How can Digital Financial Services better serve women in Kenya?

November 2020

This analysis is based on primary research, both quantitative and qualitative data, funded by the Bill & Melinda Gates Foundation

DFS LAB

fsd Kenya

Contents

Research team

The DFS Lab is an early-stage fintech accelerator focused on Africa bringing deep knowledge of how to launch and build fintech businesses for African consumers. Their portfolio as attracted investment from well known international venture firms including: Accel, NYCA, Anthemis Group, 500 startups, Y Combinator, Omidyar Network, Accion, Open Space Ventures, Consonance Capital, JWC Alpha Group and others. DFS Lab also conducts research to understand and support the growth of the financial services landscape.

Caribou Data is a data analytics firm that quantifies digital activity and behavior of consumers in emerging markets. We compensate our panelists for sharing anonymous data with us directly from their mobile device, which provides us with a 360-degree picture of consumers' digital activity and behaviors across platforms, networks, and financial service providers. And we've designed everything so that our data is anonymous and GDPR-compliant.

Hélène Smertnik
Senior User Researcher
Caribou Digital

Jake Kendall
Director
DFS Lab

Bryan Pon
Co-founder
Caribou Data

Research overview

Women selling sweets and fruits outside a shool in peri-urban area, Korogo

Background: Original research sponsored by the Gates Foundation, then re-framed and re-analyzed for this study

BILL & MELINDA GATES foundation

The original research was sponsored by the Gates Foundation. This research relies on data from an initial study supported by Bill and Melinda Gates Foundation aimed to understand how payments system design affects financial inclusion of women. The focus was their L1P principles.

Via focus groups and interviews we spoke with 80 end users, male and female (oversampling on female), through in-depth interviews and focus group discussions. Interviews were conducted in urban (Kenyatta University students), peri-urban (Korochogo, Gathundu, Nyayo and Gikomba) and rural (Lari) areas of Kenya. Their occupations included, MSME owners, teachers, smallholder farmers, street or market vendors, at home individual, widow or retired as well as mobile money agents.

Via the Caribou Data platform for analyzing anonymous smartphone data, we designed a representative panel of 1,000 Kenyans who use a smartphone and connect to the internet. Panelists shared anonymous transactional data and app usage data in exchange for monthly payments of airtime.

Key findings from the *original* multi-country Gates study

- **Improved payments design does matter for women.** Both quant and qual as well as discussions with experts shows this. Men's position allows them to more easily find ways around problems within existing systems.
- **A key finding was that a better designed system creates trust**, facilitates learning, and lowers the learning curve for women who have not had the same investments in their financial awareness but also have high expectations in terms of the relevance of DFS to their specific needs.
- **Beyond design principles, implementation is also critical** to keep new options and complexity from more open systems from overwhelming and driving up risks for inexperienced users.

6

Literature review: a brief summary

We reviewed key publications (see Annex for resource list) that discuss the issue of women and DFS, in Kenya and more broadly. Here are some key takeaways:

- Much of the literature focuses on the binary access gap of whether women have/have not access but nuances of how they use and what they experience are more important in Kenya.
- Much of the literature speaks about the need to create value (relevance of DFS) and agency of women as well as emphasising the social nature of DFS, but with little guidance on how.
- There is significant work looking at consumer education/training and agent networks in the context of gender.
- Only a few researchers look a the impact of specific DFS design features such as interoperability, irrevocability, KYC barriers and real time confirmations, on women's uptake .

Objectives of *this* research project

This piece of research for **FSD Kenya** aims to **provide actionable insights for Digital Financial Service Providers (DFSPs)** as well as policy makers and donors in Kenya.

- To understand the constraints and opportunities in women's interaction with digital interfaces and channels in Kenya.
- To look at the ways in which payment product design (e.g. interoperability, transactional flows, payment messaging, and interfaces) affect women's participation in both the formal and informal economies in Kenya.
- To develop actionable insights for policy and industry in developing a digital economy that is friendly to women.

Using two distinct methodologies

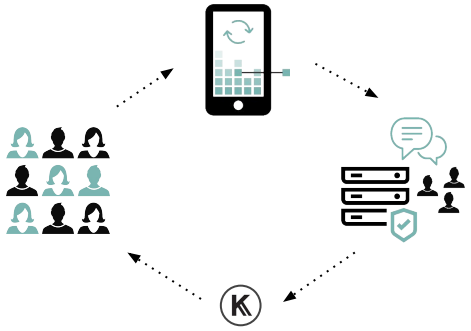
To answer these research questions, the team used two distinct methodologies to provide multiple perspectives and complementary insights into gendered financial services behavior in Kenya

Qualitative: Field work with end-users, expert interviews

80 Kenyans
In-depth interviews
Focus group discussions
Urban, peri-urban, rural
Over-sample on women

Narrative exploration of "how" and "why"

Quantitative: Passive financial activity data from smartphone users



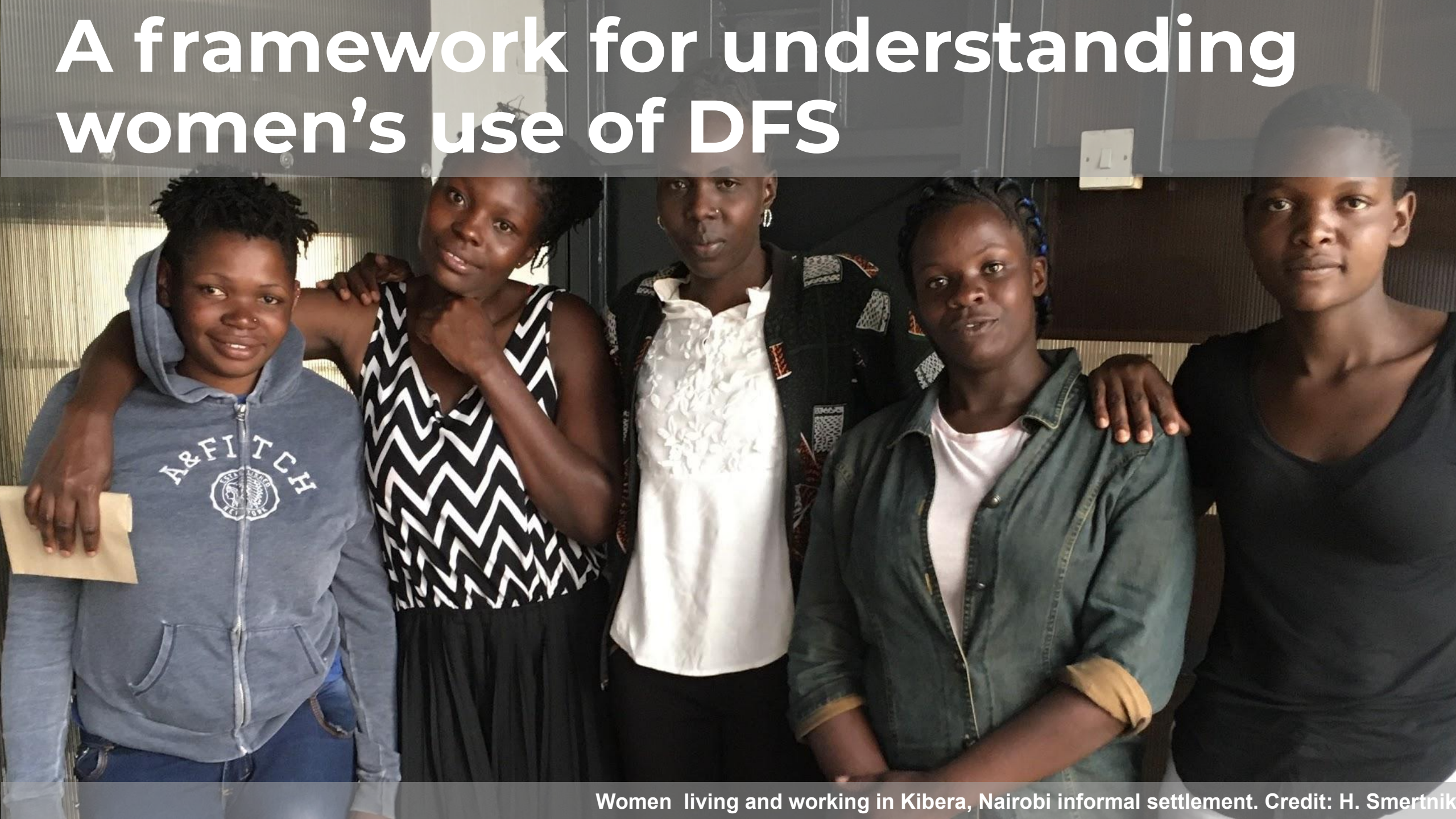
1,000 smartphone users
Anonymous + paid
Aggregate transactional data across P2P, CICO, etc.

Descriptive snapshots of "what"

DFS LAB

fsd Kenya

A framework for understanding women's use of DFS



Women living and working in Kibera, Nairobi informal settlement. Credit: H. Smertnik

A framework to understand women's financial services needs

We found two key pillars that were most relevant to women. Each pillar represents a broad cluster of specific needs and features which are more important to women:

Trust and confidence are critical for women when it comes to finance, **in particular older and lower-income groups**. Financial services should "*cultivate social relationships (...) and create upliftment*" for women rather than focus on a transaction-based contract. Trust, believing DFS to be safe and reliable, is built notably by ensuring agents' proximity to customers, their ability to inform on processes as well as through community-led awareness raising and training. Confidence in the reliability of DFS is created through payment features such as real time notifications, payment cancellations, and seamless interoperability.

Affordability and accessibility of digital financial services are important to both men and women. However, women in Kenya often have **lower incomes and are more "time poor"** and thus value saving money as well as **time and stress** when making a transaction. Price is key but so are things like agent proximity or ability to access via low cost phones in making a service more accessible and avoiding time consuming workarounds.

"If financial services are to become truly relevant to all Kenyans, affordability is critical. The current costs of many formal services will need to reduce further." FSD Kenya Annual Report (2018)

Six digital payment features affect women's usage the most

The qualitative research finds six areas that affect women through their impact on both **Trust and Confidence** as well as **Affordability and Accessibility**. These speak to the need for a **tech and touch** approach.

	Interoperability	Real-time confirmations	(Ir)revocability	Agent network	Consumer awareness	ID and documentation
TRUST, CONFIDENCE	Provides control, functionality and ensures usefulness of DFS	Provides control, assurance, secrecy	Provides control, but fear of fraud	Provides assurance, knowledge	Provides control, assurance, knowledge, self reliance	Provides Control, secrecy, relevance/ usefulness
AFFORDABILITY, ACCESSIBILITY	Interoperability increases competition and variety which reduces costs, and gives better value	Reduce missed transactions and time spent doing transactions	Reduce costs, reduce losses	Lesser fees, proximity and convenience	Understand pricing, avoid unnecessary fees, avoid fraud losses	Avoid informal work-arounds or side payments

The key research questions for both qual and quant workstreams

The two workstreams explore these themes from different angles, with the qualitative field work using traditional interviews and focus groups to explore lived experiences, while the quantitative smartphone data was analyzed for relevant indicators of activity (only 4 of the 6 themes).

	Interoperability	Real-time confirmations	(Ir)revocability	Agent network	Consumer awareness	ID and documentation
QUAL QUESTIONS	Women's experience of doing transactions between two different financial accounts, e.g. MPESA and Equity Bank. How does it compare to men?	Women's reliance on confirmation messages, what happens when they don't receive confirmations? How does it compare to men?	Women's experiences of cancelling and of reversing a payment, challenges they faced. How does it compare to men?	Women's reliance on agents, do they go to specific agents and why? How does it compare to men?	Observation on women's awareness of DFS features compared to men.	Women's experiences and sentiments around the need for ID to complete digital financial transactions. How do they compare to men?
QUANT QUESTIONS	Is there any difference in usage for loan products integrated into the M-PESA menu vs. standalone apps?	N/A	Who uses the M-PESA "reversal" function to revoke a transaction, and how successful are these requests?	Do users tend to go back to the same agent for CICO (cash-in/ cash-out) transactions?	N/A	N/A

While gender is the focus, we recognize that with many DFS behaviors, age or income are more influential factors

Both workstreams showed evidence of age and income having large impacts on DFS utilization and behavior. While outside the scope of this study, these intersecting demographic variables should be considered alongside gender for policymaking and service design.

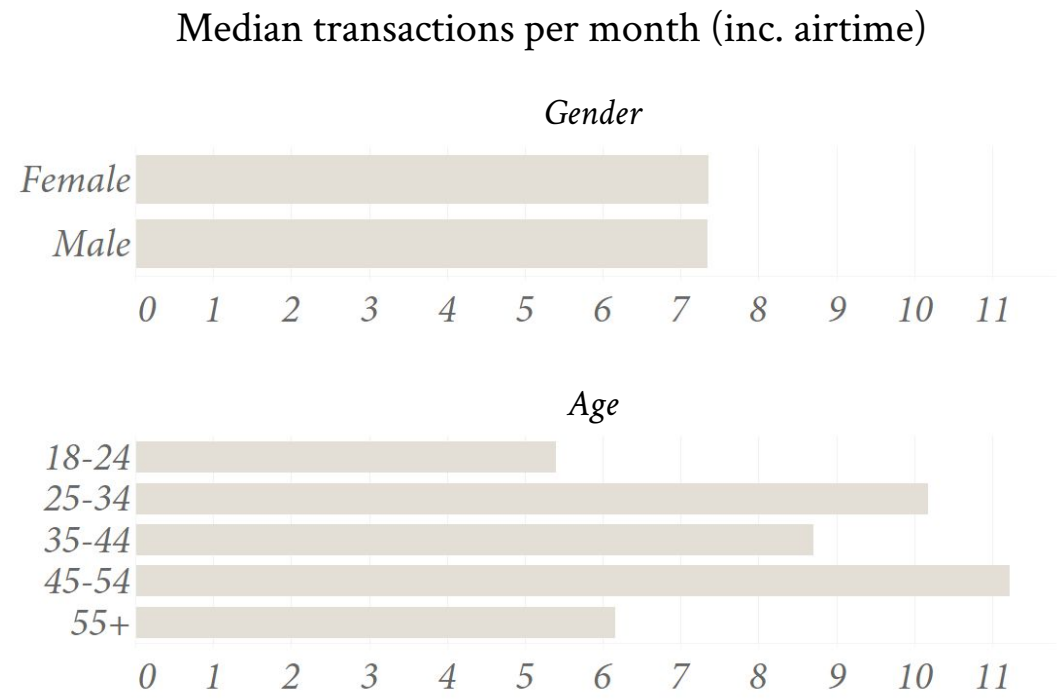
Qualitative workstream

The interviews encountered multiple respondents who referenced their age when describing limits of digital literacy or comfort using digital financial services.

"I find using smartphones complicated, I like touching the digits instead of a screen to have less chances of error."

— Mary, 47

Quantitative workstream



Qualitative insights from field work with general population

Rosie's experience: seamless interoperability enabled her to easily open an savings plan for her child

Rosie is 34, she works as a hairdresser in Kibera. She likes to save for the long-term and finds M-Shwari's locked savings account **answers her need as a mother** to save for her child.

Like Rosie, many women we spoke with wanted to demarcate money according to its usage and purpose, giving them a sense of **control.**

M-Shwari is a product from M-Pesa and Commercial Bank of Africa. Though most people don't see **"interoperability", it is crucial for seamless accessibility and use**.

"I started M-Shwari for my child. They have plans for children savings. It's the same as Safaricom with a different name. With M-Shwari you can put targets and reach them. The best is, if you change line, they transfer your savings to the new line."

Evelyn's experience: poor interoperability leads to distrust in the DFS when the money just "hangs somewhere"

Evelyn is 40, she sells vegetables in the outskirts of Nairobi outside a busy market. She doesn't **trust** transferring money from one account to another due to her past experiences:

"Sometimes you get your money hanging somewhere - up to 2 days! It is not in your M-Pesa, it is not in your Equity account, so it is hanging, and you get no message informing you... As a small business woman, I don't like that much so now, I prefer to withdraw the money and put it manually into the other account. I lose time but it feels safer."

This is the result of **poor interoperability implementation** between DFSPs and leads women to distrust the service. It also has an impact on the **accessibility** of the service, as Evelyn loses time and money when transferring money from one account to another, manually.

Interoperable services and third-party connections impact women's trust and ease of use most

Opportunities for increased usage by women

Interoperability lowers barriers to entry by financial services providers and creates possibilities for new products. This can lead to new kinds of **specialized DFS products**, such as M-Shwari locked savings account that are particularly **relevant to women.**

As Rosie's experience highlighted, interoperable specialized services have had a positive effect on the usage of women who value the relevance for their needs and the **sense of control** they provide.

Interoperability, by promoting competition also enables **lower prices** of services, which may impact women the most as owning smaller incomes.

Constraints on usage by women

Interoperability, when not seamlessly implemented can cause more uncertainty and **reduce trust for women**, as Evelyn's story suggests. Women concerns of money "hanging" in between networks make them more reluctant to transfer money and reverting to cash withdrawals.

Poor interoperability also impacts the **accessibility** of these specialised DFS products, as women will revert back to manual transfers from one account to another.

Finally, many women **didn't know** about the possibility of transactions between accounts.

Recommendations

- **To DFS and community-level organisations**: Ensure reliable interoperability and facilitate 3rd party connections, e. g. harmonising APIs, this is particularly important for women as they are known to send higher amounts than men to their network and family.
- **To policy makers and funders:** Support standardization of APIs and competition in the development of specialised DFS services that serve women's specific needs.

Carolyne's experience as an M-PESA agent: women rely on notifications more than men because it brings them confidence

Carolyne (an M-PESA agent) explains real-time confirmations give her female customers **confidence**:

"Women are more cautious, they will stay and wait at my shop to see that their money has been deposited and until they get the confirmation message. Men do not want to stay around.

Confirmations need to arrive on time for women to build confidence and save time.

A male client confirmed a different attitude:

"I usually give the agent the money and walk away. I know I will receive a message of confirmation during the day."

Real-time confirmations provide assurance and control to women

Opportunities for increased usage by women

Women more so than men reported relying on transactions happening in real-time for the **assurance** it brings them (i.e. not "hanging" money). Carolyne speaks to that reliance.

Hand in hand with the ability to make or receive transactions in real time, notifications in (near) real-time are also critical to provide the needed confidence to women's usage of DFS.

Finally real-time confirmations support better **accessibility** of the services, by providing immediate **assurance** and not having to **waste time** waiting for a confirmation before a women can move on.

Constraints on usage by women

While real time confirmations after a transaction are important to establish confidence, notifications may pop up at times when a women may not be able to keep her phone to herself and make her feel more exposed.

Secrecy is particularly valued by women as they may feel more vulnerable if others know how much money they have in their mobile wallet or details of transactions.

Users should have the **ability to set controls** on the messages they receive or turn them off all together.

Recommendations

- **To DFS and community-level organisations**: Ensure no delays in sending notifications once transaction is complete. Allow users to set preferences for when and how they are contacted.
- **To policy makers and funders:** Support deeper research to define best practices for notification/confirmation control for women. Help set market rules for notifications coming from multiple providers within interoperable context.

Helen's experience: as a small merchant, the option to revoke payments has led her to lose money and revert back to cash

Helen, 28, sells shoes in the second-hand Gikomba market in the outskirts of Nairobi. She has had issues with customers revoking payments after purchase which made her revert back to cash.

"After you've finished with the customer and you receive the confirmation message, you put the phone away. But then you find out later that they have reversed (revoked) the money. You call customer service but the customer has already withdrawn the money so nothing can be done. Now, I ask my customers to pay me cash - less trouble this way though I risk losing my customers if they don't have money in hand."

Irrevocability not only avoids these issues once payment went through but also makes services more **affordable** to customers. The cost of revoking features on a DFS is high.

Immaculate's experience: being able to cancel—not revoke—a payment has grown her confidence in using DFS

While the process to revoke a mobile money transaction is time-consuming, ad-hoc, and adds cost, the ability to cancel a payment before it is finalized and sent to the recipient is a **convenient** and crucial feature to bring women more **confidence and trust** in using DFS.

Immaculate, 55, speaks to the significant relief she felt when M-PESA installed the "25 second" rule to confirm or cancel a payment transaction before it went through:

"It really has changed things for us now that we can cancel a payment. Before it was much more stressful! I often didn't do the payment and had to have my son do it for me. Now I can do it on my own because I can cancel if I make a mistake."

Cancellation vs. revocation: One brings trust, and the other complication

Revocability is the ability to reverse a digital payment after it has been sent to the recipient, as opposed to cancelling a payment before it goes through.

Opportunities for increased usage by women

In Kenya, the ability to cancel a payment and the 25-second window for confirmation had value for women, making them able to **trust** it more and much more **convenient** than having to ask someone else to do it for them.

Revoking a digital transaction is also possible but in an ad hoc manner that is **neither seamless nor guaranteed.** This creates the worst of both worlds where revocation is not guaranteed for the sender but still raises challenges for receivers who can not rely on the transactions for commerce.

Constraints on usage by women

Revoking payments, in addition to **not being guaranteed**, can also lead to fraud for merchants selling goods, as Helen's experience highlights.

These experiences have led some women merchants to go back to cash for **lack of trust** in transactions.

Beyond the 25 seconds, there are multiple ways the transaction flow could be improved to confirm sender and amount and assure accuracy (see following slide).

Recommendations

- **To DFS and community-level organisations**: Adopt best practices around cancelation and confirmation. Allow easier, within-menu request for return of funds, provided the receiver consents.
- **To policy makers and funders:** Support best practices in terms of cancellation and revocability of payment (see next slide). Convene market players to adopt industry standard, especially in interoperable context. Publicize A/B testing research into best options.

Best practices for cancelling or revoking transactions, from discussions with experts

Measures *before* funds are sent

- Time delay: e.g. M-Pesa has a 25 second time delay -- other delay lengths can also be explored
- Additional confirmation screen before sending payment
- Name matching: recipient name confirmation
- Algorithm to notify users that funds were previously not sent to this person
- Funds were sent to this person, x number of times, total cumulative amount and date of last transfer
- Store payees, allowing user to select rather than input phone/account number for repeat transactions

Measures *after* funds are sent

- Allow senders to request zero-cost return of funds via the system (today, senders phone the recipient and request them to return the funds - which then requires the recipient to make another transaction in the opposite direction, and this attracts a fee)
- The above allows the recipient to provide consent electronically and the funds returned without additional fees.
- Providers need to have a process in place to deal with return requests and be able to take interim measures to freeze funds (this is tricky as it is often one person's word against another's).

George's experience as an M-PESA agent: women rely on agents to do their transactions more than men

George, 31, owns a hair and cosmetics shop and is also a licenced M-Pesa agent in peri-urban Nairobi. He is in a strategic location, surrounded by hair salons and his clients are mostly female. He explains why he thinks agents make women more **confident** in the service:

"For the past five years as an agent, I see ladies want to be sure more than the gents and that's why agents are important. Ladies will come and say "I want to withdraw, can you help me and enter the agent number for me."

Some respondent suggested that going through an agent to do transactions would mean **lesser fees,** even if it takes more time.

For women, agents are critical for **accessibility** and to establish **confidence**.

The importance of agents in providing trust in DFS for women

While not part of the payment design scheme, agents are a crucial part of mobile money's success, and are particularly valued by women.

Opportunities for increased usage by women

Women rely on CICO agents to do transactions and learn about the service (but don't necessarily feel they need to have women agents).

Without agents, women would have less **trust and confidence** in DFS. This is particularly the case of older or less digitally savvy women who ask agents to do certain transactions (e.g. send money) as well as get product help.

As a result, **accessibility - proximity** - of agents is particularly key to guarantee women's usage of DFS.

Constraints on usage by women

The reliance on access points/agents could make women **less independent** in making transactions that they could do themselves.

More care should be taken to find other ways to support women's' usage that compliments the support they get from agents.

Recommendations

- **To DFS and community-level organisations**: Ensure wide coverage of agent networks, including in the last mile to enable proximity with women; make sure agents are skilled in guiding inexperienced users and helping them build confidence.
- **To policy makers and funders:** Continue investing in wide agent networks including in the last mile given the critical impact they have on confidence in usage, in particular for women. This may include not only MNOs' networks but other formal or semi-formal institutions providing DFS to the last mile.(Also see FSD reports here and here that speak to these recommendations).

Suzy's suggestion: women, especially elders, like to learn from peers' experiences rather than receiving SMS or advertisement

Suzy and her group of friends live outside Nairobi. Their favourite way of **getting informed** is through their own network (e.g. community groups, chamas) – in particular other women.

"If the providers could get more people educated to pass the message among themselves it would be better than pamphlets or random texting. If we receive a call we can't be sure the person is real, if we get a SMS we may not be able to read it and if it's a pamphlet we may not accept it.

Instead we will think "who do I know, has used this type of thing, and can tell me about it?"

Consumer awareness and training, in particular at community level, is needed for women to grow their DFS usage

Opportunities for increased usage by women

Women expressed a greater need and curiosity for consumer awareness around usage of DFS.

Informing women and tailoring the messages and the ways of sharing them to their needs and habits was considered to positively affect women's **trust** in the usage of DFS.

Constraints on usage by women

Women – especially in rural or more remote communities - preferred learning through peer-peer experiences which they could relate to more than pamphlets and formal litterature.

Working through social networks and existing community groups should be considered best practice when engaging women.

Recommendations

- **To DFS and community-level organisations**: Put in place trainings, at community level, to ensure that new DFS products are known and well understood but also that they respond to women's specific needs and challenges. For DFS providers to engage directly with women's group for effective consumer awareness but also to understand women's specific needs and usage. (See CGAP's Voice of the Customer Toolkit)

- **To policy makers and funders**: Invest in shared infrastructure and research to support trainings and education of population, specifically "investing in financial numeracy skills and building awareness of financial concepts - particularly among those who are less educated or below to minority groups." Work with DFS and community groups to understand women's financial preferences. (See FSD Kenya report here that speak to this recommendation)

Violet's experience: having registered with her father's ID is restricting her usage of DFS

Violet, 20, lives in Kibera, an informal settlement of Nairobi. Like several of her friends she registered her SIM using a parent's ID because she didn't have her own.

"I registered with my father's ID. Sometimes the agents ask me where my ID is but it's with him in the village so I am not be able to do the transaction."

While ID coverage of women is high in Kenya, they are still more likely to not own the National ID required to register a SIM and access DFS services.

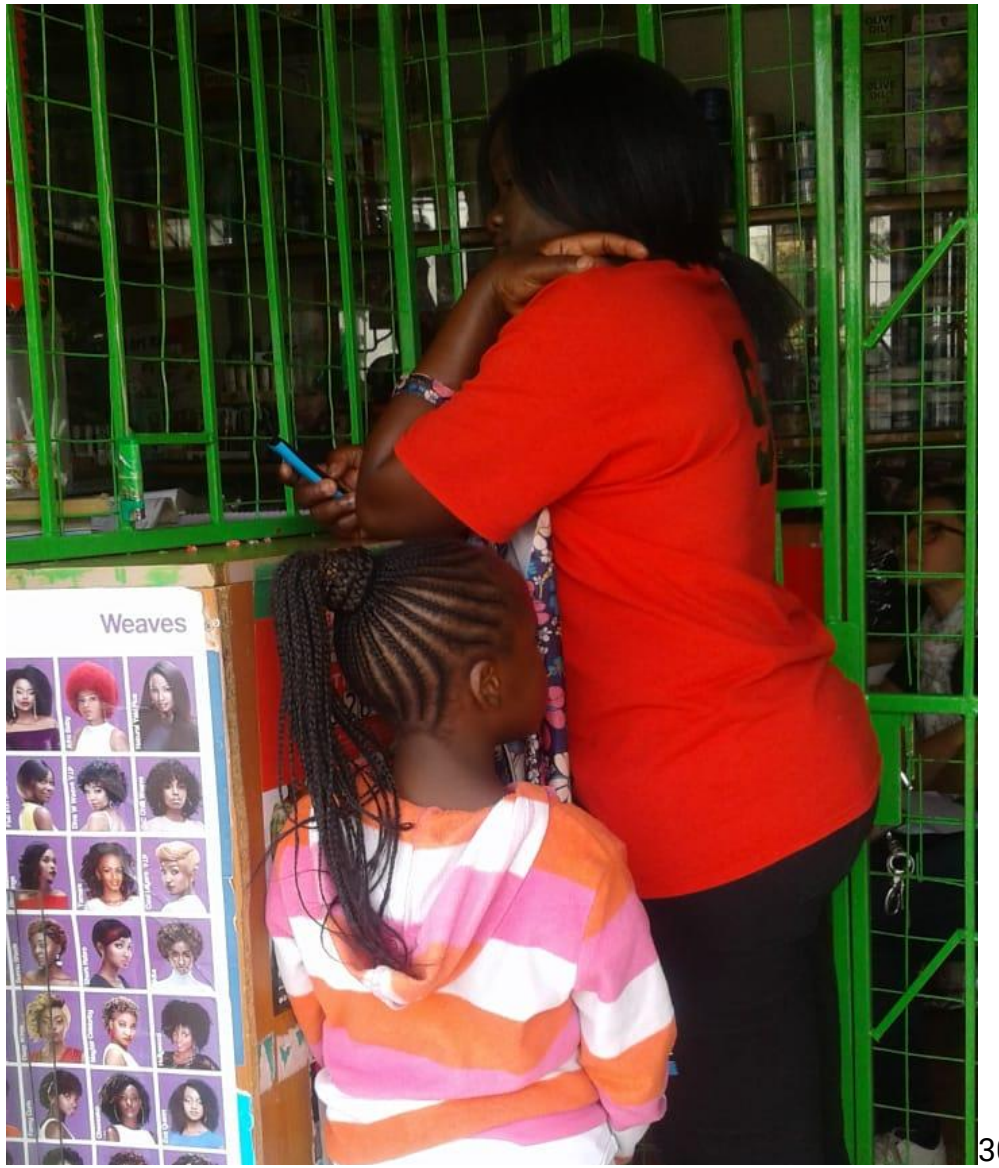
A tiered KYC, enabling women to access the most basic financial services without an ID, or very limited ID, will more positively impact them, compared to men.

Julia's experience: DFS are easier to access than banks in terms of KYC requirements and that helps her

Julia lives in rural Lari, 2 hours outside Nairobi. We asked her and her colleagues why they may prefer using mobile money over banks to understand if documentation was an issue.

"Women may not have as easy access to collateral like men do. Our income is small, we may not own a house, so banks don't give us loans. With the Sacco, you need a guarantor and I may not want to tell my husband I'm taking a loan because he will request I give him the loan money.

With mobile money it is easier, they don't ask for big collateral they just check if you repay your loans on time. It's beneficial for us."



ID and documentation barriers

Opportunities for increased usage by women

As Julia's story suggests, women may be more positively impacted compared to men by DFS' lesser ID and documentation requirements as opposed to banks or Saccos full KYC requirements. The example of documentation for loans was the most mentioned by women. Tiered KYC enables them to keep **control** over their own finance instead of relying on a husband, family or friend. As a result, it also ensures more **secrecy** which women particularly value.

The national ID requirement was only sometimes an issue (ID4D states 94% female national ID coverage), but other forms of identification needed to open a bank account could be problematic (utility bill, letter of reference etc).

Constraints on usage by women

A tiered KYC for DFS is advantageous for women who want to **access** more basic DFS without having to provide much documentation is needed.

However, there are risks in **too easy an access**. Some women emphasized the need for ID checks on cash out as a guarantee that the money wasn't being appropriated and that the agent was serious. Also, they weren't always sure that providing loans without proper verifications of the ability to repay was safe.

Recommendations

- **To DFS:** Develop digital financial products with tiered access in order to allow customers without or very limited ID to have access to basic financial services. Reduce all KYC requests to strictly those documents that truely mitigate risk.
- **To policy makers and funders:** Facilitate easier KYC processes for women with less ID access

A note on the relevance of digital payment features during COVID-19

Recent literature around the impact of COVID-19 on women and the possible benefits of moving to digital finance is relevant to this conversation. A lot of questions look at how to incentivise women's use of DFS and move away from cash which still prevails.

Our research does not look at COVID-19 but is in line with some early suggestions, some of which are already in place:

- The need support agent networks in maintaining liquidity, sufficient revenue, and hygiene best practices
- Ensuring low KYC and documentation barriers as well as higher transaction limits to encourage use for digital payments
- More adapted consumer education to overcome the obstacles of low literacy and numeracy and linked with hygiene information

Quantitative insights from smartphone activity data

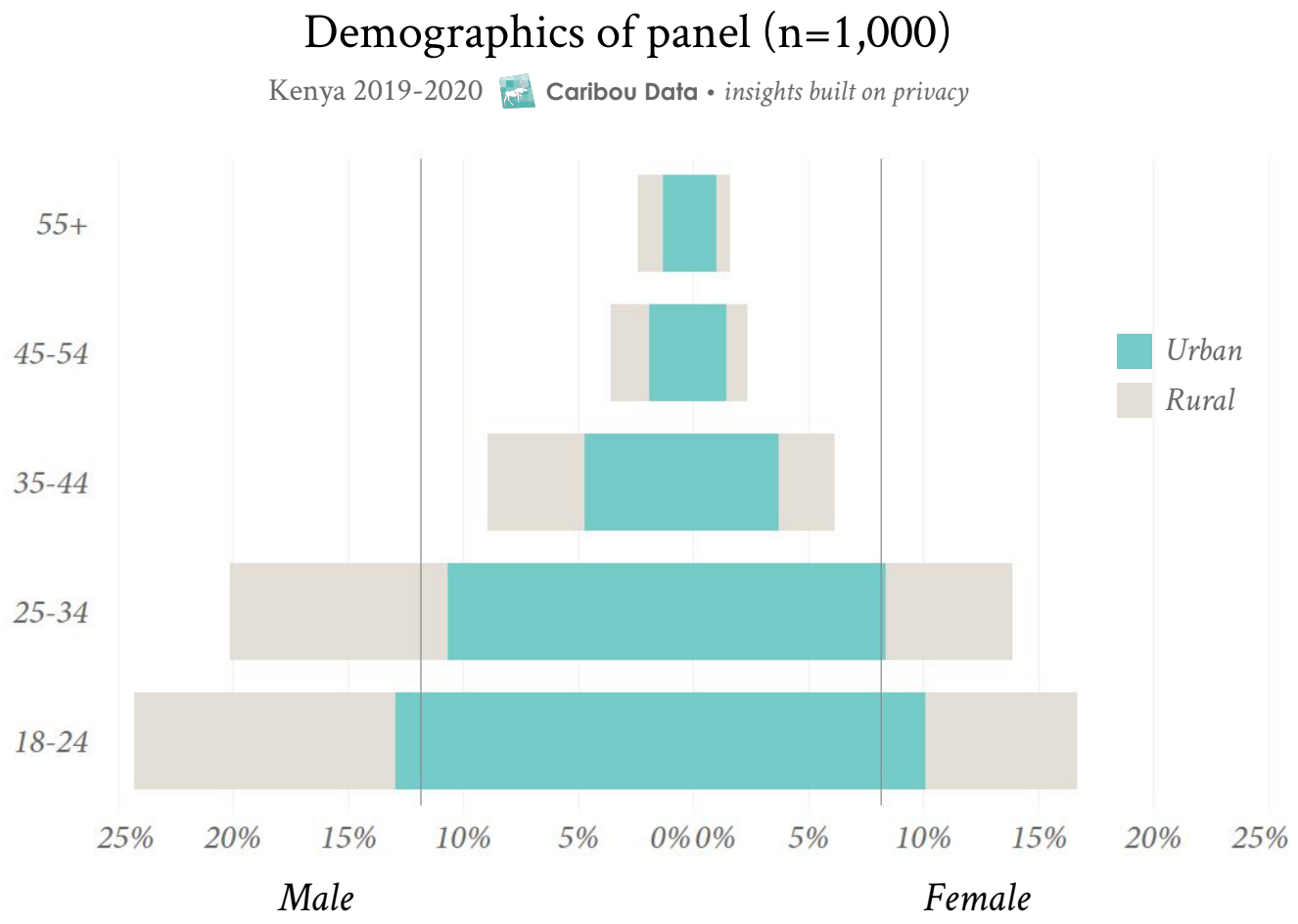
Exploring gender biases in the next generation of financial services through the prism of smartphone ownership

To understand the near-future of financial services, we analyze quantitative activity data from a panel of Kenyan smartphone users

We complement the qualitative workstream with a quantitative exploration of gender biases among smartphone users in Kenya.

This analysis is based on an anonymous panel of 1,000+ adults with an Android smartphone who at least occasionally use mobile data. Importantly, this results in a sample population that is higher-income compared to the respondents in the qualitative research.

We design the panel first with interlocking quotas for gender, age, and urban/rural locality, and then rebase for the 18+ adult population. We then revise those quotas based on any available household survey data on smartphone ownership and use of the internet, which typically skews the sample more urban, male, and young (e.g., our panel was designed to be 35% female). When necessary, we correct for these biases using standard sample weighting techniques.



We use a simple, 4-way segmentation to disentangle differences due to gender vs. income

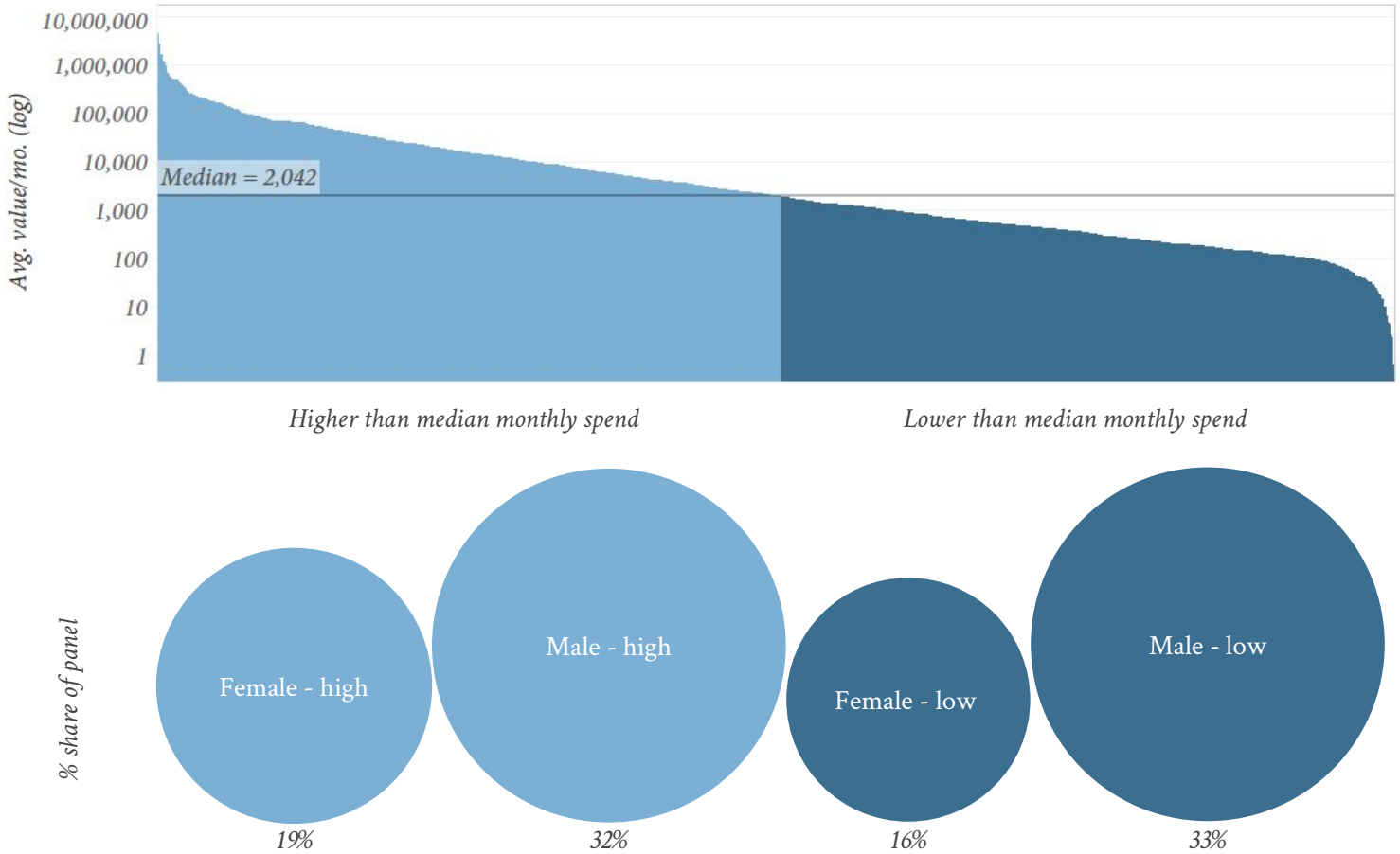
Our working hypothesis from previous studies is that **among the smartphone population, the differences in gender use of DFS are less pronounced** than the general population, as this population is largely of a higher socioeconomic level.

Therefore for this analysis we use a simple 4-way segmentation based on gender and transactional activity as a proxy for income. We calculate the median monthly value transacted across the panel, and divide the panel into those above and below the median monthly spend.

This gives us the resulting 4 groups of *Female - high, Female - low, Male - high, Male - low*.

4 segments based on gender, median monthly value transacted

Kenya 2019-2020 Caribou Data • *insights built on privacy*



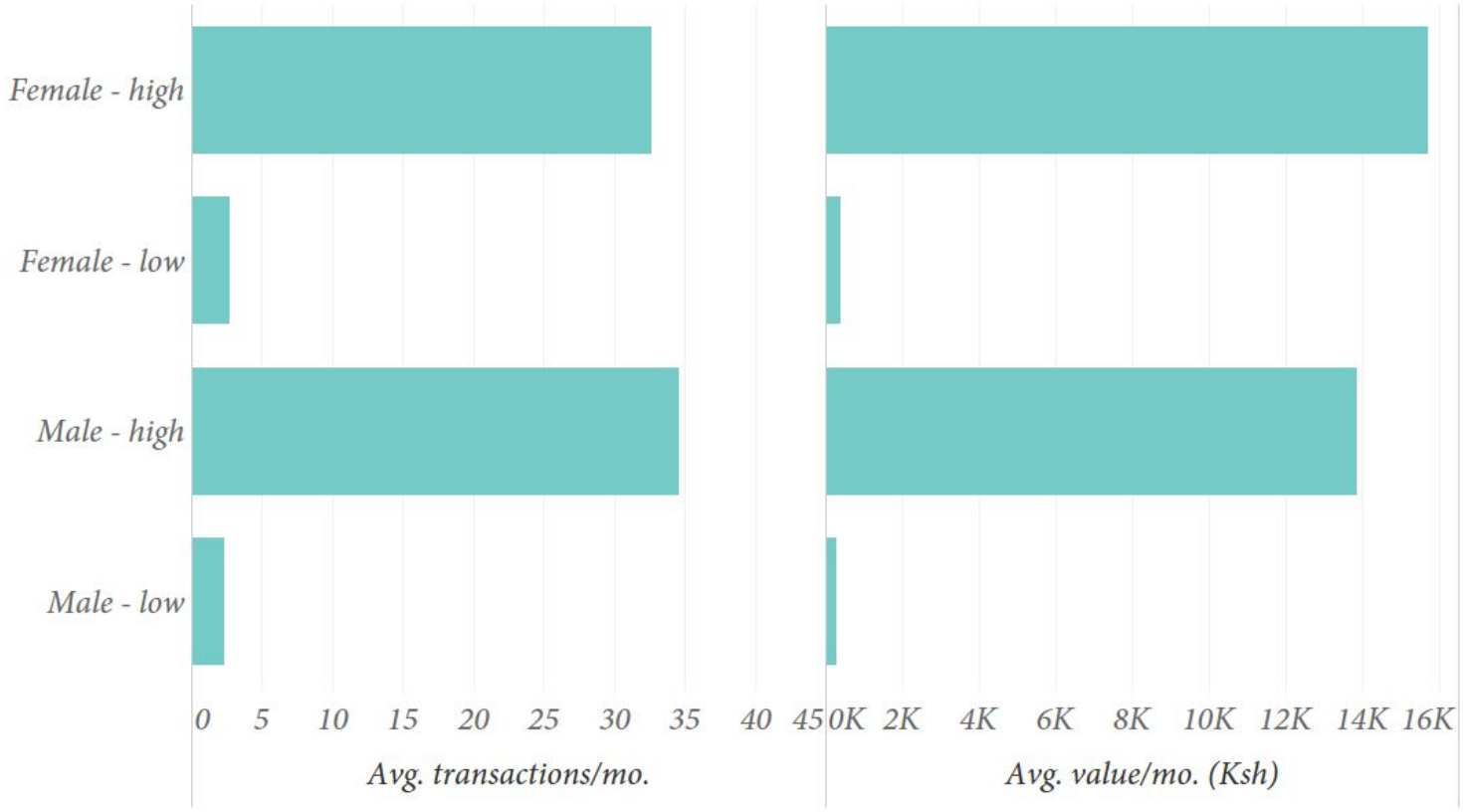
Baseline financial activity of each segment shows gender parity, but large difference between higher- and lower-income groups

In Kenya, men and women from our panel (i.e. smartphone users) have very similar transactional profiles in terms of average frequency and value transacted, and this holds across both the higher income and lower income groups.

But controlling for gender and looking only at income shows dramatic difference in activity. This is of course somewhat self-referential given that one of the dimensions of the segmentation is average value transacted, but the size of the difference highlights how skewed the distribution is—i.e., there is a very long tail of lower-income transactors who have very little activity.

Average transaction frequency and value, by segment

Kenya 2019-2020 Caribou Data • *insights built on privacy*



Type of transactions also varies dramatically by income, but is almost identical for women and men

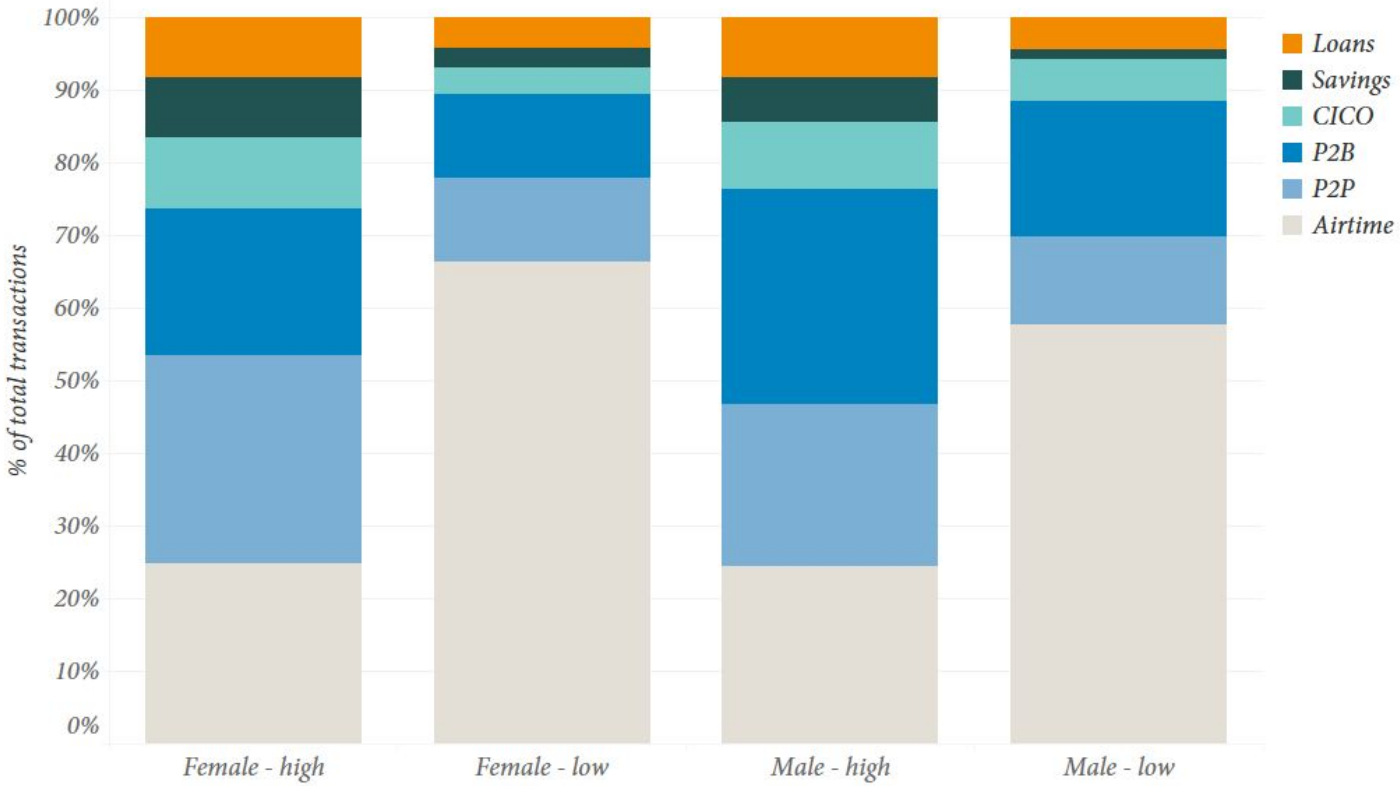
Among our sample of smartphone users, women and men have very similar transactional profiles when it comes to the frequency with which they perform each type of transaction.

The analysis categorized over 180,000 transactions to show the relative share of each type of transaction. For higher-income groups, roughly 25% of transactions are airtime/data top-ups, 25% are P2P, and 25% are P2B (merchant pay, bill pay). In the lower-income groups, top-ups constitute a much larger percentage overall, about 60%-65%.

Overall, men do slightly less savings activity, and more P2B, though this latter is skewed by the high levels of gambling (which falls under P2B).

Share of transactions, by type

Kenya 2019-2020 Caribou Data • *insights built on privacy*



We next explore 4 of the 6 research themes, using smartphone data in novel ways to see potential differences due to gender or income

Interoperability

We ask:

Is there any difference in usage for loan products integrated into the M-PESA menu vs. standalone apps?

(Ir)revocability

We ask:

Who uses the M-PESA "reversal" function to revoke a transaction, and how successful are these requests?

Agent network

We ask:

Do users tend to go back to the same agent for CICO (cash-in/ cash-out) transactions?

Consumer education

We ask:

To what extent can we see fee avoidance behavior, which would suggest awareness of fee structures?

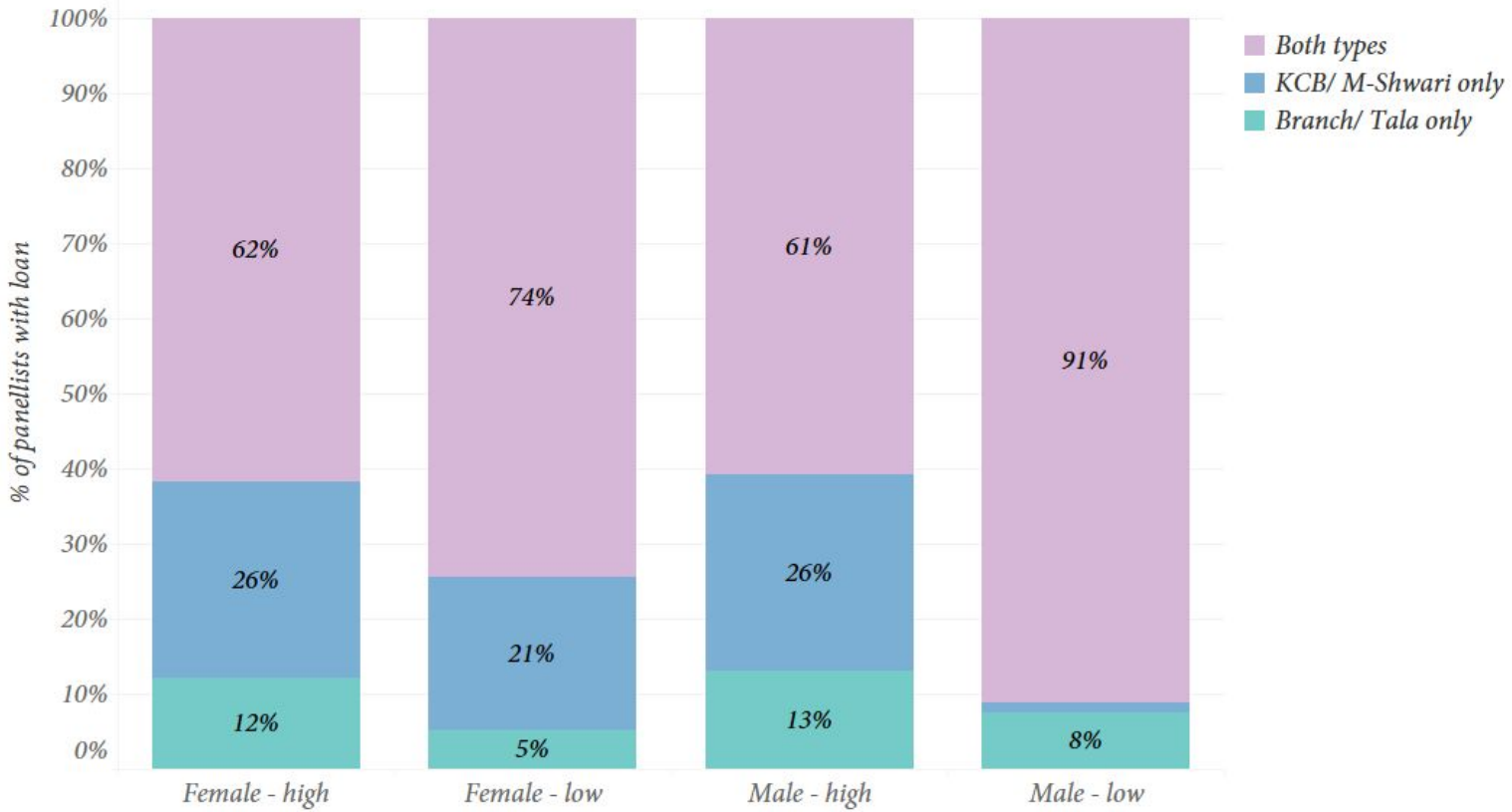
More than ⅔ of borrowers utilize app-based loan products as well as those that are integrated into the M-PESA menu

To explore how interoperability of DFS might impact usage, we analyzed two categories of digital credit products: Those offered through standalone apps, and those that are integrated into the M-PESA menu. We take this latter category to be a proxy for how interoperable services might manifest in other market ecosystems (i.e., where there is not a dominant player like Safaricom).

We show that amongst borrowers, more than ⅔ of people use both types of loan product. Somewhat surprisingly, this "multi-homing" was more pronounced for the lower income groups. The gender differences were minimal except for the lower-income male group as the most aggressive in taking advantage of multiple credit products. This fits some descriptions of young men being the most prolific users of app-based credit products.

App-based loans vs. M-PESA-integrated loans

Kenya 2019-2020 Caribou Data • *insights built on privacy*



Though there is a clear pattern of younger borrowers being more comfortable with app-based loan products

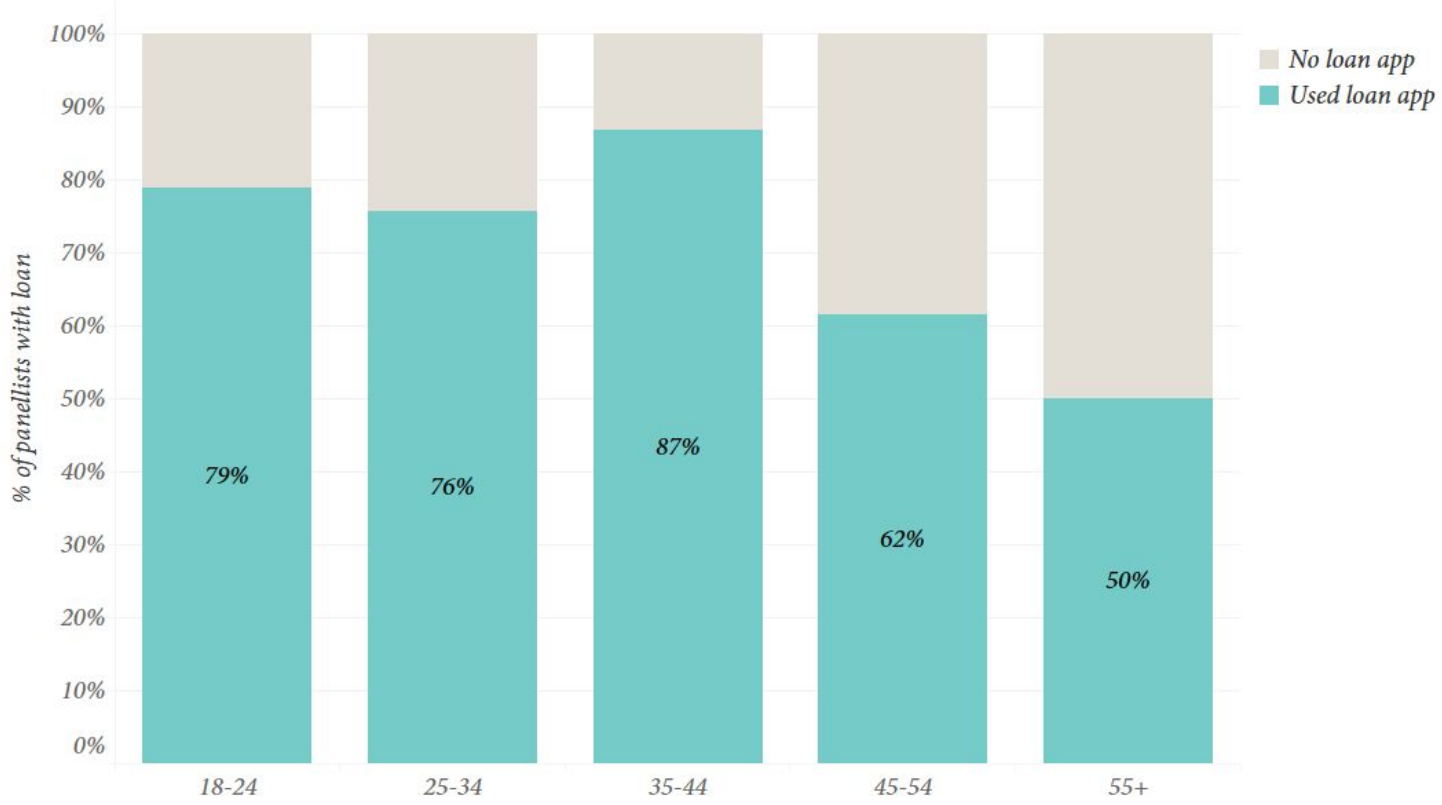
To dig deeper into digital credit behavior, we take another view based on age and usage of app-based loan products only.

We show that amongst borrowers, the vast majority of people have used standalone app-based loans, though that share is highest in the younger age ranges.

This fits anecdotal accounts of older users being less comfortable or digitally literate with smartphone apps, and therefore less likely to pursue financial services products based on them.

Usage of app-based loan products, among borrowers

Kenya 2019-2020 Caribou Data • *insights built on privacy*



Higher-income users are much more likely to utilize M-PESA reversal function, and men are more likely to have successful reversals

To explore the idea of irrevocability, we examined the "reversal" function of M-PESA, which is initiated by the sender after the payment has credited to the receiver account.

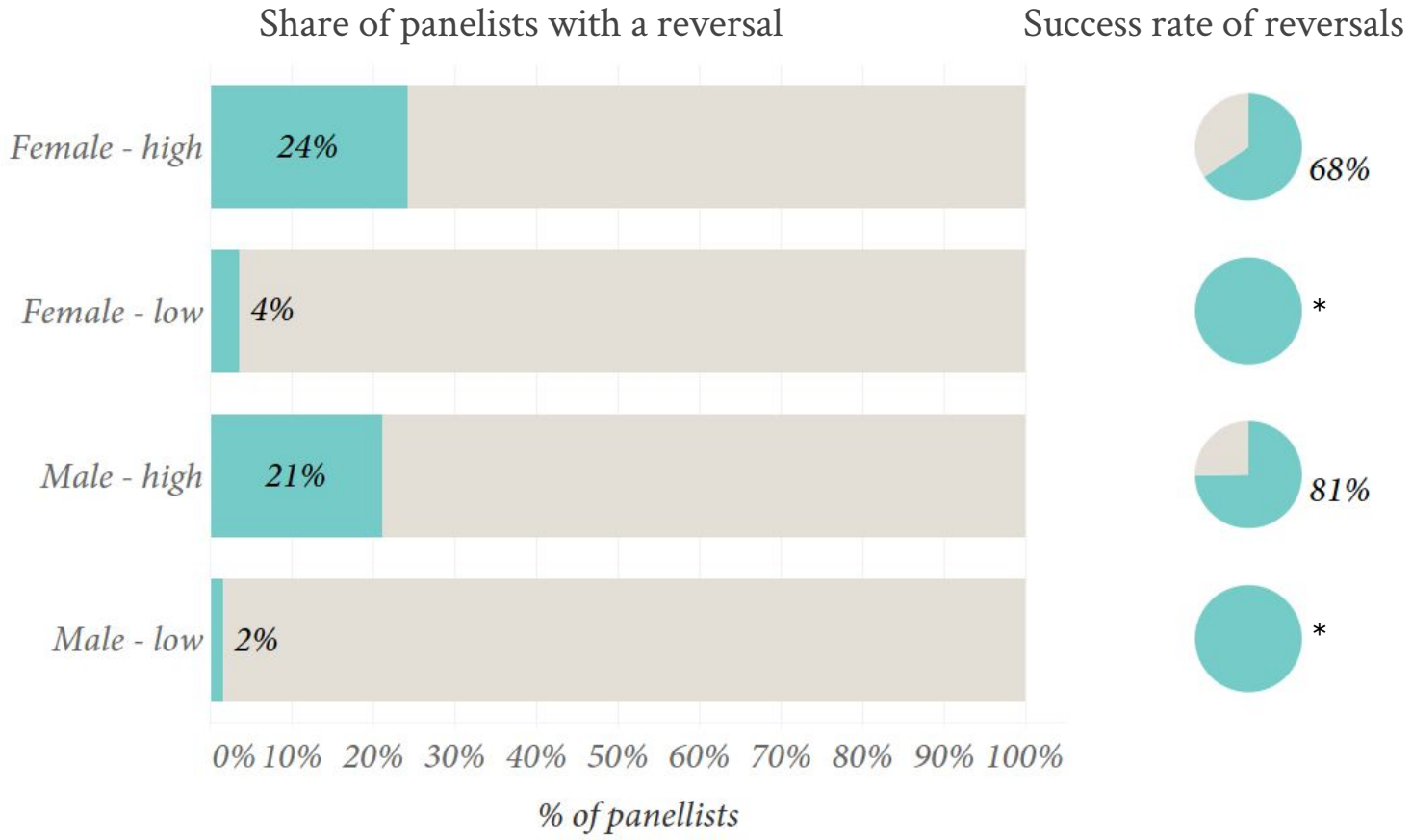
We found that overall, about 13% of panellists had a reversal, which echoes the finding from the 2019 FinAcccess survey, which found 22% of users claimed to have sent money to the wrong number (presumably not all who sent money to the wrong number tried to reverse).

The share with a reversal was much higher for higher-income users of both genders, with ⅕ - ¼ of those panelists having an reversal.

Interestingly, men had more successful reversals, with 81% of the high-income group successful vs. 68% for high-income women. We don't have a hypothesis to explain this.

Utilization and success rates of M-PESA reversal function

Kenya 2019-2020 Caribou Data • *insights built on privacy*



* The number of actual reversal transactions in these segments was too small to draw general conclusions

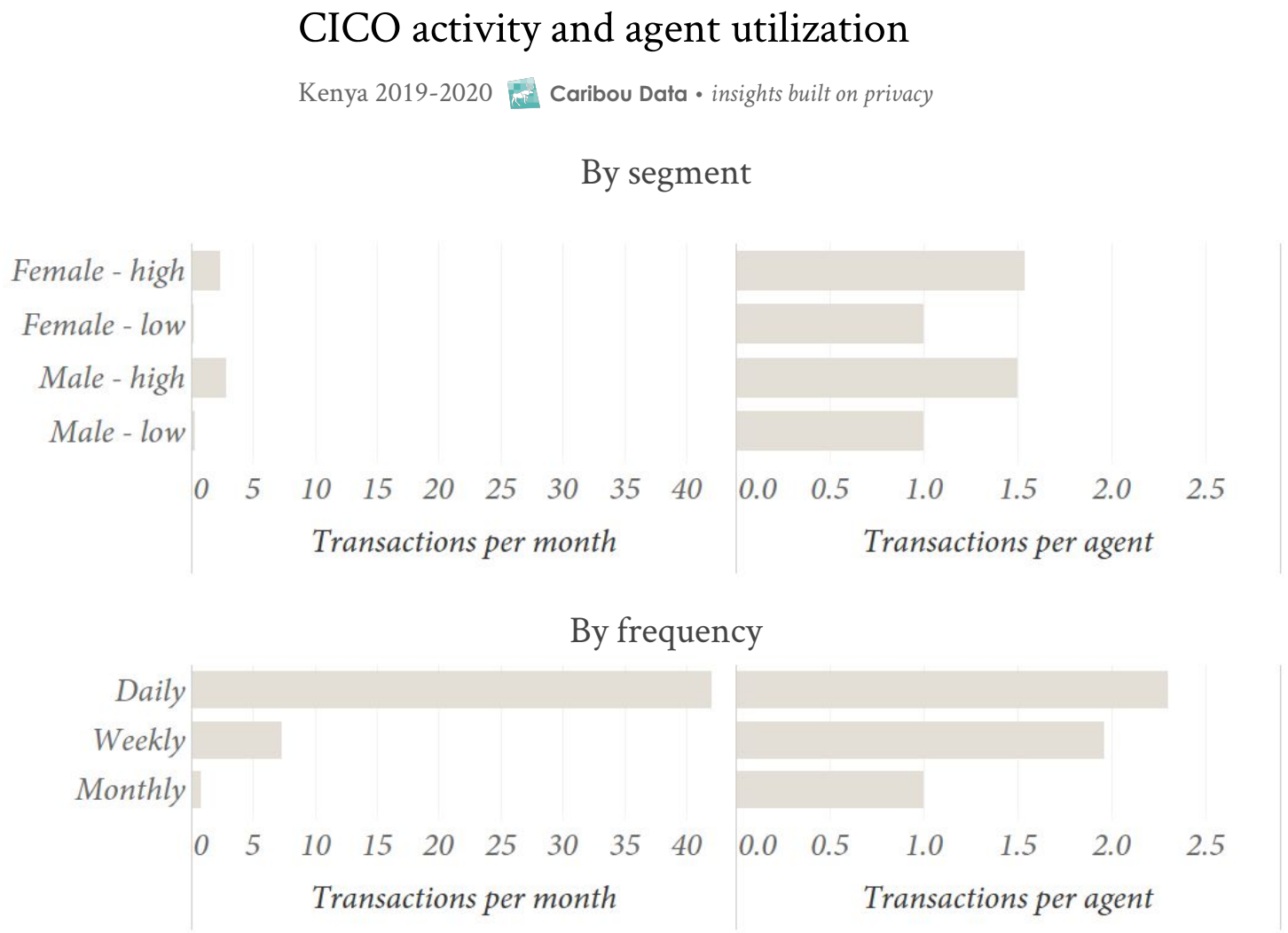
Agent utilization rates vary with income more than with gender, but even the most frequent users average only ~2 CICO transactions per agent

To explore the role of mobile money agents, we focused on CICO (cash-in/cash-out) transactions, and calculated for each segment the average number of CICO transactions per agent.

Given the findings from the qual interviews that many women look to the agent as a trusted intermediary, **we hypothesized that we may see women tending to use the same agent(s) over time.**

However, we see virtually no difference in the number of transactions per agent between the genders. Instead, we see a strong pattern based on frequency of CICO transactions, whereby **the more frequently the user does CICO, the more likely they are to use the same agent(s).**

This suggests that for smartphone users, agents have become commoditized and offer little in the way of differentiation apart from their location.



Men are significantly more likely than women to make P2P transactions that avoid fees, regardless of income level

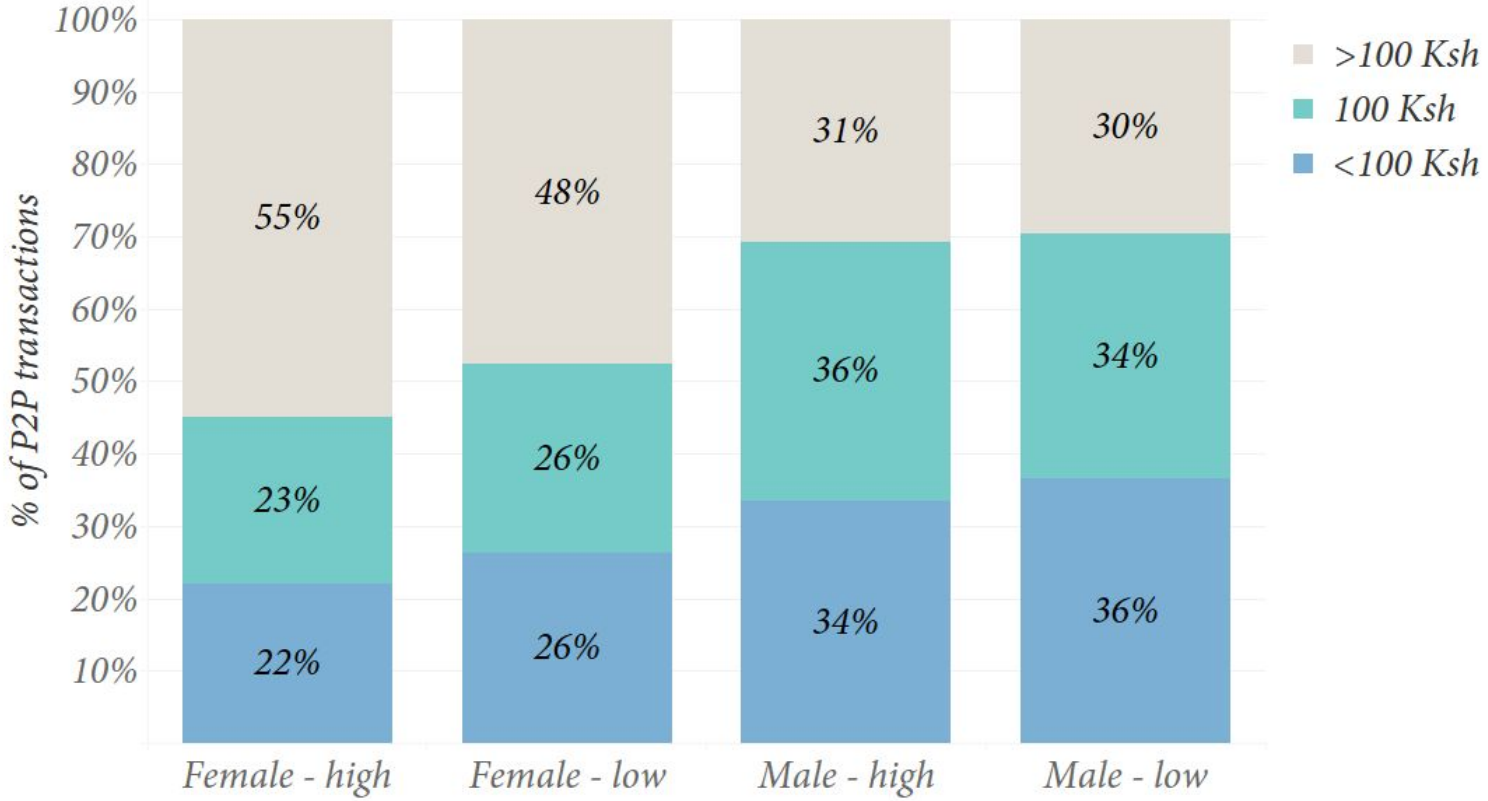
One of the most compelling findings comes from this analysis of fee avoidance behavior, which shows a very strong gender bias toward men being more likely to make smaller payments to avoid fees.

In this analysis we examine P2P transactions, comparing share of transactions that are below, at, or above the Ksh100 threshold that introduces fees (we limit the time series to pre-Covid fee structure).

Both male income groups have substantially higher share of transactions below and at Ksh100 compared to women. Below Ksh100 could arguably be an artefact of the price (i.e., buying something for Ksh50), but we assume many of the payments right at the threshold of Ksh100 are fee avoidance behavior. And in both of these categories, men have a much higher share of their transactions.

Share of P2P transactions above/below fee threshold

Kenya 2019-2020 Caribou Data • *insights built on privacy*



We also explore how other affordances and constraints shape digital financial behavior

Data and apps

We ask:

How do data consumption and app session time correlate with our gender and income segments?

User interface

We ask:

Who uses the SIM menu/USSD for making transactions vs. using mobile apps for transactions?

Device cost

We ask:

Are there gender differences in the cost of the device? and does device cost impact transactional activity?

Men consume more data and spend more time in apps, along with both higher-income groups

Both higher-income groups consume significantly more data and spend more time in apps compared to their lower-income counterparts.

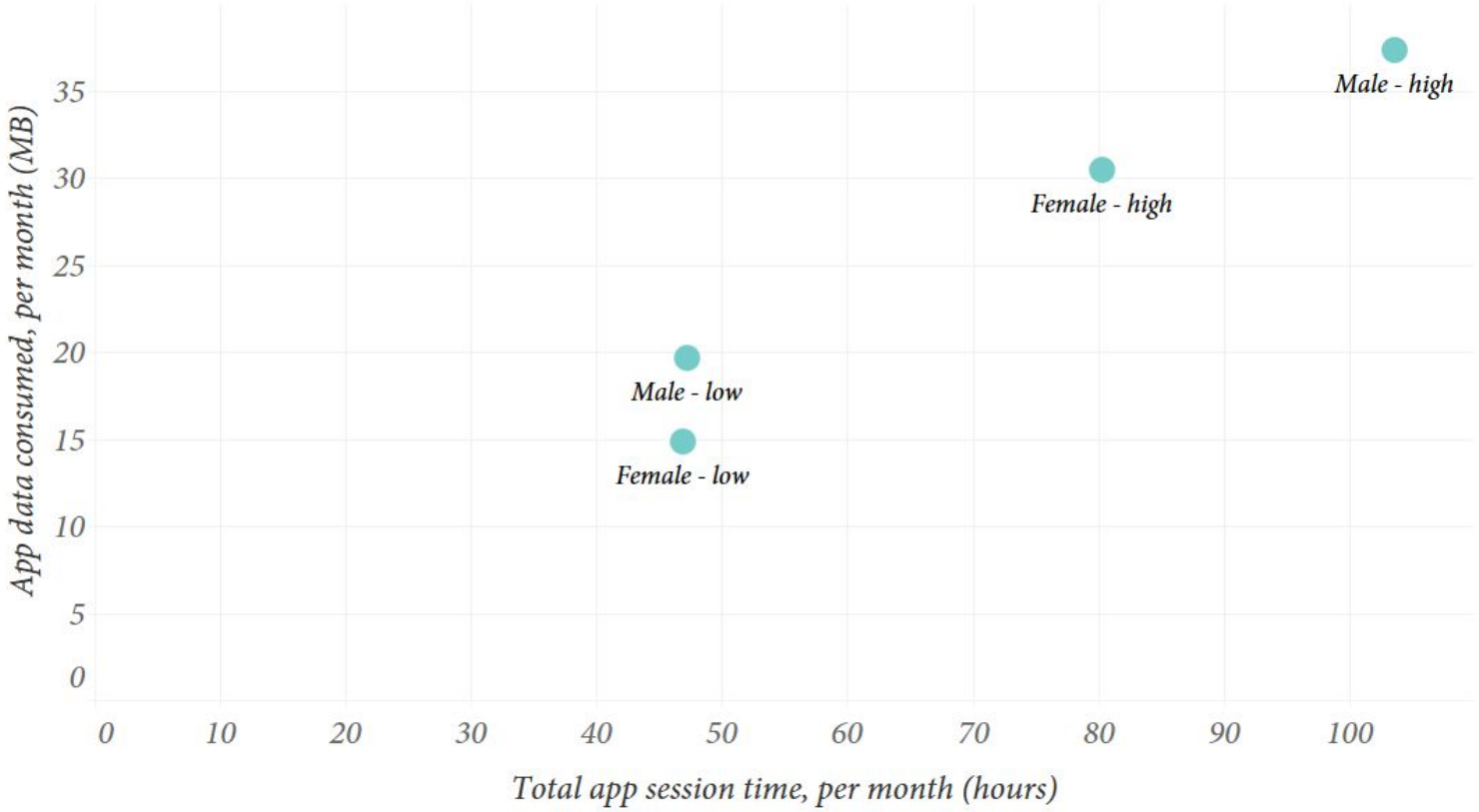
And we do see a gender difference here, as men have higher data consumption and spend more time in apps compared to women.

These trends suggest a generally higher level of comfort or interest in apps and internet usage by men.

“Data consumed” measures the average megabytes (MBs) of data consumed by the device, including both via cellular network and wi-fi network. Session time” is the measure of time between when an app is opened (foregrounded) and then closed (backgrounded). It can be independent of data consumption because not all apps or app sessions require a data connection.

Time spent in apps and data consumed

Kenya 2019-2020 Caribou Data • *insights built on privacy*



Women and men have surprisingly similar device prices, while both the lower-income groups show only modestly less-expensive prices

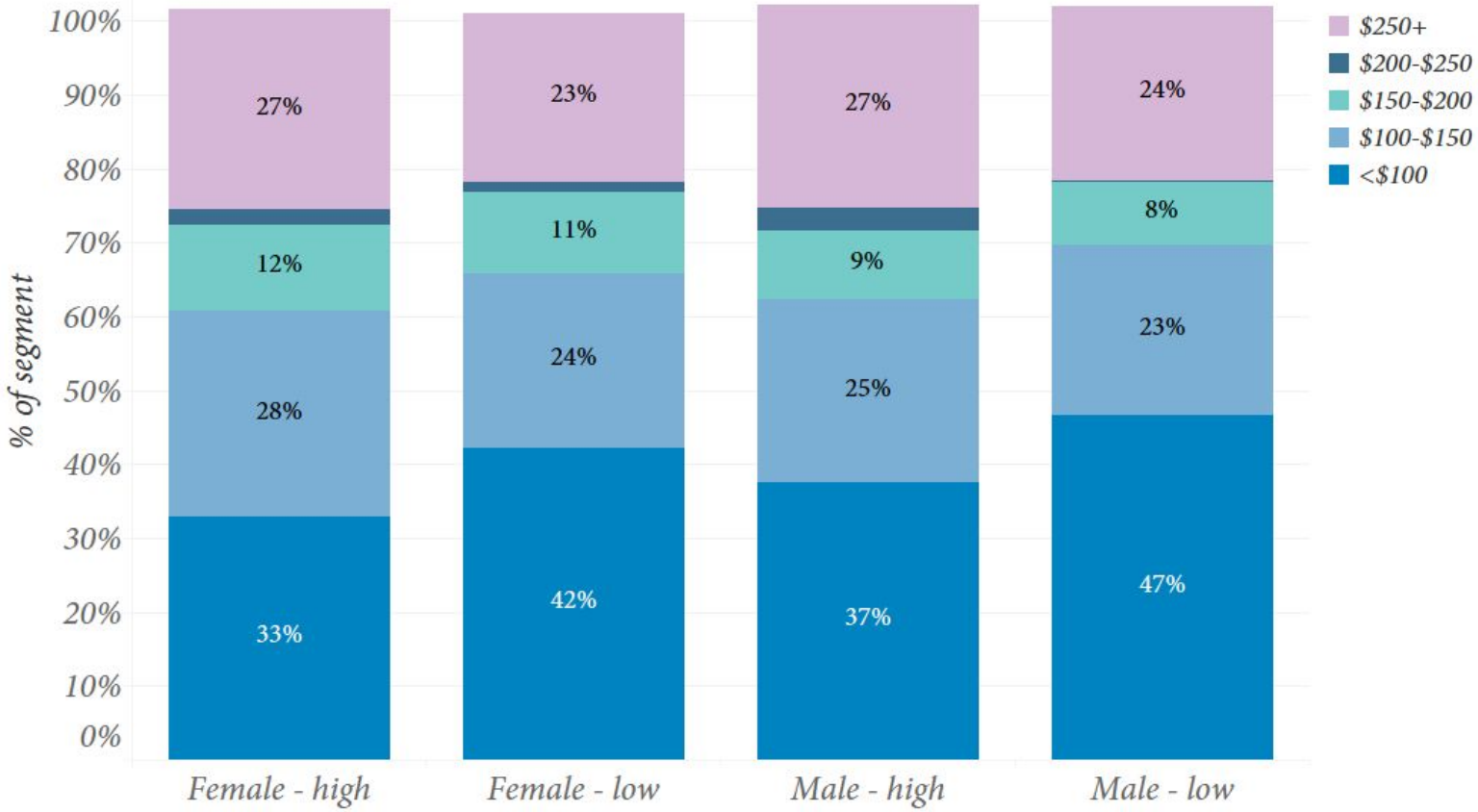
While other studies have shown that on average, women own lower-cost/ lower-quality mobile devices, in our sample of smartphone-only owners there was surprising amount of parity across the genders in terms of device cost. And even with the lower-income groups, the average differences in price were modest.

Across all segments, about ⅓ to ½ of panellists used a device with an estimated cost of $100 or less, while about ¼ had devices of over $250.

Device cost is a proxy for device quality or capabilities, such as more storage, faster processors, and larger screens, all of which support better user experiences and higher likelihood of engaging with digital products. For example, lower-price devices often lack sufficient storage, such that users have to constantly uninstall/install apps as needed, a significant barrier to trying new apps.

Estimated cost of device, by segments

Kenya 2019-2020 Caribou Data • *insights built on privacy*



Men are more likely than women to make payments via apps vs. SIM menu/ USSD, though the vast majority of transactions are via SIM

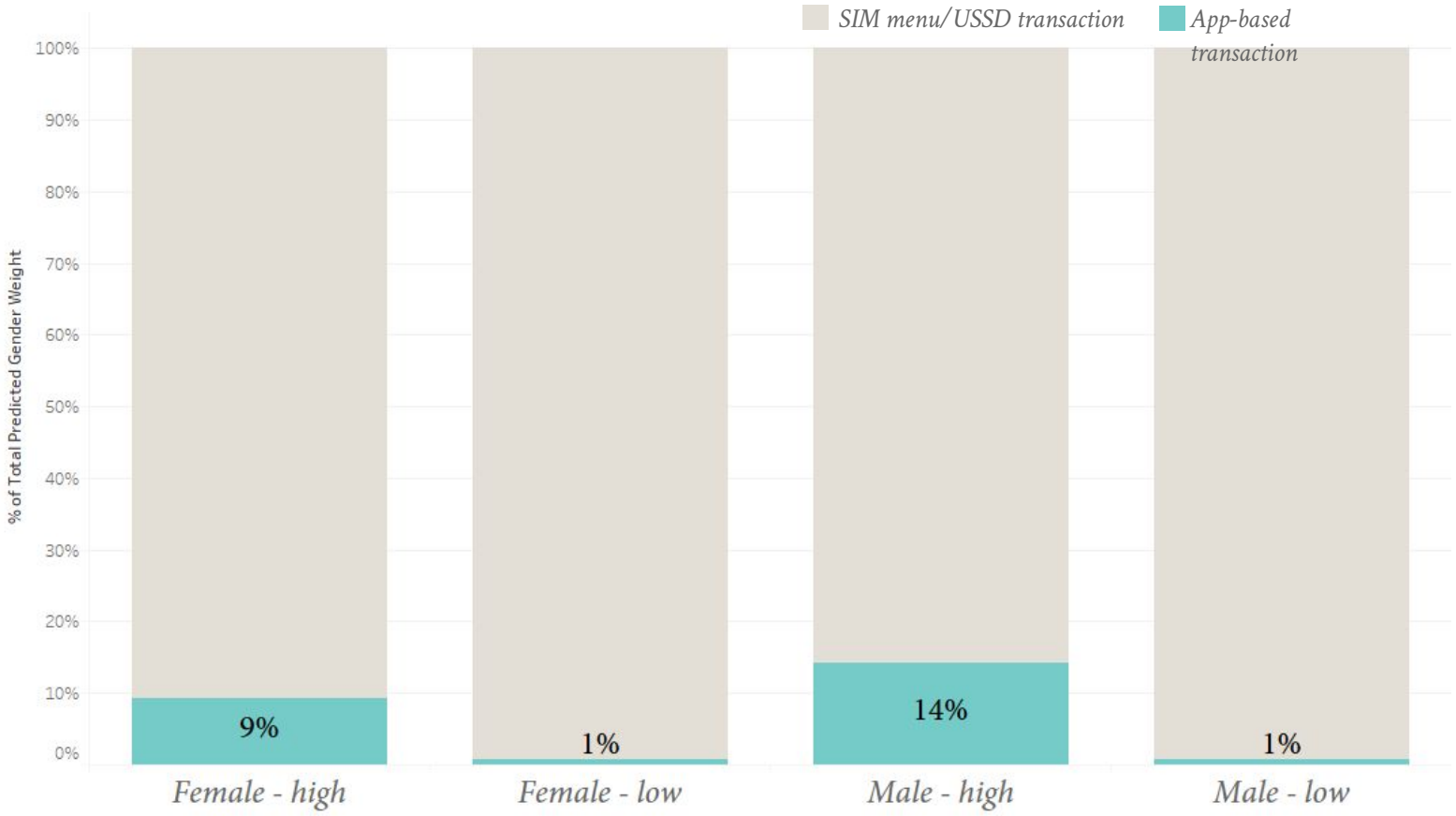
Given that our entire panel is composed of smartphone users, it is surprising that only about 12% of transactions are made via mobile apps, with the rest executed via SIM menu/ USSD.

While there is an expected difference between higher-income and lower-income users, there is also a sharp gender skew, with about 9% of women's transactions via an app vs. 14% of men's transactions.

This suggests that men have more trust in financial apps compared to women, or that higher levels of digital literacy give them more confidence in using mobile apps, even for financial services.

Share of transactions using app vs. SIM menu/USSD

Kenya 2019-2020 Caribou Data • *insights built on privacy*



And owners of higher-priced devices are also more likely to use apps instead of SIM menu/ USSD

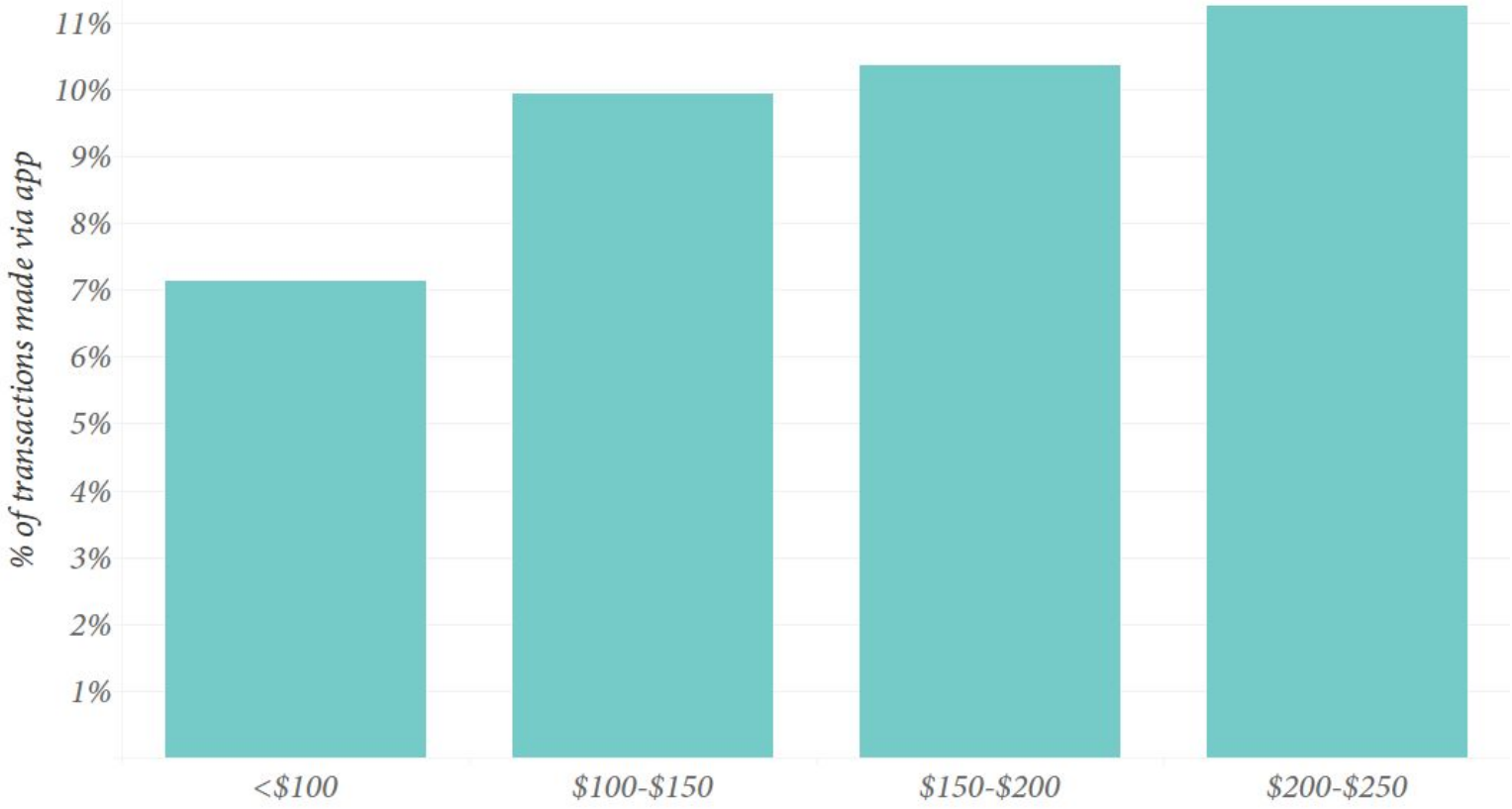
Combining the device cost analysis and the user interface analysis, we can see that users of higher-priced devices are more likely to use apps to make transactions, with 11% of transactions by the most expensive phones made via app, vs only 7% of transactions for the least expensive.

This is likely at least in part because more expensive devices have higher-quality components that provide a better user experience for apps. It could also be that people willing and able to spend more on a smartphone are more technically literate and curious.

But it also highlights how small the population is of smartphone owners that actually use financial apps.

Share of transactions made via app, by device price

Kenya 2019-2020 Caribou Data • *insights built on privacy*



Key findings from quantitative smartphone user data

Women are more likely to use SIM menu/USSD instead of apps for payments

Only 9% of women's transactions (excluding airtime) used a mobile app, the rest used SIM menu/USSD. For men, that figure was 14%.

This is a critical consideration for financial inclusion efforts—as more and more services move onto smartphones, those services may be disproportionately excluding female users.

Men are slightly more likely than women to take loans from multiple sources, especially standalone apps

Comparing loans taken from standalone apps (e.g. Branch, Tala) vs. products integrated into M-PESA (e.g. M-Shwari, KCB M-PESA), serves as a proxy for understanding demand for interoperable services.

Roughly ⅔ of our panellists took loans from both categories, but lower-income men were the most aggressive in this regard, with 91% of them taking loans from both standalone apps and integrated loan products.

Women pay more in fees for P2P transactions, demonstrating less fee-avoidance behavior

Women were much less likely to practice what we describe as fee avoidance behavior: They were less likely than men to send P2P payments for less than the fee threshold (Ksh100, pre-Covid).

While we can't infer the drivers of this behavior, possibilities include placing a lower priority on fees (i.e., time or convenience are more important), discomfort with making multiple transactions, or a lack of awareness on how to avoid paying the fees.

Women consume less data and spend less time in apps compared to men

Looking at general digital behavior shows a distinct gender gap in data consumption and time spent in apps, with both high- and low-income men outranking their female peers.

While an expected finding given cultural norms and existing literature around digital literacy, the pattern notable given the gender parity across so many other measures, including device price.

Takeaways and recommendations

A successful female farmer and her daughter, holding her mother's smartphone

Summary of key takeaways from both qual and quant workstreams

Using the 6 system design themes, we summarize the key takeaways from both the qualitative interviews with general population, and the quantitative data from smartphone users

	Interoperability	Real-time confirmations	(Ir)revocability	Agent network	Consumer awareness	ID and documentation
QUAL INSIGHTS (general population)	Seamless interoperability lead to more trust in DFS use by women while lack of interoperability has led women to losing their time and going back to cash	Confirmation messages are of particular value to women as they bring confidence in the service	The ability to cancel payments before going through has a significant impact on women's level of trust; while revocation has led to complications and return to cash	Women - in particular elderly women and less digitally savvy women - relied more heavily on agents to do DFS transactions, including those they could do from their homes.	Observations and discussions led us to conclude that women are often less aware of workarounds to reduce fees and are more highly impacted by fees and costs	While women see ID requirements as a guarantee that a transaction is official and safe, some do not have ID and get excluded due to lack of credentials.
QUANT INSIGHTS (smartphone owners)	Both genders utilize 3rd-party loan apps to the same	No analysis	Higher income and men in general use reversal options more and more likely to be successful at it	The more a person does CICO, the more they use the same agent, regardless of gender.	Men appear to know how to avoid fees more than women who will do bigger transactions, with higher fees.	No analysis

Key recommendations

We highlight specific recommendations for policymakers and service providers, drawing from both the qualitative field work and quantitative smartphone activity data

Increase Affordability & Accessibility

- Promote policies that increase last-mile access to agents
- Support standardization of APIs and competition in specialised DFS services that serve women's specific needs
- Develop products that don't require an app, and still function over USSD/ SIM
- Develop best practices technical guidance for product designers in order to improve usability on low-cost phones
- Establish tiered KYC and other risk-based policies
- Explore ways to mitigate costs of data associated with DFS use

Increase Trust & Confidence

- Invest in financial numeracy skills and building awareness of financial concepts
- Develop training that helps agents better serve inexperienced users
- Design best practices around cancelation/ reversal of payments to ensure users have simple to use recourse
- Ensure no delays in sending notifications once transaction is complete
- Enable better user control over notifications, e.g. for shared or multi-SIM devices where privacy is critical
- Increase transparency of fee structures

Policymakers

DFSPs/combo

Concluding remarks

The well-known socioeconomic inequalities facing women—less education, income, time, literacy—manifest in multiple ways in DFS adoption and use. This analysis finds that reducing the gender imbalance in DFS utilization will require efforts to make DFS more **affordable and accessible** while also instilling more **trust and confidence** in consumers.

While increasing affordability and accessibility are obvious generally as ways to reduce gender disparities, we believe this research highlights specific, compelling changes to payment system design that can improve women's trust and confidence, and therefore usage of DFS.

These efforts will need to be explicitly intersectional in order to be effective, as gender alone doesn't account for the wide range of DFS engagement. Our data show, for example, that among smartphone users—by extension, higher-income—there is gender parity on many indicators. But even in this population of early adopters, we see the effects of traditional gender inequalities, such as digital literacy and device ownership, on DFS usage.

Looking to the near-future of DFS, which will increasingly be mediated by smartphones and apps, it becomes ever more critical to address and mitigate these biases before they become yet again amplified by a new technological regime. The majority of these recommendations require or are are best served through both policy and private sector action; a collaborative approach provides the best chances of success.

DFS Lab Research

Contact us at:
jake@cariboudigital.net
helene@cariboudigital.net
www.dfslab.net

DFS LAB

Resources

- Importance of agents, Microsave and Caribou Data research, 2020
- The role of DFS agents during the Covid 19 crisis, Microsave and Caribou Data research 2020
- Last Mile Delivery or Deadlock: Addressing financial inclusion in the face of COVID-19, The Boma Project, 2020
- Which DFS features matter more to women than men?, Caribou Digital, 2020
- Practical Tools and Frameworks for Measuring Agency in Women's Economic Empowerment, SEEP Network 2019
- What works to increase financial inclusion and women's financial autonomy? Intentional designs showing promise, Development in Practice, 2019
- What Would Women-First Digital Financial Services Look Like?, IDEO, 2019
- The role of trust in increasing women's access to finance through digital technologies, USAID, 2018
- Voice of Customer toolkit, CGAP, 2018
- WOMEN AND DIGITAL FINANCIAL SERVICES IN SUB-SAHARAN AFRICA: UNDERSTANDING THE CHALLENGES AND HARNESSING THE OPPORTUNITIES, World Bank, 2018
- Beyond 'Send Money Home': The Complex Gender Dynamics Behind Mobile Money Usage, Susan Johnson, 2018
- What can financial providers learn from chamas? FSD Kenya, 2018
- 4 Regulatory Enablers for Digital Finance: A Gender Perspective, CGAP, 2018
- The gender and age dimensions of mobile money adoption in Kenya, FSD Kenya, 2018
- Using mobile platforms to save for the future, Poverty Action, 2018
- Upliftment report, FSD Kenya, 2017
- Finance and living well, FSD Kenya, 2017
- What Financial Diaries Tell Us About Building Financial Services That Matter to Low-Income Women, FSD Kenya 2016
- Understanding the barriers and serving the needs of women with DFS, UN Capital Development Fund, 2016
- Tool 8. Research and Literature Review of Challenges to Women Accessing Digital Financial Services, IFC, 2016
- Capacities to aspire and capacities to save: a gendered analysis of motivations for liquidity management, FSD Kenya 2015
- Kenya's financial transformation in the 21st century, FSD Kenya, 2015
- From insights to action: Building client trust and confidence in Branchless Banking, Microfinance Opportunities, 2013