoperability policy

COUNTRY	STATUS OF YEAR 2 PRICE TRANSPARENCY AND REDRESS REGULATION (09/2023)			CHANGE FROM YEAR 1 (12/2022)
	INFRASTRUCTURE THAT ALLOWS FOR INSTANT OFF-NETWORK TRANSFERS?	GOVERNMENT OR PRIVATE LED?	IS THERE AN INFRASTRUCTURE THAT ALLOWS FOR VOUCHER-BASED TRANSFERS?	
Bangladesh				
	Yes	Government-led	Yes	No change
	Brief Description			
	Government-led: Interoperable Digital Transaction Platform (IDTP) called Binimoy. It was launched in November 2022 and ran by Bangladesh government's ICT Division and Bangladesh Bank.			
Colombia				
	Yes	Private sector-led	Uncertain	No change
	Brief Description			
	Private-sector led: Daviplata. It was launched by Banco Davivienda in 2011. In October 2023, the Central Bank issued a resolution outlining the first interoperability parameters for "immediate low-value payment systems". This is set to be implemented in 2025.			
Cote d'Ivoire				
	Yes	Private sector-led	No	No change
	Brief Description			
	Private sector-led: providers' mobile money applications allow instant transfer of off-network transfers			
Ethiopia				
	Yes	Both	No	No change
	Brief Description			
	Government-led: Ethswitch was launched in October 2021. The National Bank of Ethiopia facilitated its establishment and owns 46 percent stake in the company, while commercial banks own the rest. It is recognized as the country's national payment switch. **Private sector-led:** Ethio Telecom, currently not onboarded with Ethswitch, has bilateral agreements with other banks to interconnect transactions.			
Ghana				
	Yes	Government-led	Yes	No change
	Brief Description			
	Government-led: Mobile Money Interoperability (MMI) system called GhIPSS. It was launched in May 2018 by the Bank of Ghana. It is implemented by private companies.			

COUNTRY	STATUS OF YEAR 2 PRICE TRANSPARENCY AND REDRESS REGULATION (09/2023)			CHANGE FROM YEAR 1 (12/2022)
	INFRASTRUCTURE THAT ALLOWS FOR INSTANT OFF-NETWORK TRANSFERS?	GOVERNMENT OR PRIVATE LED?	IS THERE AN INFRASTRUCTURE THAT ALLOWS FOR VOUCHER-BASED TRANSFERS?	
Kenya				
	Yes	Both	No	**As of Year 1 (12/22):** A private-led interoperability infrastructure was noted. However, this is corrected to be both government-led and private-led interoperability given the Central Bank's efforts to facilitate players in achieving seamless interoperability and launch the national switch.
	Brief Description			
	Central Bank of Kenya (CBK) will guide and facilitate efforts to achieve full-scale interoperability. Building on the gains from P2P interoperability, CBK will facilitate players in the industry to achieve seamless interoperability and launch of a national switch, supported by the required multilateral agreements among institutions.			
Mali				
	Yes	Private-led	Unknown	**As of Year 1 (12/22):** The type of interoperability was unknown, though there were plans to have a regional switch.
	Brief Description			
	Off-network transfers are allowed through private sector players.			
Myanmar				
	Yes	Both	N/A	**As of Year 1 (12/22):** There was no interoperability infrastructure in place. Both private-led and government interoperability infrastructures were in the planning stages.
	Brief Description			
	Government-led: CBM developed the CBM-NET for large payments between the banks. It introduced MMQR (Myanmar Quick Response) in 2023 that can ensure real-time retail payment. **Private-led:** Wave money has bilateral agreements with select banks such as CB Bank, Yoma, and AYA.			
Nigeria				
	Yes	Both	Yes	**As of Year 1 (12/22):** A government-led infrastructure was noted. However, this is corrected to be both government-led and private-led infrastructures given the joint ownership of the Central Bank and all licensed banks.
	Brief Description			
	Nigeria Interbank Settlement System (NIBSS) Instant Payment. It was launched in 2012 and jointly owned by the Central Bank of Nigeria and all licensed banks.			
Pakistan				
	[We were unable to review interoperability information in Year 2 for this country]			**As of Year 1 (12/22):** There is both private-led and government-led interoperability. **Government-led:** RAAST. It was launched in 2022 by the State Bank of Pakistan. **Private sector-led:** 1Link. It was launched in April 2006 and it is owned by a consortium of 11 major banks in Pakistan.

COUNTRY	STATUS OF YEAR 2 PRICE TRANSPARENCY AND REDRESS REGULATION (09/2023)			CHANGE FROM YEAR 1 (12/2022)
	INFRASTRUCTURE THAT ALLOWS FOR INSTANT OFF-NETWORK TRANSFERS?	GOVERNMENT OR PRIVATE LED?	IS THERE AN INFRASTRUCTURE THAT ALLOWS FOR VOUCHER-BASED TRANSFERS?	
Paraguay				
	[We were unable to review interoperability information in Year 2 for this country]			**As of Year 1 (12/22):** There is both private-led interoperability. It involved bilateral agreements and partnerships with providers of financial services and payments.
Peru				
	[We were unable to review interoperability information in Year 2 for this country]			**As of Year 1 (12/22):** There is government-led interoperability through BIM. The project was spearheaded by Peruvian Digital Payments (PDP), a service provider established by Peru's government, financial institutions, telcos, and other stakeholders. PDP is co-owned by the Association of Banks of Peru (ASBANC) as well as many of its member banks and electronic money issuer
Philippines				
	Yes	Government-led	No	No change
	Brief Description			
	Government-led: InstaPay. It was launched in 2018 under the Bangko Sentral ng Pilipinas (BSP)'s National Retail Payment System. It is governed by an industry-led body known as the Philippine Payment Management, Inc under the oversight of the BSP.			
Sierra Leone				
	Yes	Government-led	N/A	**As of Year 1 (12/22):** There was no interoperability infrastructure in place.
	Brief Description			
	Government-led: National Payment Switch launched in April 2023			
Tanzania				
	Yes	Government sector-led	Yes	**As of Year 1 (12/22):** TIPS was still in the planning stages. The interoperability infrastructure was mainly private sector-led, as there were multilateral arrangements among a group of e-money issuers.
	Brief Description			
	Government-led: Tanzania Instant Payments System (TIPS)			
Uganda				
	Yes	Government-led	Yes	No change
	Brief Description			
	Government-led: Uganda National Interbank Settlement (UNIS). It was launched in February 2005. It is owned and operated by the Bank of Uganda.			

TABLE 41: Price transparency and redress audit

Fee list on provider websites	Is an email channel available for customer care?
Number of minutes to find fee list on provider website	Time for customer care to respond to inquiry
Are taxes listed separate from fees in the fee list?	Satisfaction level with response
Does the fee list note that fees are inclusive of taxes?	Is a phone hotline available for customer care?
Languages available	Duration of call with customer care

COUNTRY | FULLY SATISFIED | MODERATELY SATISFIED | NOT SATISFIED | YES | NO

COUNTRY	PROVIDER	PRICE TRANSPARENCY					REDRESS					
		Fee list on provider websites	Number of minutes to find fee list on provider website	Are taxes listed separate from fees in the fee list?	Does the fee list note that fees are inclusive of taxes?	Languages available	Is an email channel available for customer care?	Time for customer care to respond to inquiry	Satisfaction level with response	Is a phone hotline available for customer care?	Duration of call with customer care	Satisfaction level with response
Bangladesh												
	Bkash	✓	3 minutes	✗	Does not specify	Bengali, English	✓	23 minutes	★½	✓	3 minutes	★
	Nagad	✓	2 minutes	✗	Does not specify	Bengali, English	✓	7 minutes	★	✓	4 minutes	★
	Rocket	✓	1 minute	✗	Does not specify	Bengali	✗	-	-	✓	Needed number to proceed	
Colombia												
	Bancolombia	✓	3 minutes and 2 seconds	✗	✓	Spanish	✗ (Has AI Chatbot)	-	-	✓	3 minutes	★½
	Daviplata	✓	2 minutes	✗	Does not specify	Spanish	✗ (Has AI Chatbot)	-	-	✗	-	-
Cote d'Ivoire												
	Moov Africa	✓	1 minute	✓	✓	French	✓	-	-	✓	4 minutes	★
	MTN	✗	-	-	-	French	✓	Responded, but not recorded	★	✓	5 minutes	★
	Orange	✓	1 minute	✗	Does not specify	French	✓	-	-	✓	5 minutes	★
Ethiopia												
	Ethio Telecom	✓	1 minute and 8 seconds	✗	Does not specify	Amharic, English	✓	-	-	✓	5 minutes and 35 seconds	★
Ghana												
	MTN	✗	-	✗	-	English	✓	-	-	✓	-	-
	Vodafone	✓	1 minute	✓	Does not specify	English	✓	3 hours and 7 minutes	★	✓	3 minutes and 12 seconds	★½
Kenya												
	Safaricom	✓	1 minute	✗	Does not specify	English	✓	-	-	✓	5 minutes	★

	PROVIDER	PRICE TRANSPARENCY					REDRESS					
Mali												
	Moov Africa	✓	29 seconds	✗	Does not specify	French	-	-	-	-	-	-
	Orange	✓	3 minutes	✗	✓	French	✓	-	-	-	-	-
	SAMA	✓	1 minute and 23 seconds	✗	Does not specify	French	-	-	-	-	-	-
Myanmar												
	Ooredoo	✓	-	-	-	English	-	-	-	✗	-	-
	Wave Money	✓	2 minutes	-	-	Burmese, English	-	-	-	-	-	-
Nigeria												
	Paga	✓	30 seconds	✓	Does not specify	English	✓	11 hours and 5 minutes	★	✓	-	-
	Opay	✗	-	-	-	English	✓	-	-	✓	-	-
	MTN-Momo	✗	-	-	-	-	✓	-	-	✗	-	-
Philippines												
	GCash	✓	1 minute and 34 seconds	-	-	English	✗	-	-	✓	-	-
	PayMaya	✓	5 minutes and 37 seconds	-	-	English	✓	20 minutes	★	✓	-	-
Sierra Leone												
	Africell	✓	3 minutes and 46 seconds	-	-	English	-	-	-	✓	3 minutes and 50 seconds	★
	Orange	✓	1 minute and 40 minutes	-	-	English	-	-	-	✓	4 minutes and 50 seconds	★
Tanzania												
	Airtel	✓	2 minutes	✓ for gov't levy only.	✓	Swahili	✓	-	-	✓	-	-
	Tigo	✓	1 minute	✓ for gov't levy only.	✓	Swahili	✓	12 minutes	★	✓	-	-
	Vodacom	✓	1 minute	✓ for gov't levy only.	✓	Swahili	✓	46 minutes	★	✓	3 minutes and 40 seconds	★
Uganda												
	Airtel	✓	26 seconds	✓	Does not specify	English	✓	3 hours and 57 minutes	★	✓	5 minutes	★
	MTN	✓	30 seconds	✗	Does not specify	English	✓	53 minutes	★	✓	4 minutes	★

Note: Price transparency and redress audit conducted in September 2023. We did not collect responses from Myanmar, Pakistan, Paraguay and Peru.

Annex 2:
Mystery Shopping

Local mystery shopper characteristics, by country

TABLE 42: Characteristics of Local Mystery Shoppers

	FEMALE	MALE	RURAL	URBAN	LOW EXPERIENCE	HIGH EXPERIENCE
Bangladesh						
Demographics						
Female	100%	0.0%	36.0%	43.4%	44.0%**	28.7%**
Age (Years, median)	26.0	26.0	26.0	26.0	26.0*	27.0*
Completed some secondary education	92.2%	89.4%	87.7%**	98.7%**	89.6%	91.8%
Length of MM account ownership (Years, mean)	2.3**	2.8**	2.6	2.8	1.6***	4.1***
Owns smartphone	89.6%	91.0%	87.3%**	100%**	89.6%	91.8%
Owns bank account	13.9%	15.9%	9.2%***	32.9%***	7.7%***	26.2%***
Mobile money usage						
Receives payment from employer/wages	8.7%	7.9%	2.2%***	26.3%***	6.6%	10.7%
Pays bills (electricity, water, taxes, etc)	33.0%	41.3%	30.3%***	61.8%***	35.2%	42.6%
Number of transactions done in the last 90 days	6.9	6.0	3.5***	15.2***	5.7	7.4
Has digital loan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Number of agents with whom individual typically transacts	1.9	2.0	1.8***	2.4***	1.8**	2.1**
Can do P2P transfer	86.8%*	94.2%*	91.2%	92.0%	91.2%	91.8%
Knows cash-out fee	64.5%**	81.1%**	90.5%***	23.5%***	74.9%	74.8%
Challenges and redress						
Experienced a challenge	6.1%	4.2%	5.3%	3.9%	6.6%	2.5%
Contacted anyone to solve problem conditional on experiencing challenge	95.0%	100%	83.3%***	100%***	95.8%	100%
Challenge was resolved (1=yes)	0.0%*	62.5%*	20.0%	100%	30.0%	66.7%
Observations	115	189	228	76	182	122

Note: High experience = above median mobile money account ownership (in years). Outliers of number of agents with whom typically transact are dropped. Stars indicate tests for difference in means. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 43: Characteristics of Local Mystery Shoppers

	FEMALE	MALE	RURAL	URBAN	LOW EXPERIENCE	HIGH EXPERIENCE
Tanzania						
Demographics						
Female	100%	0%	50.8%	50.0%	60.3%*	43.5%*
Age (Years, median)	32*	36*	35	30.5	28***	38***
Completed some secondary education	33.3%	34.2%	25.0%***	60.0%***	36.8%	31.5%
Length of MM account ownership (Years, mean)	5.5**	7.8**	6.2	7.8	2.2***	9.9***
Owns smartphone	25.9%	32.9%	21.7%***	52.5%***	23.5%	33.7%
Owns bank account	18.5%	21.5%	10.0%***	50.0%***	11.8%*	26.1%*
Mobile money usage						
Receives payment from employer/wages	8.6%**	25.3%**	17.5%	15.0%	11.8%	20.7%
Pays bills (electricity, water, taxes, etc)	33.3%*	49.4%*	30.8%***	72.5%***	32.4%*	47.8%*
Number of transactions done in the last 90 days	15.0	14.3	10.2***	27.9***	10.0*	18.1*
Has digital loan	8.6%	8.9%	6.7	15.0	5.9	10.9
Number of agents with whom individual typically transacts	1.8**	2.3**	2.0	2.2	1.8**	2.2**
Can do P2P transfer	72.8%*	88.6%*	76.7%*	92.5%*	77.9%	82.6%
Knows cash-out fee	8.6%	1.8%	1.0%***	20.7%***	3.6%	7.1%
Challenges and redress						
Experienced a challenge	6.2%*	16.7%*	11.7%	10.3%	4.5%*	16.3%**
Contacted anyone to solve problem conditional on experiencing challenge	80.0%	30.8%	42.9%	50.0%	66.7%	40.0%
Challenge was resolved (1=yes)	75.0%	100.0%	100.0%	50.0%	100.0%	83.3%
Observations	81	79	120	40	68	92

Note: High experience = above median mobile money account ownership (in years). Outliers of number of agents with whom typically transact are dropped. Stars indicate tests for difference in means.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 44: Characteristics of Local Mystery Shoppers

	FEMALE	MALE	RURAL	URBAN	LOW EXPERIENCE	HIGH EXPERIENCE
Uganda						
Demographics						
Female	100%	0.0%	50.3%	50%	56.7%	43.6%
Age (Years, median)	27.5	30.0	29.0	28.0	26.0***	30.0***
Completed some secondary education	57.3%	63.2%	53.0%***	87.5%***	52.6%*	68.1%*
Length of MM account ownership (Years, mean)	4.7	5.6	4.9	6.1	2.1***	8.3***
Owns smartphone	29.2%	27.4%	15.9%***	75.0%***	29.9%	26.6%
Owns bank account	11.5%	16.8%	7.3%***	40.0%***	5.2%***	23.4%***
Mobile money usage						
Receives payment from employer/wages	34.4%	43.2%	39.1%	37.5%	36.1%	41.5%
Pays bills (electricity, water, taxes, etc)	20.8%	24.2%	15.2%***	50.0%***	20.6%	24.5%
Number of transactions done in the last 90 days	9.3	13.1	8.8***	20.2***	9.9	12.5
Has digital loan	3.1%	3.2%	3.3%	2.5%	1.0%	5.3%
Number of agents with whom individual typically transacts	2.1	2.6	1.9***	3.3***	2.1	2.3
Can do P2P transfer	76.0%	81.1%	74.2%***	95.0%***	72.2%*	85.1%*
Knows cash-out fee	11.0%	5.4%	7.6%	10.8%	7.5%	9.2%
Challenges and redress						
Experienced a challenge	7.3%	9.5%	9.9%	2.5%	7.2%	9.6%
Contacted anyone to solve problem conditional on experiencing challenge	28.6%	0.0%	13.3%	0.0%	0.0%	22.2%
Challenge was resolved (1=yes)	0.0%	.	0.0%	.	.	0.0%
Observations	96	95	151	40	97	94

Note: High experience = above median mobile money account ownership (in years). Outliers of number of agents with whom typically transact are dropped. Stars indicate tests for difference in means.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Method comparison

TABLE 45: Key outcomes by round of local mystery shopping (urban)

	YEAR 1 LOCAL MYSTERY SHOPPING URBAN	YEAR 2 LOCAL MYSTERY SHOPPING URBAN	P-VALUE
Bangladesh			
Agent present	75.6%	89.7%	0.000***
Success rate (conditional on agent present)	88.8%	88.2%	0.727
Success rate (unconditional)	67.1%	79.1%	0.000***
Overcharging rate (extensive margin)	0.9%	1.1%	0.639
Overcharging amount (intensive margin)	0.3%	1.4%	0.000***
Observations	1016.	776	
Tanzania			
Agent present	77.2%	89.0%	0.000***
Success rate (conditional on agent present)	88.8%	81.7%	0.000***
Success rate (unconditional)	68.6%	72.7%	0.040*
Overcharging rate (extensive margin)	3.8%	0.2%	0.000***
Overcharging amount (intensive margin)	2.4%	0.8%	.
Observations	1771.	772	
Uganda			
Agent present	69.2%	78.5%	0.000***
Success rate (conditional on agent present)	79.3%	83.3%	0.043*
Success rate (unconditional)	54.9%	65.4%	0.000***
Overcharging rate (extensive margin)	.	9.9%	
Overcharging amount (intensive margin)	.	4.8%	
Observations	1598.	800	

Note: Mean values by country. Sample of urban markets. Column 3 displays p-values for t-test of differences in means. Year 1 Local mystery shopping data from Uganda relating to overcharging outcomes is excluded because of known data quality issues stemming from the use of WhatsApp-based surveys. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 46: Key outcomes by method (including remote)

	PROFESSIONAL MYSTERY SHOPPING	CONSUMER INTERCEPT SURVEY	YEAR 1 LOCAL MYSTERY SHOPPING	YEAR 2 LOCAL MYSTERY SHOPPING	REMOTE LOCAL MYSTERY SHOPPING
Bangladesh					
Agent present	90.4%	.	75.6%	84.5%	93.8%
Success rate (conditional on agent present)	83.5%	100.0%	88.8%	88.9%	89.4%
Success rate (unconditional)	75.5%	.	67.1%	75.1%	83.8%
Overcharging rate (extensive margin)	0.6%	20.7%	0.9%	1.1%	0.5%
Overcharging amount (intensive margin)	1.0%	5.4%	0.3%	1.1%	0.7%
Observations	1660.	609.	1016.	1565.	501
Tanzania					
Agent present	75.4%	.	77.2%	84.7%	90.2%
Success rate (conditional on agent present)	82.1%	96.0%	88.8%	77.3%	95.7%
Success rate (unconditional)	61.9%	.	68.6%	65.5%	86.4%
Overcharging rate (extensive margin)	9.0%	7.6%	3.8%	0.3%	3.7%
Overcharging amount (intensive margin)	0.4%	4.2%	2.4%	2.0%	11.5%
Observations	1642.	819.	1771.	1540.	1608
Uganda					
Agent present	88.9%	.	69.2%	77.2%	82.7%
Success rate (conditional on agent present)	76.3%	96.7%	79.3%	76.3%	92.7%
Success rate (unconditional)	67.8%	.	54.9%	58.9%	76.6%
Overcharging rate (extensive margin)	16.8%	22.9%	.	12.1%	23.8%
Overcharging amount (intensive margin)	2.7%	14.8%	.	4.8%	3.1%
Observations	1632.	512.	1598.	1543.	1124

Note: Mean values by country. Consumer intercept survey data is excluded from means of agent presence and unconditional success because consumer intercepts by definition are conducted only when an agent is present. Year 1 Local mystery shopping data from Uganda relating to overcharging outcomes is excluded because of known data quality issues stemming from the use of WhatsApp-based surveys. Fee values that were bigger or equal to the transaction value dropped from Remote mystery shopping data.

TABLE 47: Main outcomes by time the agent has been in market

	RECORDED IN YEAR 1 CENSUS	ENTERED MARKET IN THE LAST YEAR
Agent present	82.1	82.0
Success rate (conditional on agent present)	80.1***	87.2***
Success rate (unconditional)	65.8**	71.5**
Overcharging rate (extensive margin)	3.4***	8.2***
Overcharging amount (intensive margin)	4.2	4.7
Observations	4049	599

Note: Stars indicate tests for difference in means. * p ‹ 0.05, ** p ‹ 0.01, *** p ‹ 0.001. Agents that entered in the last year were not recorded in the first census and entered the market between rounds.

Annex 3:
Research Datasets

Photo: Fiona Graham / WorldRemit

Research datasets

Accompanying this report, we published all microdata collected as part of the Transaction Cost Index. All de-identified datasets are available on the Harvard Dataverse, here: https://doi.org/10.7910/DVN/ESPXFK. This includes data from Year 1 and Year 2, and data from all TCI methods: collection of providers' listed prices and all fieldwork methods.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