



Digital Credit Market Monitoring in Tanzania

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Photo: Sarah Farhat / World Bank Group

The digital credit market is evolving rapidly in Tanzania

Digital credit first emerged in Tanzania just four years ago, when Vodacom launched M-Pawa, in cooperation with Commercial Bank of Africa. In the years since, it has grown rapidly. There are now four digital credit providers with over 5 million loan accounts.

The rise of digital credit in Tanzania and other emerging markets has generated excitement among many in the financial inclusion community, who often look to it as a way to extend credit to low-income segments in hard-to-serve areas.

Yet the uses and risks of digital credit remain largely unknown in Tanzania — and beyond

Though digital credit has been in Tanzania for years, there have been few analyses of the country's digital credit market. Existing studies raise important concerns about digital credit's impact on customers. For example:

- [Digital Credit in Tanzania: Customer Experiences and Emerging Risks](#) (Kaffenberger, 2018). This nationally representative CGAP survey of over 4,500 households explored the uses and risks of digital credit, revealing that:



- **21%** of Tanzanians have used digital credit.
- **Urban men** are the biggest users of digital credit.
- **Nearly one-third** of digital borrowers have defaulted.

- [Digital Credit: A Snapshot of the Current Landscape and Open Research questions](#) (Blumenstock and Robinson, 2017). This cross-country report on the state of the global digital credit market found that:



“In the past several years, digital credit has rapidly proliferated in the developing world, particularly in Sub-Saharan Africa, yet there is **virtually no quantitative research to examine its effects...**”
It may be “providing liquidity in times of need for some people while encouraging others to take out loans that they do not need”.

CGAP led a unique, data-driven exploration of Tanzania's digital credit market

To help fill this knowledge gap in Tanzania, CGAP and the Busara Center for Behavioral Economics, at the request of the Bank of Tanzania, analyzed data from three digital credit providers and built a first-of-its-kind, data-driven picture of the digital credit market's evolution and current state. In total, we looked at transactional and demographic data for more than 20 million loans disbursed over 23 months.

Based on our analysis, we made recommendations for the Bank of Tanzania to strengthen regulation and oversight of digital credit and thus steer the market in a healthy direction. This research formed part of a diagnostic of Tanzania's credit market that FSDA developed for the Bank of Tanzania, in cooperation with FSĐT, CGAP, and CAHF.

Using big data analytics to fill knowledge gaps

Exploring loan by loan data allows us to:

UNDERSTAND THE MARKET

- The full scale of the market is unclear. This analysis can show us the **size and distribution of the market**.
- The distribution of **repayment rates and defaults** can be shown by product and date.

UNDERSTAND CONSUMERS

- Segmentation allows us to explore inclusion and engagement for **different population segments**.
- We can explore whether people of different **genders, age groups, or locations** are less likely to be included or more likely to face negative loan experiences.

PROTECT CONSUMERS

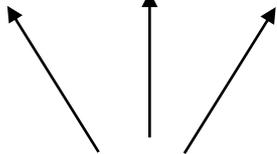
- **Evidence of under-representation** from the products can be clearly shown.
- We can explore whether there are **signs of predatory lending** to the detriment of consumers.
- These findings directly feed into **regulatory recommendations**.

Digital finance offers a new level of granularity in borrower behavior and portfolio analysis

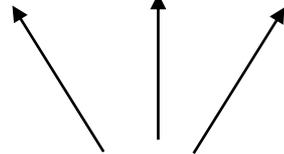
Transaction_Type	Transaction_Value	Balance_Before	Balance_After	Disbursed_Time	LoanTerm	Interest	Penalty	City	Dob	Gender
LOAN	20000.00	0	20000	2016-05-17 09:15:18	21	0.205	0	Ilala	24/10/1973	F
PAY	24100.00	100350	76250	2016-05-17 09:15:18	21	0.205	0	Ilala	24/10/1973	F
LOAN	20000.00	36700	56700	2016-06-06 18:07:31	7	0.135	0	Ilala	24/10/1973	F
PAY	22700.00	62650	39950	2016-06-06 18:07:31	7	0.135	0	Ilala	24/10/1973	F
LOAN	25000.00	4110	29110	2016-07-16 11:19:07	14	0.17	0	Ilala	24/10/1973	F
PAY	29250.00	408760	379510	2016-07-16 11:19:07	14	0.17	0	Ilala	24/10/1973	F



Transaction level data collected
– dates and amounts of
disbursement and repayment



Specifics of
each loan
collected

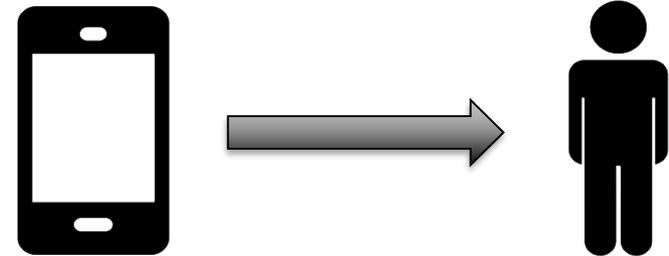


Demographics of
each user
collected

Three questions drove this research

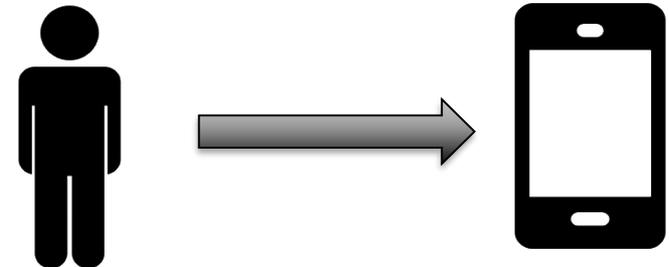
How big is the market?

- Number of loans disbursed
- Number of accounts
- Size, term and cost of loans
- Change over time



How well do people repay?

- What is the rate of non-payment?
- What percent of loans are paid on time or late?
- How do these change over time?
- How well do lenders cover their losses with fees?



How do different customer segments behave?

- Is there evidence that users make poor credit decisions?
- Which demographic segments (gender, age and location) are under-represented?
- Which demographic segments struggle to repay?
- Do users learn as they take more loans?



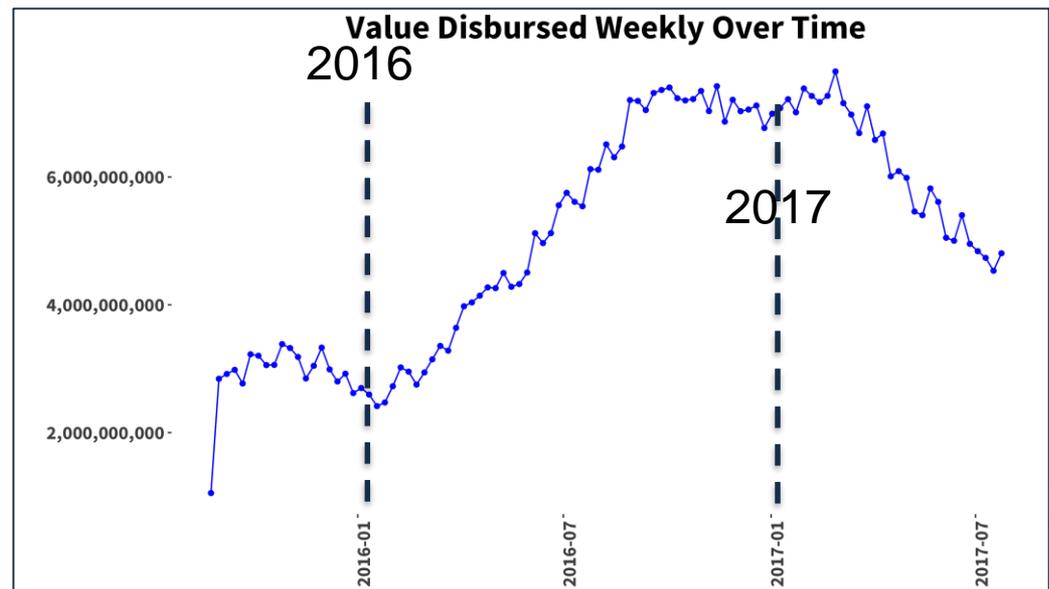
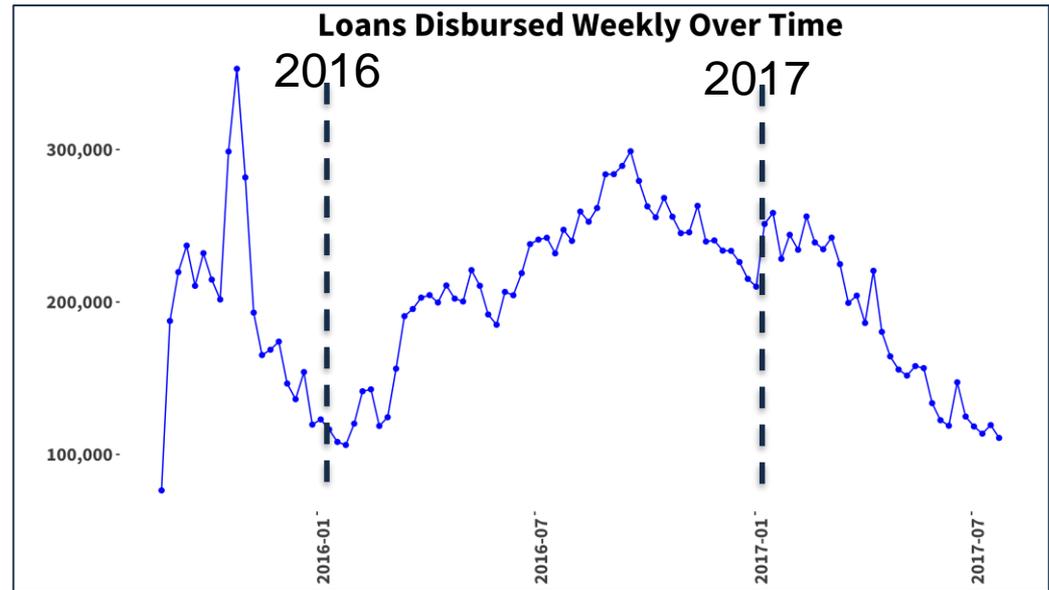
More than 20 million loans disbursed in 23-month sample period

Number of loans disbursed overall	20,433,173
In 2017*	5,552,264
In 2016	11,161,319
In 2015*	3,719,590
Value of loans disbursed overall	TSh 516,786 million
In 2017*	TSh 187,427m
In 2016	TSh 274,838m
In 2015*	TSh 54,521m
Number of accounts overall**	5,170,918
In 2017*	1,749,083
In 2016	3,053,258
In 2015*	1,787,045

- **20 million loans** disbursed to **5.1 million accounts** in 23 months.
- One provider accounts for more than half the accounts.
- Lower-volume lenders sometimes have significantly higher average loan size, reflecting different lending strategies.

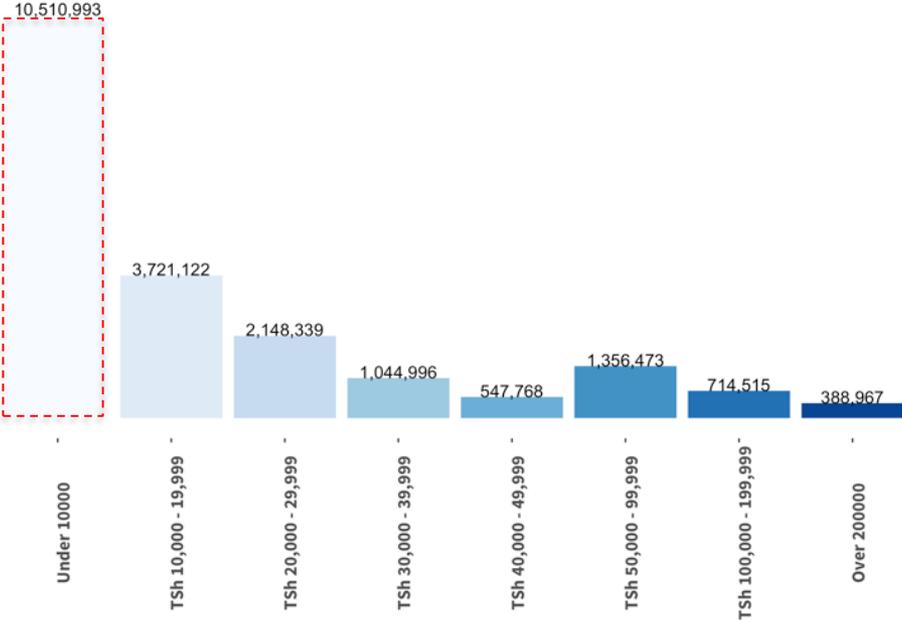
The overall market shows signs of slowing down

- Growth and slowdown varies across providers. But the overall trend is a slight decrease in loans disbursed and value disbursed in 2017.



Most loans are under TSh 10,000, but the average loan size has more than doubled since 2015

Number of Loans Disbursed by Loan Size



Year	Mean Loan Size	Median Loan Size
2017	TSh 33,757	TSh12,000
2016	TSh 24,624	TSh10,000
2015	TSh 14,658	TSh5,000



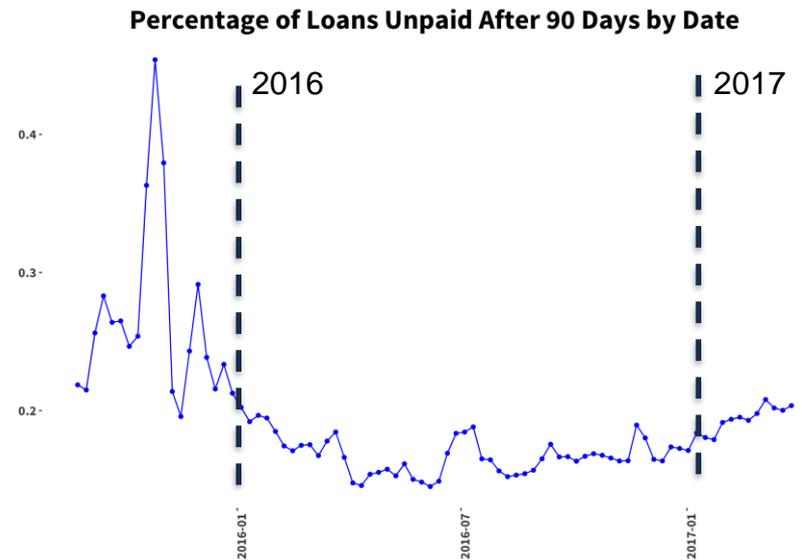
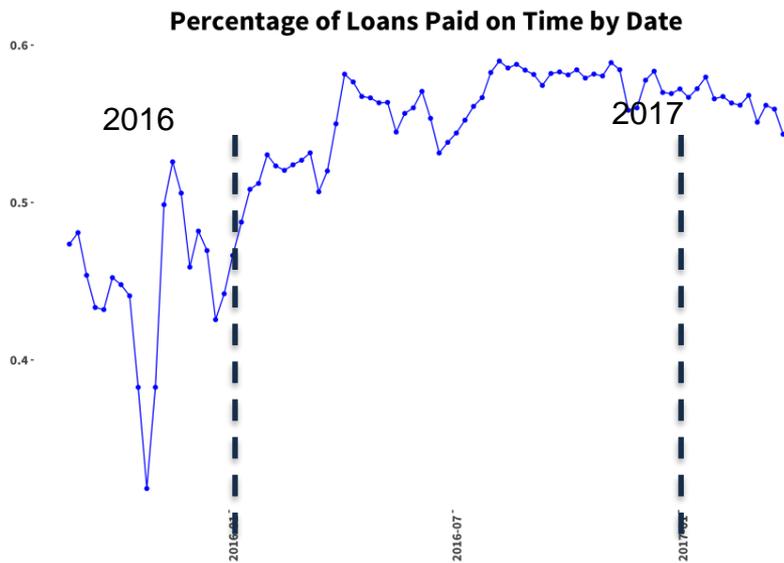
*See slide 17 for the difference between nominal and effective APR
 **APR includes inputs on nominal and effective interest rates

The most appropriate threshold for defaulted loans is 90 days

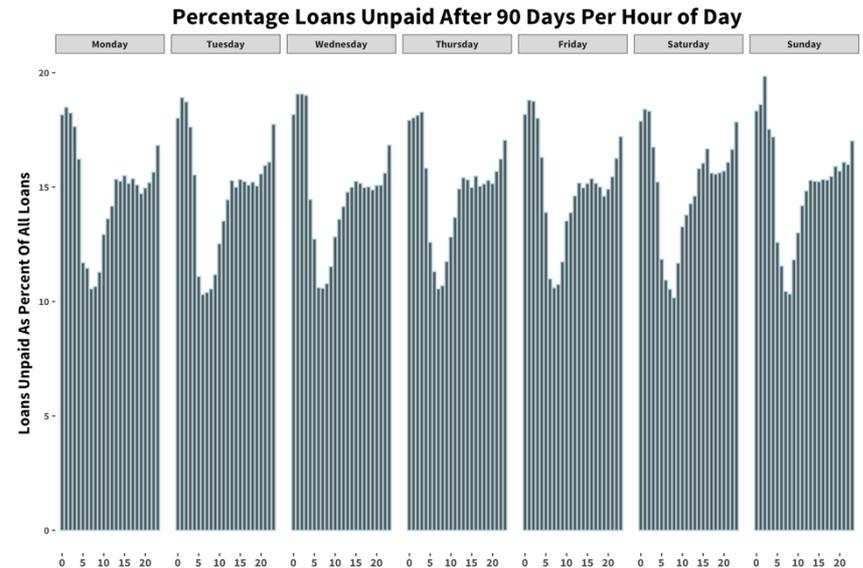
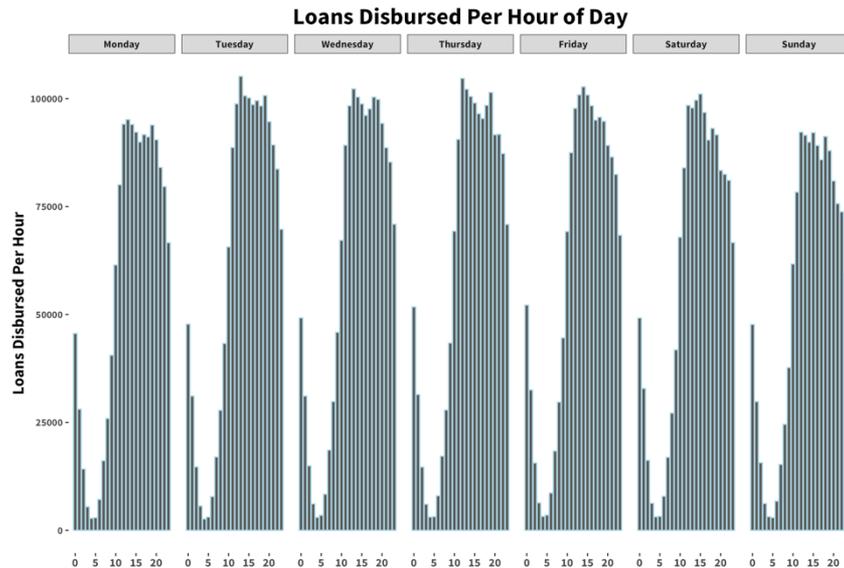
- Given the short-term nature of digital credit, we explored whether a default threshold shorter than 90 days was appropriate.
- With a 90-day threshold, 14.7% of defaulted loans are paid back in full (i.e. they are reperforming).
- With a 30-day threshold, 32.4% of defaulted loans reperform. This is too high to be useful.
- Hence, all analysis under this project used the 90-day default threshold.

	30-Day Default Threshold	90-Day Default Threshold
Number of Defaulted Loans	5,286,033	4,188,050
Number of Reperforming Loans	1,711,726	613,743
Reperforming as a Percentage of Defaulted Loans	32.4%	14.7%

Payment on time has generally improved over time



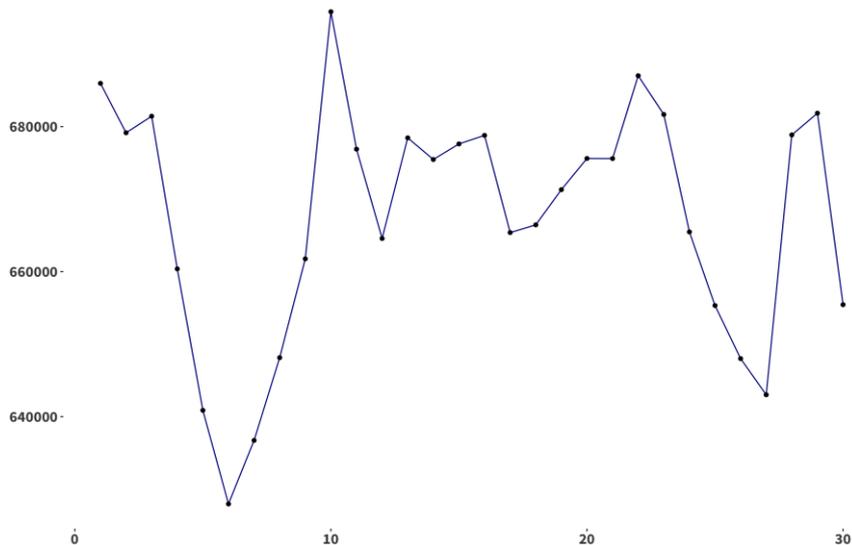
Repayments are much lower for loans taken at night and higher for morning loans



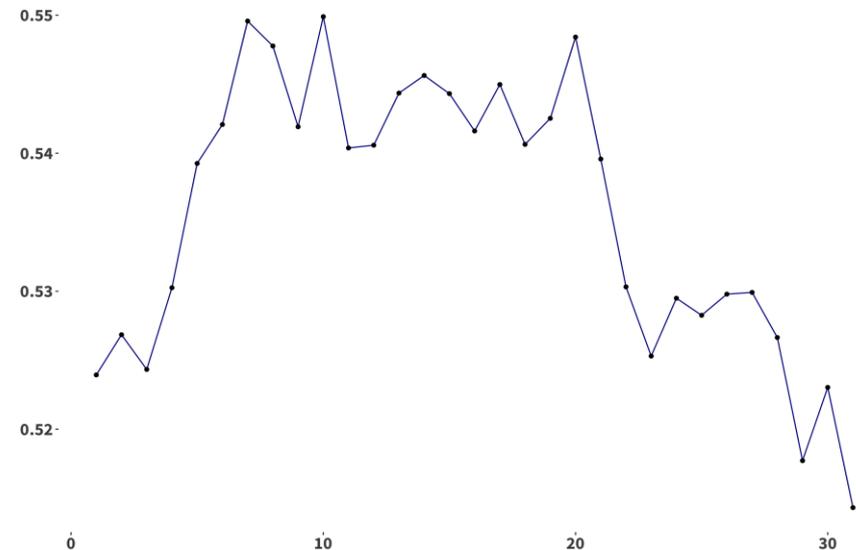
- People typically request loans in the middle of the week. Loan disbursements are far less common on weekends and on Monday.
- Loans are common in the afternoon and evening. The later into the night, the more likely a loan is to default (6-7 percentage point difference). This may indicate people taking loans for non-productive activities (e.g., purchasing airtime or alcohol).
- Loans taken early in the morning are much more likely to be paid

Disbursements occur at the middle and end of the month

Loans Disbursed by Day of the Month

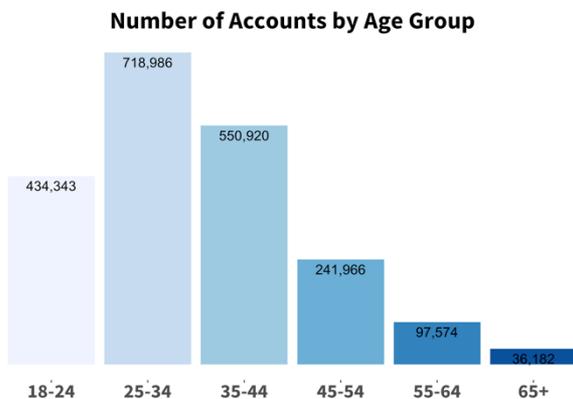
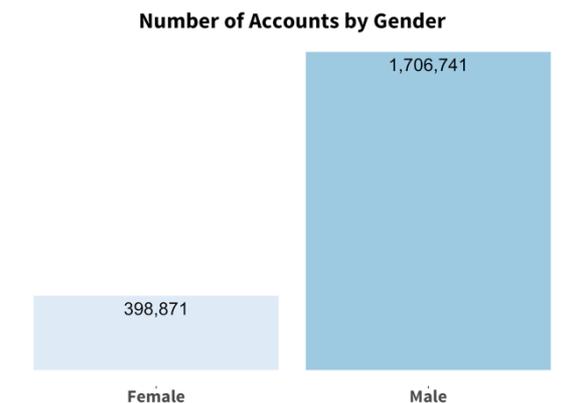


Percentage of Loans Paid on Time by Day of Month



- Loans are **common in the middle and the end of the month** (with spikes on the 1st, 10th, 13th-16th, 22nd, and 29th).
- Timely repayment (and overall repayment) is higher in the middle of the month and lower at the ends of the month.

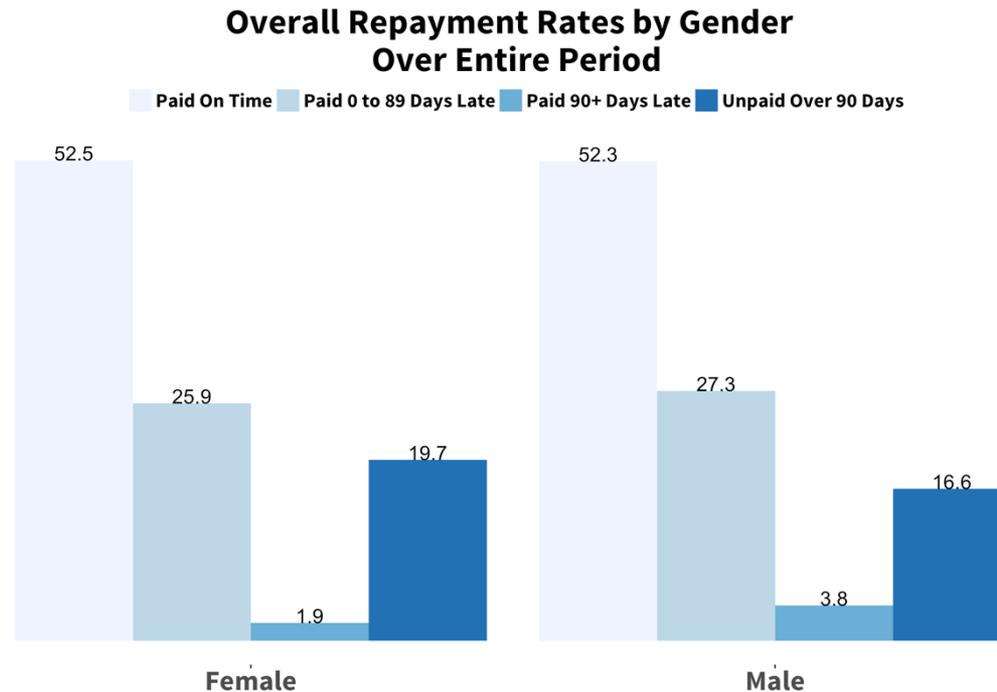
More men and 25-44 year old's take loans, and older men take more and larger loans



	Group	Mean no. loans per account	Mean loan size
Gender*	Female	4.3	TSh 27,772
	Male	4.5	TSh 35,444
Age Group*	18-24	3.2	TSh 16,638
	25-34	4.5	TSh 28,744
	35-44	5	TSh 39,067
	45-54	5.3	TSh 46,494
	55-64	5.4	TSh 48,492
	65+	4.3	TSh 37,838

- Over **80% of accounts** with gender data **belong to men**. Men also take more and larger loans on average.
- The youngest borrowers (18-24) receive the fewest and smallest loans.
- It is perhaps not surprising that younger borrowers take smaller loans. The gender gap is more concerning.

Women's repayment rates are similar to men's



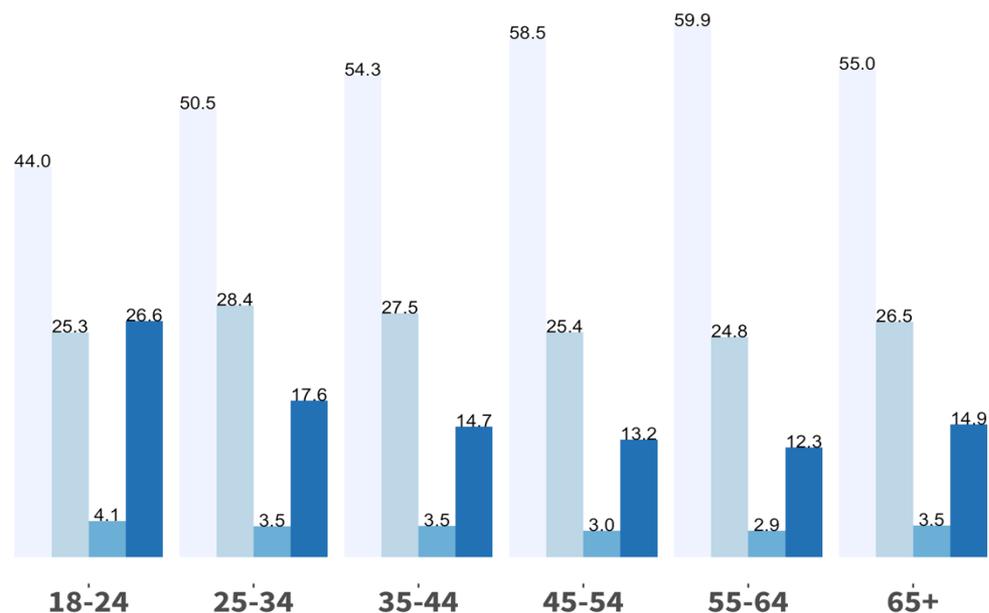
- The percentage of loans paid on time are strikingly similar for men and women.
- There is a slightly higher default rate for women than for men.
- There is not a convincing reason why women are so highly under-represented as users.

Younger borrowers take smaller loans and repay less

Overall Repayment Rates by Age Group Over Entire Period

■ Paid On Time
 ■ Paid 0 to 89 Days Late
 ■ Paid 90+ Days Late
 ■ Unpaid Over 90 Days

Group	Mean loan size	Median loan size
18-24	TSh 16,638	TSh 5,000
25-34	TSh 28,744	TSh 11,500
35-44	TSh 39,067	TSh 15,500
45-54	TSh 46,494	TSh 20,000
55-64	TSh 48,492	TSh 20,000
65+	TSh 37,838	TSh 15,000

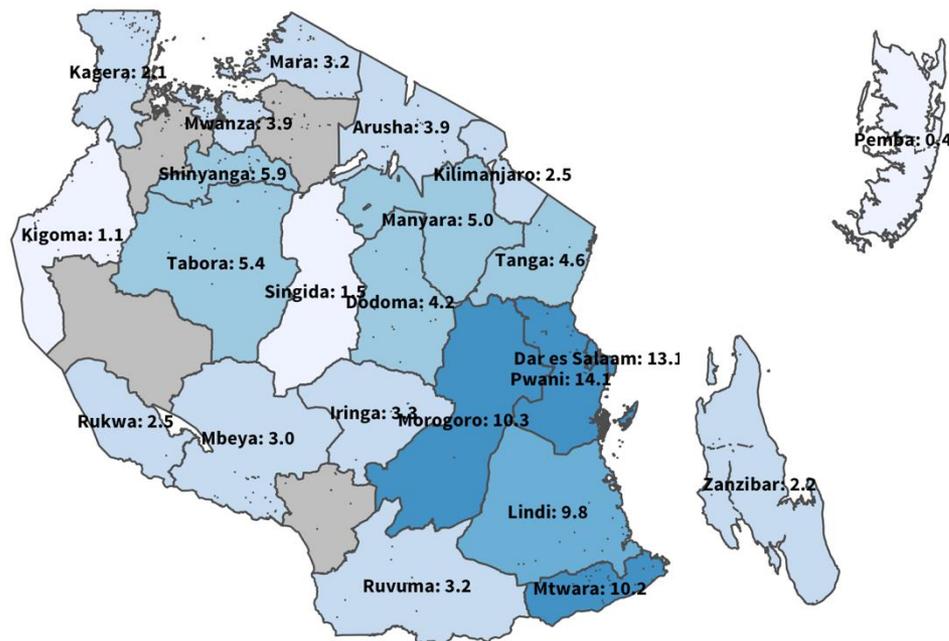


- Users aged **18-34** are disproportionately likely to take **loans less than TSh 10,000** (likely due to provider limits).
- The youngest users are also less likely to be able to pay these loans back, with over **26% of their loans unpaid by the end of the sample period**, even despite the youngest borrowers taking the fewest loans.
- Put together, this suggests that **younger users are being given too much access to digital credit, not too little.**

Accounts are concentrated around Dar es Salaam and the southeast

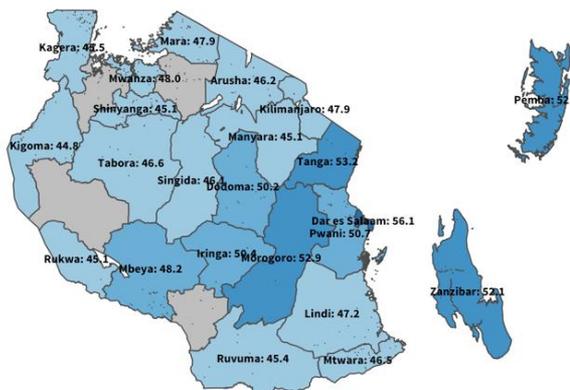
- The number of accounts* per 100 people is highest in Dar es Salaam, Pwani, Morogo, Lindi and Mtwara.
- In particular, areas in the North and West, Zanzibar, and Pemba are all highly under-represented.
- Digital credit is disproportionately a product for Dar es Salaam and its environs.
- A big caveat is that there is no geographic data for one provider, which may work in a different geographical area.

Number of Accounts by Region as Percentage of Population

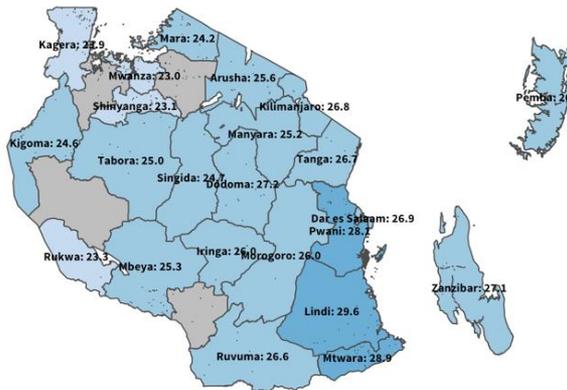


Repayment is worse where there are fewer accounts

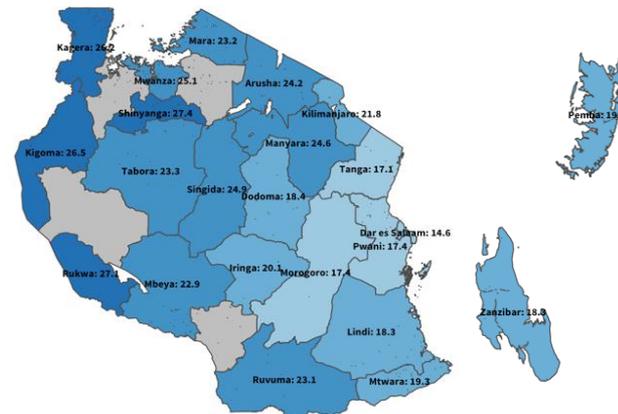
Percentage of Overall Loans Paid on Time



Percentage of Overall Loans repaid 0-89 Days Late

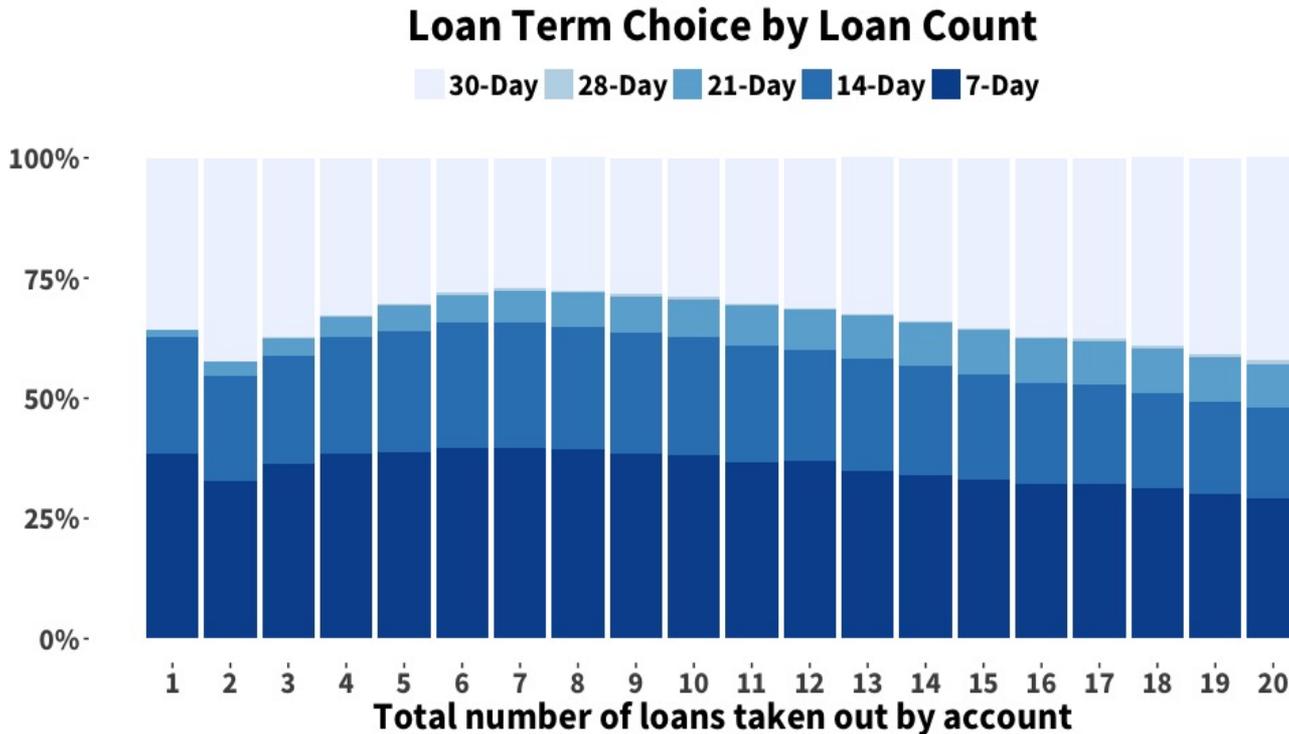


Percentage of Overall Loans Unpaid Over 90 Days



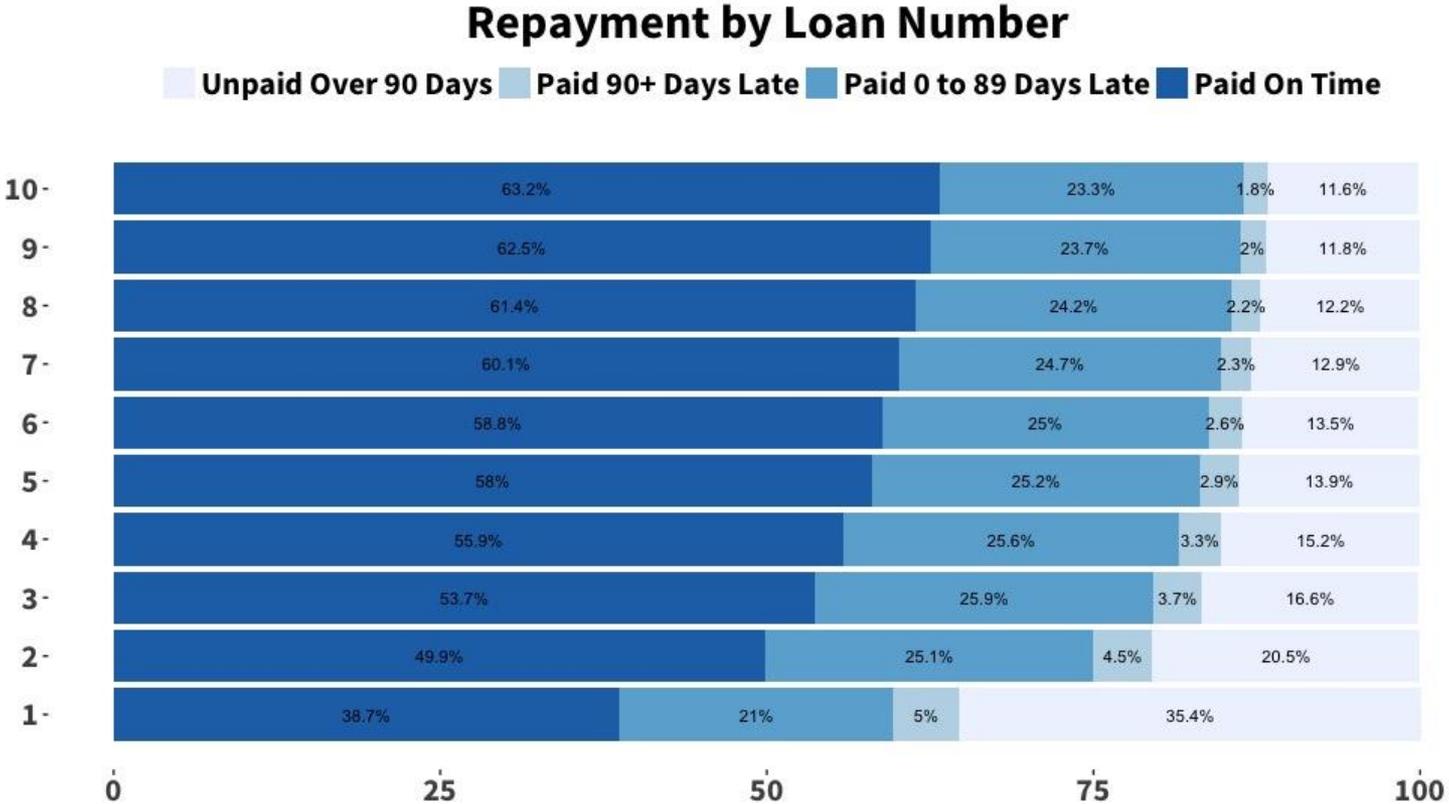
- The percentage of unpaid loans by the end of the sample period is at least 10 points higher in several regions in the west of Tanzania than in Dar es Salaam.
- Dar es Salaam and its environs not only pay most often, but they typically pay on time.
- As with different age groups and genders, this suggests that there is a market reason why some areas are excluded from credit: these areas typically have the lowest repayment rates.
- Wealth and urbanization may play a part. Of the four districts with greater than 25% of loans unpaid over 90 days, all are in the lowest half of regions for GDP per capita and percentage of urban population. [Kigoma has the lowest GDP per capita**](#), and [Kagera is the least urbanized***](#).

Consumers who take more loans shift to taking longer-term loans with a lower APR



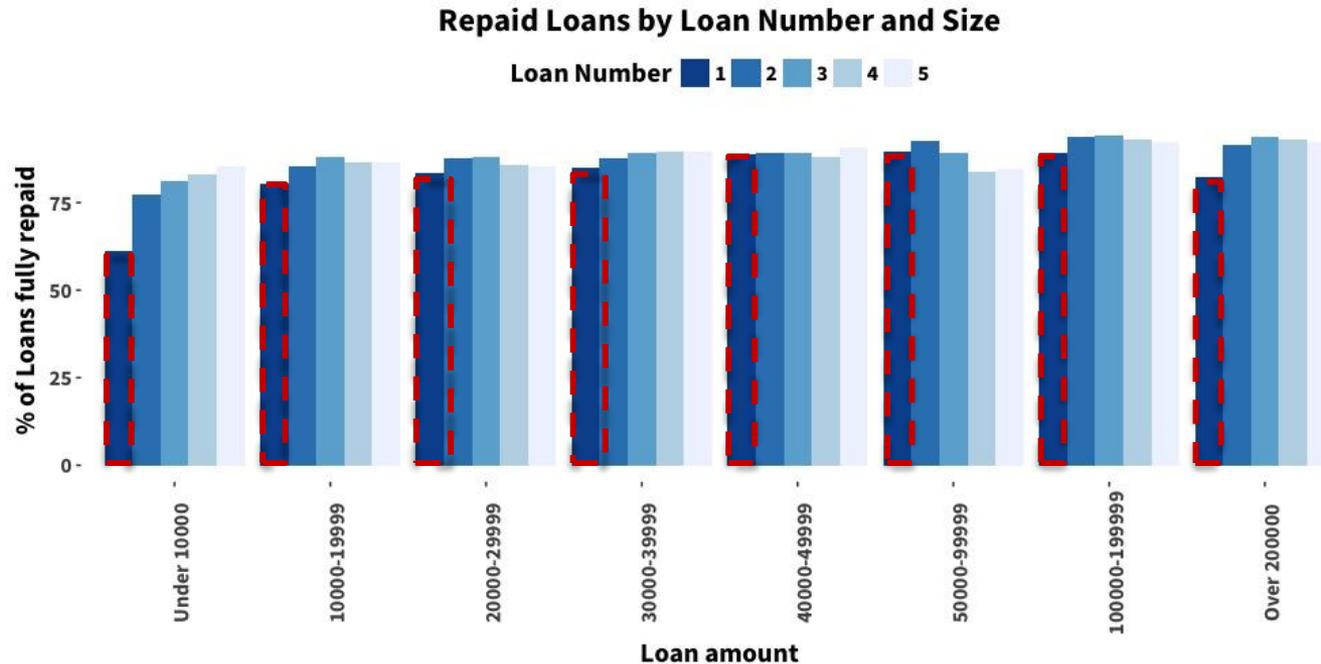
- Accounts who take more loans tend to take a larger proportion of longer-term loans (28/30 days), after an initial increase in shorter-term loans.
- This could be evidence that **people learn over time that longer-term loans are cheaper.**

First-loan borrowers have a much lower rate of payment (on time or late)



- The default rate is much higher for first loans. It decreases with each of the first 10 loans.
- It is likely that **small first loans are given out widely**, in order to refine credit models.

This is especially true for smaller loans

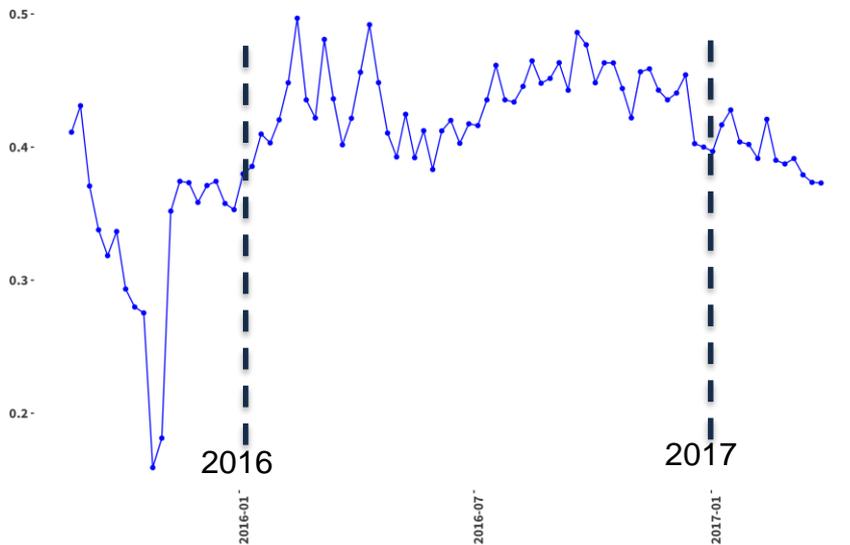


- Repayment rates (including late repayment) depend on loan size: larger loans have a higher repayment rate.
- However, the **first loan is more likely not to be paid back** than subsequent loans. Controlling for loan number, loan size has little effect on repayments (aside from for the first loan).
- Low-value first loans have particularly low repayment rates. This further suggest that providers use **the first loans to screen out poor borrowers**.

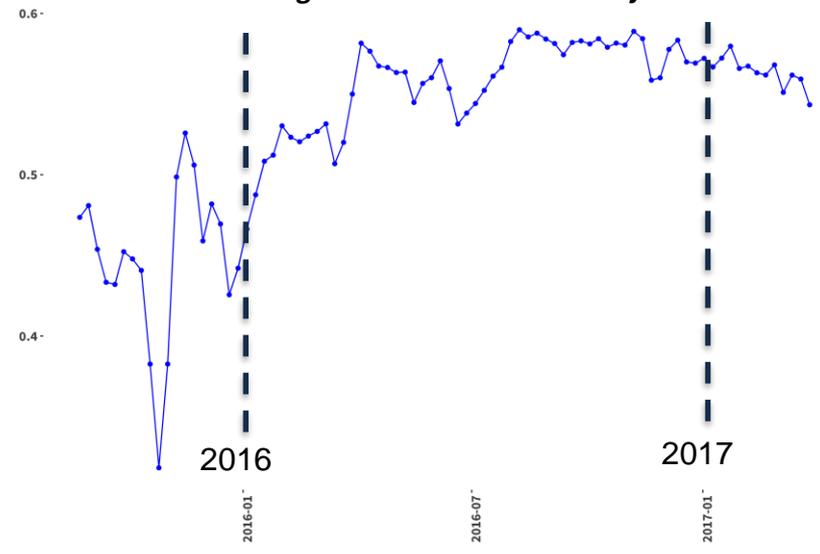
There is limited evidence that first loan payment is improving over time

- Comparing the rate of first loans paid on time (left) to the rate of all loans paid on time (right), there is **no clear trend**.

Percentage of Loans Paid on Time by Date For First Loans Only



Percentage of Loans Paid on Time by Date



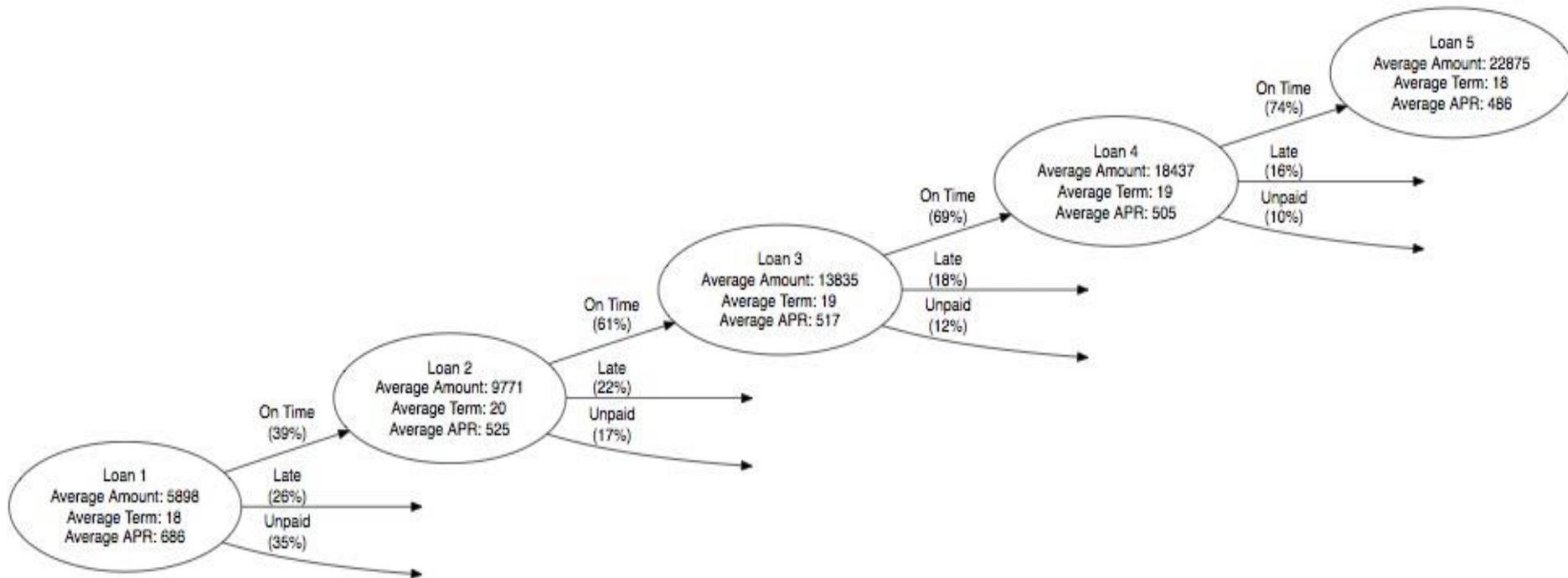
A sizeable minority of accounts take a large number of loans per year

Loan number	Accounts taking more than loan number over 12 months*	As a percentage of all accounts
1	2,874,870	59.1%
5	956,156	19.7%
10	331,826	6.8%
20	36,127	0.7%
30	5,103	0.1%
40	794	0.02%
50	157	0.00%

Note: A customer who takes **50 loans of TSh 10,000 at 13.5%** interest will pay back **TSh 67,500** in interest only over the year.

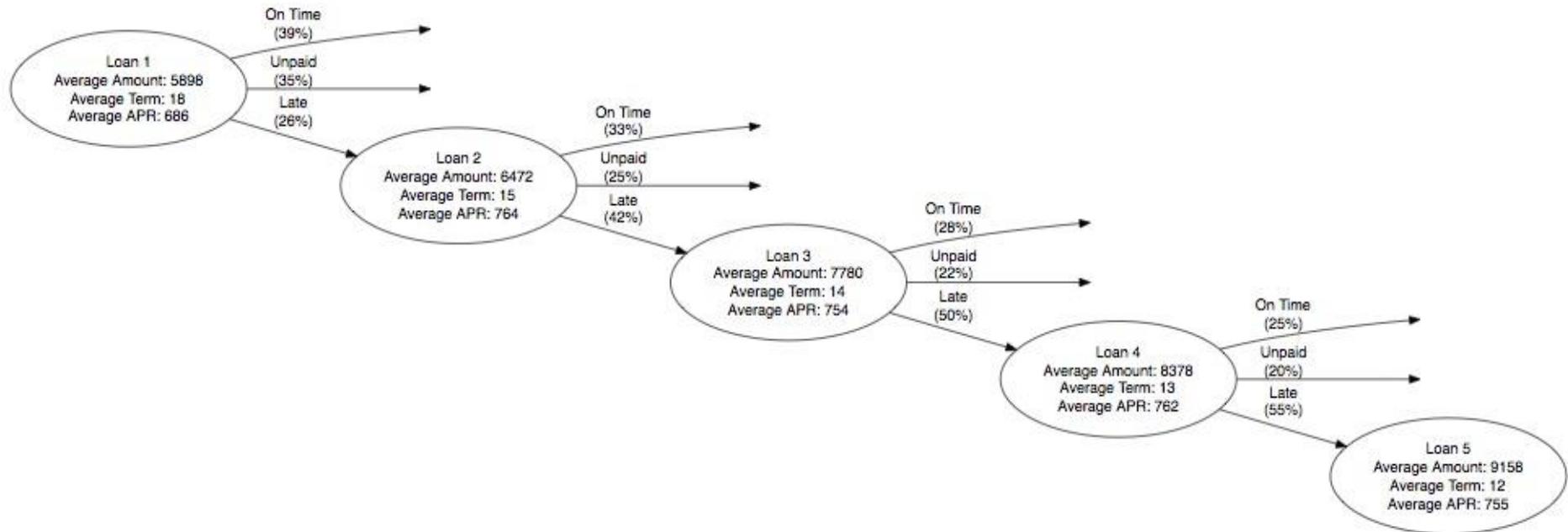
- Some customers are repeat borrowers who take **large numbers of loans per year**. Cumulatively, these customers end up actually **facing the large APRs** attached to short-term loans.
- This fits the three most common use cases identified by CGAP** in Tanzania: **day-to-day household needs, airtime, and ongoing investment or payroll** for businesses. For many of these, **encouraging savings** to cover consumption and regular investment costs may benefit the users.

There is a strong core of timely repayers, who increase their loan amounts rapidly



- Consumers who pay back their loans on time and take another loan are **more likely to borrow bigger and bigger amounts.**
- The percentage of customers who pay back on time increases with each passing successful loan, suggesting that **successful repayment of previous loans is a good indication of the likelihood of repayment.**

There is also a large number of persistently late repayers who face high cumulative fees



- On the other hand, customers who pay back their loans and go back to get another loan **appear to be trapped in a debt spiral.**
- Each time this group pays a loan late, they are **more likely to not be able to pay the next loan on time** and hence incur higher late-penalty fees.

Key implications and recommendations

1. There is evidence of poor customer decision-making during initial product engagement, with lower APR loans selected as customers take more loans. **Onboarding and disclosure processes should be assessed and subject to minimum standards.**
2. Provider business models seem to encourage a large number of small first loans to build credit models, which may be to the detriment of users. Either **first-loan credit scores should be tightened**, or the **consequences of first-loan default should be limited.**
3. Many users repeatedly repay their loans late and are facing high fees, seemingly trapped in a debt spiral. **Late-penalty-fee schemes and credit assessment models should be reviewed to consider suitability and consumer welfare impacts.**
4. Women, the young and old, and those outside the country's east and south-east, are under-represented in digital credit. The **drivers of this under-representation should be investigated further.**
5. A **clear periodic reporting structure for key statistics** should be mandated to provide a consistent base for market monitoring and risk-based supervision. Statistics should be reported in aggregate, and by gender, age bracket, and region. Credit quality indicators with transactional late payment and default data should also be included.
6. A **regular deeper dive into transactional data** could supplement annual statistics.

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