TRACKING THE JOURNEY OF DIAMOND BANK'S BETA CUSTOMERS FROM ACCOUNT OWNERSHIP TO USAGE

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Women's World Banking

data2x

Introduction:

In 2013, Diamond Bank (now Access Bank) and Women's World Banking partnered to create the BETA account, an innovative digital savings offering Nigeria's self-employed women a safe and convenient way to save. In March, the BETA Savings account was launched in 21 of Diamond Bank's 240 branches. Agents, known as BETA Friends, visit a customer's business to open accounts and handle transactions, including deposit and withdrawal, using a mobile phone application. Customers can open a BETA account in fewer than five minutes and can conduct value added services through their mobile phones. This process was a radical shift from Diamond Bank's typical banking procedures, which required the customer to visit the branch, provide identification and proof of address or income, fill out a lengthy form, and include references from other Diamond Bank customers. To increase their level of service, Diamond Bank created a multi-delivery channel so that customers could access their accounts through doorstep savings mobilizers (BETA Friends), as well as through ATMs and branches. BETA includes a transactional savings account, a commitment savings account (Target Savers), value-added services (balance inquiry, transfers, airtime top-up), and a mobile credit product. Additionally, The BETA "KWIK" Loan was a pre-approved short-term loan for BETA customers designed to offer credit facilities to the BETA Savings account holders of the Bank. This loan targeted BETA customers to provide them with an avenue to access loans to meet their business, personal and emergency needs.

This research report focuses on the various factors that influenced and increased savings behavior of BETA savings customers at Diamond Bank.

1. Key Statistics:

BETA Savings Accounts

- The total number of BETA savings account customers increased from 335,119 in July 2016 to 601,245 in July 2018.

- As of July 2018, 38 percent of the BETA customers were female.

- The significant growth of BETA savings accounts did not translate into active usage of accounts, as only 20 percent of female customers and 21 percent of male customers had at least one transaction every month.

- On average, active BETA customers conduct five transactions a month and the gender gap in number of monthly transactions disappears with account maturity.

BETA Target Savers Accounts

- During the period between July 2016 and July 2018, the total number of Target Savers customers nearly quadrupled from 9,994 to 52,355, of which 38percent are female.

- The proportion of Target Saver customers making short-term (90 days) deposits increased from 53percent in July 2016 to 70percent in July 2018, and long-term deposits (365 days) decreased from 14percent to 9percent during the same period. As of July 2018, 8percent of female Target Savers customers had long-term deposits (as compared to 9 percent among men) and 72percent have short-term deposits (70percent among men).

BETA Agents

- The total number of BETA agents has increased (+20 percent) from 1,947 in July 2016 to 2,416 in July 2018. Lagos has the highest number of agents (530) followed by FCT Abuja (153), Anambra (144), Rivers and Abia (111) and 15 districts have less than 20 agents.

- The total number of customers served per agent differs across states. For example, in Jigawa each agent serves only 22 customers whereas in Plateau this number increases to 156.

2. Methodology and Descriptive Statistics

For this report, the researchers used the transactional data of customers of Diamond Bank's BETA savings in Nigeria.

The data contains around 13 million transactions of 601,544 BETA customers and 2,579 BETA Friends made between July 2016 and July 2018. BETA customers accessed a variety of financial products including the BETA savings account, Target Savers account for term deposits, and Kwik Loan digital credit. Distribution of customers by financial products and services is presented in **Table 1** below. As of 2018, there were 601,237 BETA savings account owners, 52,677 term/target depositors and 744 borrowers. Nearly 71 percent of the Target Savers customers make term deposits for 90 days, 21 percent save for six months, and only 8 percent deposit money for a year. Around 8 percent of the BETA savings account customers also own a Target Savers account.

TABLE 1: NUMBER OF CUSTOMERS BY FINANCIAL PRODUCT (2016-2018)

| Products	2016		2017		2018	
	Customers	% Female	Customers	% Female	Customers	% Female
BETA Savings Account	399,096	37%	520,610	38%	601,237	38%
Target Savings	9,994	37%	16,698	38%	52,355	38%
Kwik Loan	40	42%	40	42%	744	47%

3. Detailed Report on Data Analysis

3.1. BETA Savings Accounts

The total number of BETA savings account customers grew (+80 percent) from 335,119 in July 2016 to 601,245 in July 2018 (**Figure 1a**). During the same period, the number of female customers increased by 85 percent from 123,326 to 228,289 and male customers grew by 76 percent from 211,793 to 372,956. Even though BETA savings accounts are aimed at empowering women through formal financial services, only 38 percent of the accounts are owned by female

customers and 62 percent by men. The significant growth of BETA customers did not translate into active usage of accounts as only 26 percent of customers used their accounts in July 2016 as compared to 18percent in July 2018 (**Figure 1b**). As of July 2018, the share of inactive accounts is slightly higher among female as compared to male customers. Given the scope of this study, this quantitative analysis does not provide an explanation for causation, although further qualitative analysis could lead to a deeper understanding of the causation of these findings.

FIGURE 1: GROWTH OF BETA SAVINGS CUSTOMERS, JULY 2016-JULY 2018
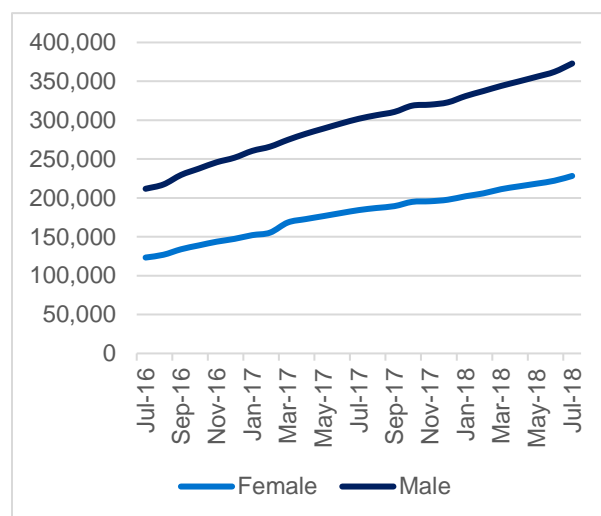
(a) Account owners   *(b) Active Account users*
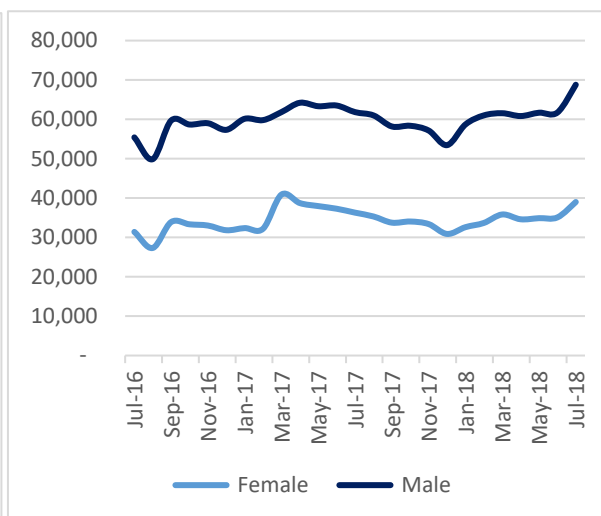

Between September 2016 and July 2018, 266,127 new BETA savings accounts were opened at Diamond Bank (**Figure 2a**). Nearly 39 percent of the new accounts are opened by female customers and the remaining 61 percent by men. The number of new BETA account owners varied greatly across different states (**Figure 2b).** During the same period, in 19 states (see red in **Figure 2**) the uptake of new BETA accounts was less than 1000, for a total of 9,226 customers.

**Figure 2. New BETA Savings Account, Sept 2016 – July 2018**

(a) Number of new BETA accounts

(b) Distribution of new BETA accounts
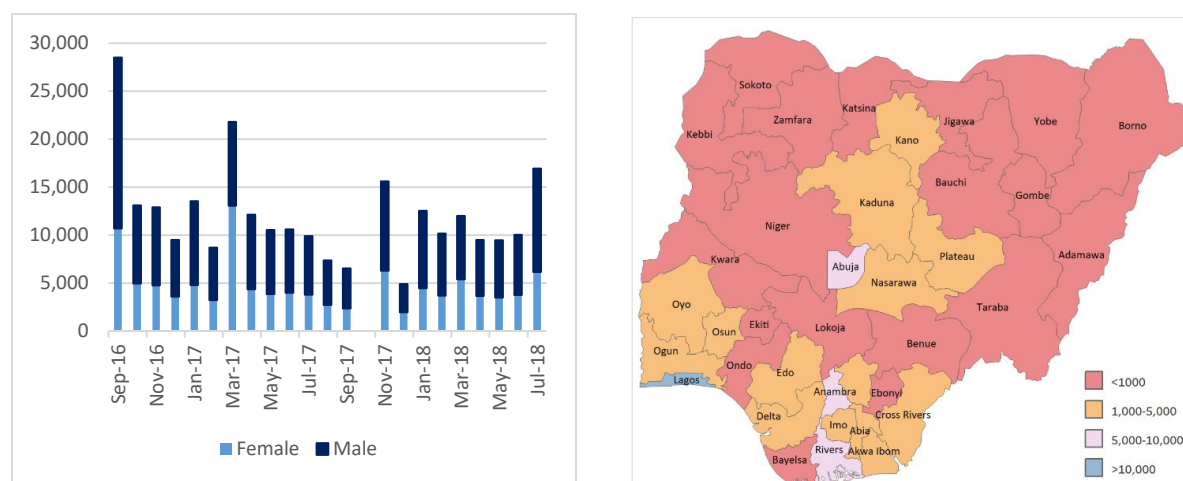
To track usage of the accounts over customers' journeys, the researchers calculated the account life as the number of months from account opening until transaction. They found that as of July 2018, nearly 50 percent of BETA customers have account age of one year, opened an account in the past year, 35 percent have account age for 1-3 years, and only 14 percent had an account life of more than three years. On average, active BETA customers made five transactions a month, and the gender gap in number of monthly transactions vanishes with account maturity. The growth in average transaction amount over account life (0-6 years) is higher for men (+56 percent) as compared to women (29 percent) (**Figure 3)**. The gender gap in transaction amount widens over time.

FIGURE 3: TRANSACTIONS OVER THE ACCOUNT LIFE
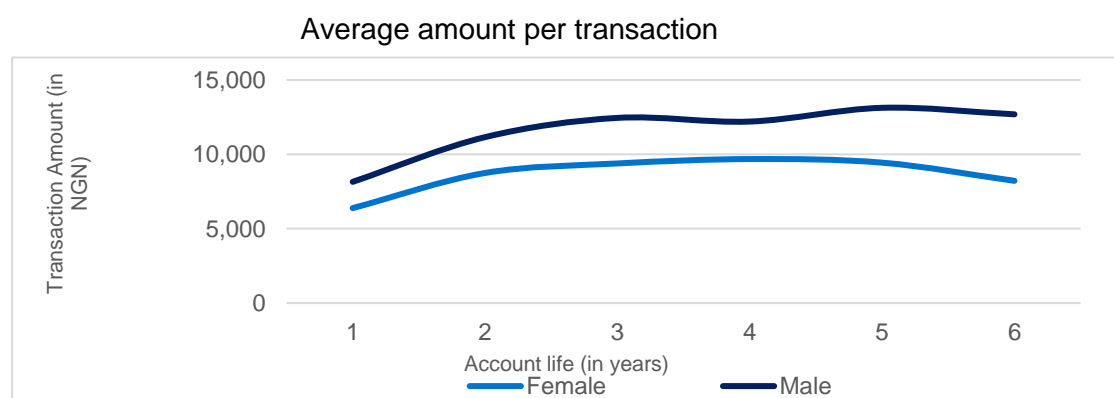
Account holders make a variety of transactions through BETA savings accounts, such as deposits and withdrawals, sending and receiving remittances, and utility payments including airtime top-ups. The total number of transactions using BETA savings accounts grew marginally by 4 percent from 516,317 in July 2016 to 535,559 in July 2018. Nearly 67 percent of total transactions are conducted by male customers, which is consistent with the share of active BETA savings account

customers. On average only 5 percent of total customers, with 34 percent of them being female, are using BETA savings accounts for airtime top-ups each month (**Error! Reference source not found.a**). Furthermore, **Figure 4b** demonstrates that the average money spent per airtime recharge is NGN 4,472 with women (NGN 4,160) spending less as compared to men (NGN 4,632).

FIGURE 4: AIRTIME TOP-UPS, JULY 2016-JULY 2018

(a) Number of customers

(b) Average airtime top-up amount
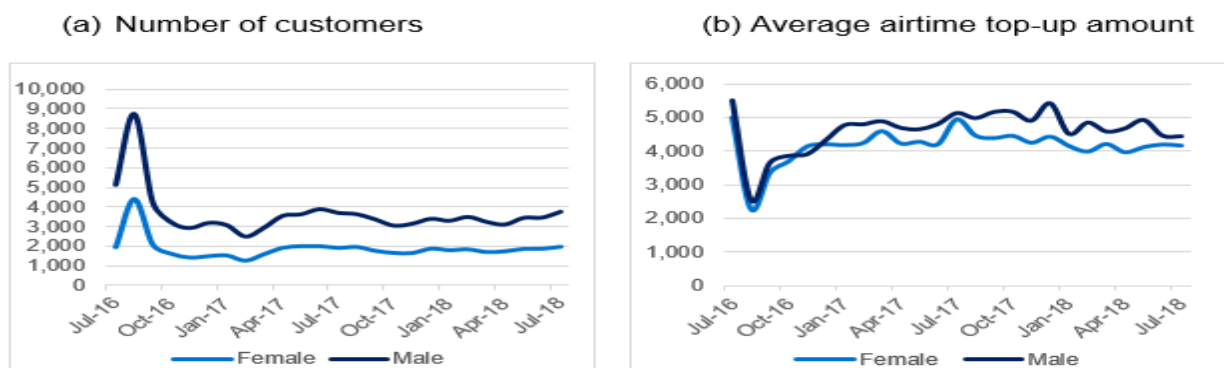
Tracking transaction amounts over time provides insights into usage of BETA accounts. Transaction amounts show a positively skewed distribution with significant difference in mean and median values. The researchers used median transaction values as the measures of central tendency. For comparison, average transaction amounts are also presented. The median transaction amount of BETA customers, even though increased by nearly 25 percent from NGN 4,024 in July 2016 to NGN 4,951 in February 2017, eventually declined to NGN 3,515 in July 2018 (**Figure 5a**). The average transaction amount is almost twice the median value and demonstrates that there are fewer customers making larger transactions **(Figure 5)**. Women's median transaction amount is nearly 25 percent lower than male customers.

FIGURE 5: TRANSACTION AMOUNT, JULY 2016-JULY 2018

(a) Median amount per transaction

(b) Average amount per transaction
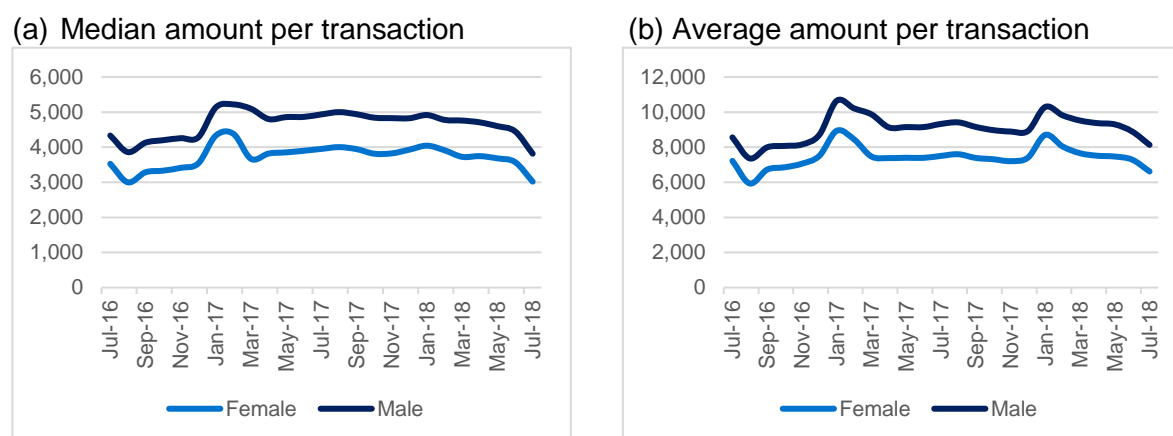
The research team disaggregated data by type of transactions- deposits and withdrawals. They saw a significant gender gap in deposit amounts (NGN 1,069), and a limited gap in withdrawals (NGN 451) (**Figure 6**). This demonstrated that income might be one of the determining factors

affecting transaction amounts across gender. A question that requires more investigation to become clear. On average, men deposit 30 percent more money per transaction to their accounts and withdraw 10 percent more as compared to female customers.

FIGURE 6: MONEY DEPOSITED AND WITHDRAWN PER TRANSACTION, JULY 2016-JULY 2018

(a) Median amount deposited

(b) Median amount withdrawn
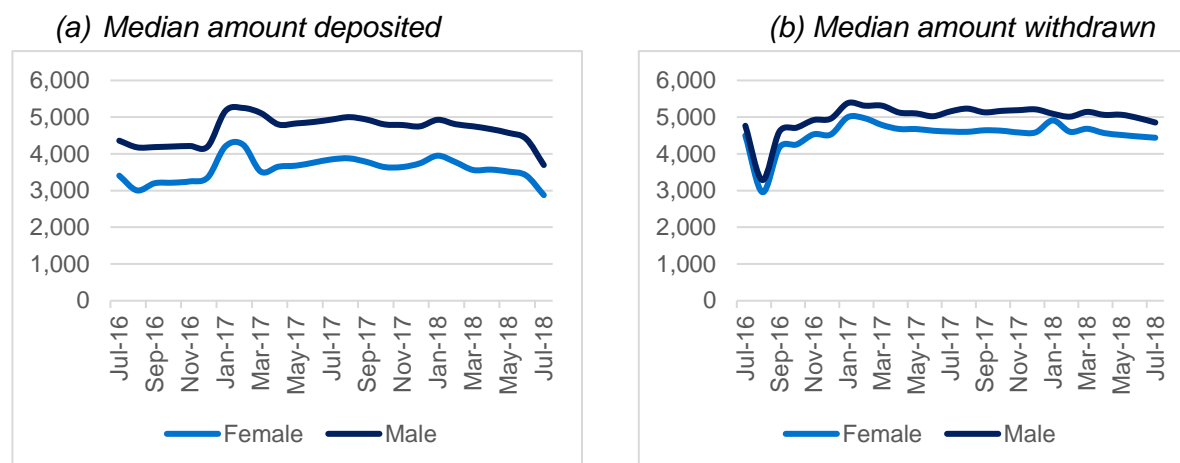
Account balance is the amount of money BETA customers have available in their savings accounts at the end of each month. **Figure 7** shows that from July 2016 to July 2018, the median account balance decreased by nearly 90 percent for female (from NGN 675 to NGN 78) and male customers (from NGN 547 to NGN 49).

The significant difference in average and median suggests a positively skewed distribution of account balance with only 75 percent of customers having account balances below NGN 1296 and 50 percent below NGN 46. Gender comparison shows that 75 percent of female customers have account balances below NGN 1,410 as compared to NGN 1,237 for men. This implies that if the small proportion of men with high account balances is ignored, women tend to save more as compared to male customers.

FIGURE 7: ACCOUNT BALANCE, JULY 2016- JULY 2018

(a) Average account balance

(b) Median account balance
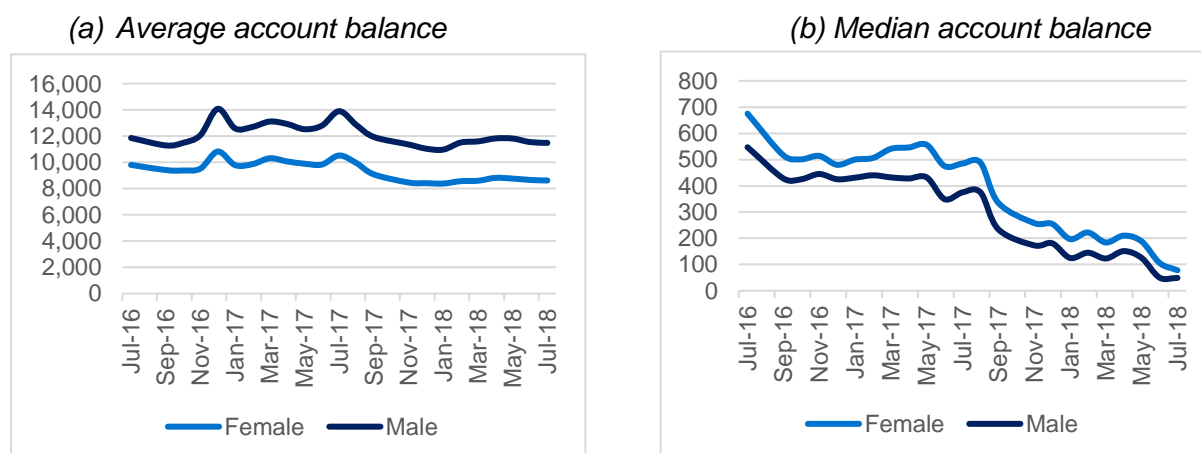
To investigate the decrease in account balance of BETA customers, a panel data of customers was created who opened BETA savings accounts in or before July 2016 and tracked their account balances. Findings show that the median account balance equally declined by nearly 95 percent for both female and male customers (**Figure 8a**). Furthermore, for long-term customers with two or more years of account usage the gender gap in median account balance disappears in the long-term.

FIGURE *8*: ACCOUNT BALANCE OF LONG-TERM BETA CUSTOMERS
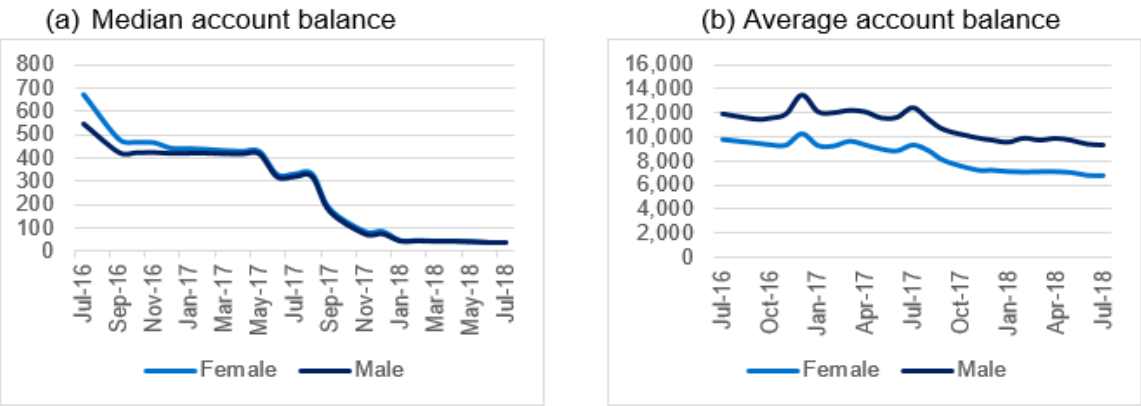
Figure 9 shows the median account balance across all 36 states in Nigeria in July 2016 until July 2018. Red represents the states having the lowest median account balance and blue implying the highest. During the period between July 2016 and July 2018, the median account balance significantly reduced across all states in Nigeria. In 22 states, including Lagos and FCT Abuja, the median account balance fell below NGN 100 demonstrating that people are not depositing money to their BETA savings accounts.

FIGURE 9. MEDIAN ACCOUNT BALANCE OF BETA SAVINGS ACCOUNT CUSTOMERS
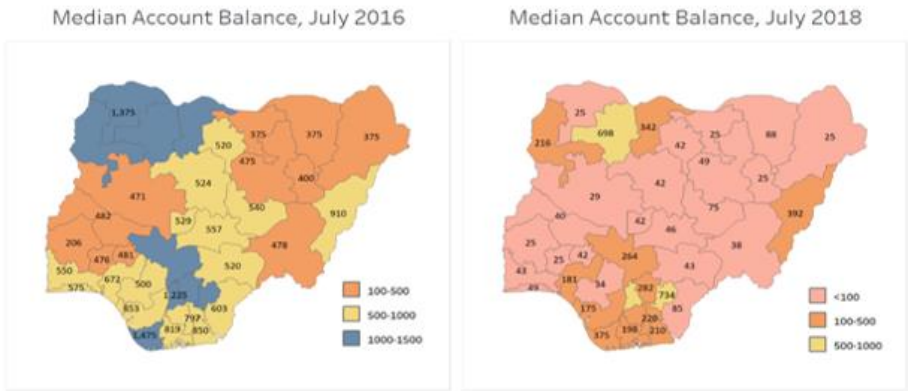
3.2. Target saving Account

During the period July 2016-July 2018, the total number of Target Savers customers nearly quadrupled from 9,994 to 52,355 (**Figure 10a**). Only 38 percent of Target Savers accounts are owned by female customers and the remaining 62 percent by men. Since target savings account are meant for long-term savings, fewer customers access these products and the number of transactions are also low. Within Nigeria, there is also a considerable amount of variation observed in terms of number of Target Savers (**Figure 10b**). Red shows the states with the lowest penetration of Target Savers customers and blue demonstrates the highest. Lagos, being the center of economic activities in Nigeria, has the most number of Target Savers followed by Anambra (3,645), Oyo (3,241), Rivers (2,923), FCT Abuja (2,798) and Abia (2,732). Nearly 26 states have less than 1,000 Target Savers customers.

FIGURE 10: TARGET SAVERS CUSTOMERS

(a) Number of customers by product

(b) Number of customers, July 2018
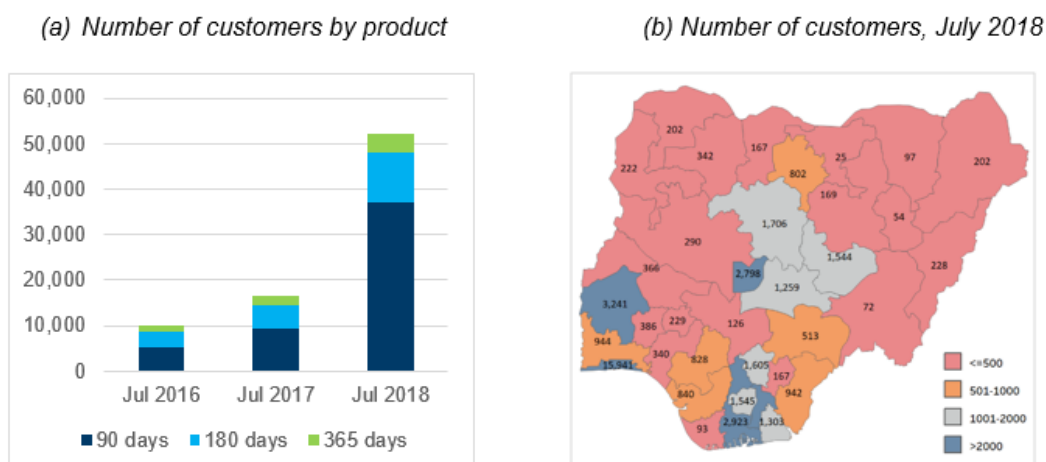
Tracking term deposits over time and across Nigeria gives insights into the deposit mobilization of BETA customers. The average term deposit of BETA customers decreased from NGN 121,304 in May 2017 to NGN 54,277 in July 2018 suggesting that people are mobilizing less money for long-term savings **(Figure 11a)**. Women's average term deposit is nearly 23 percent lower than men's. **Figure 11b** shows that average term deposit mobilized is particularly high (>NGN 100,000) in the states of Bauchi and Taruba, and remains below NGN 20,000 in Sokoto, Kebbi, Niger, Jigawa, Gombe, and Akwa Ibom.

FIGURE 11: AVERAGE TERM DEPOSIT

(a) by Gender
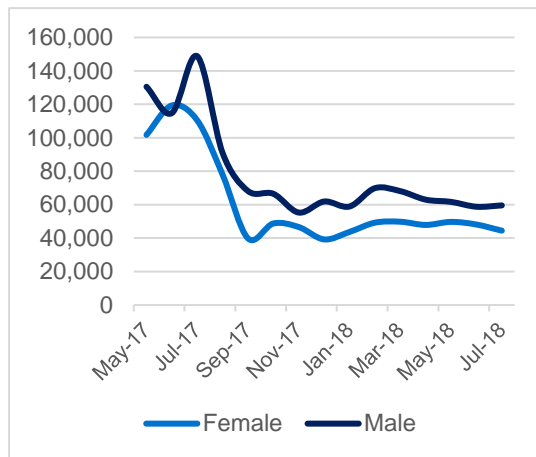

(b) by states, Jan-Jul 2018
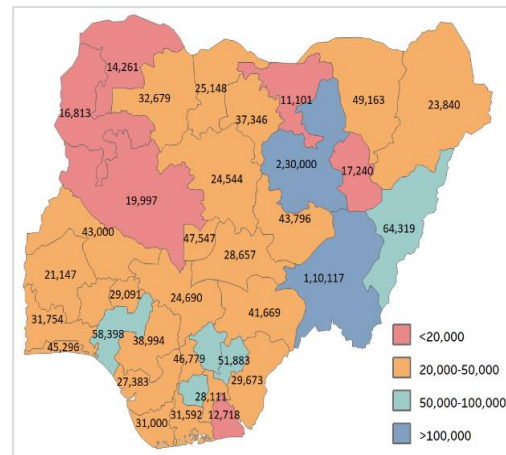
The average Target Savers account balance decreased by more than two-third from NGN 53,939 in July 2016 to NGN 15,224 in July 2018, suggesting that people are not actively mobilizing deposits to their accounts (**Figure 12a**). During the same period, the average balance for female customers decreased (-69 percent) from NGN 41,183 to NGN 12,962, and for men it decreased (-73 percent) from NGN 61,388 to NGN 16,603. Target Savers products are offered for a period of 90 days, 180 days, and 365 days. As seen earlier, the majority of customers (71 percent) make short-term deposits for 90 days and only 8 percent open Target Savers for 365 days. **Figure 12b** demonstrates that average balance is particularly high for long-term deposits as compared to short-term deposits of 90 and 180 days. Low-income people needing liquid capital for businesses are more likely to use short-term Target Savers of 90 days.

FIGURE 12: AVERAGE TARGET SAVERS ACCOUNT BALANCE, JULY 2016 – JULY 2018

(a) by Gender
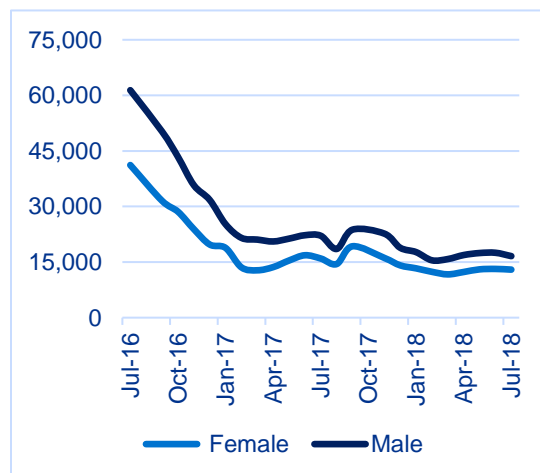
(b) by Product
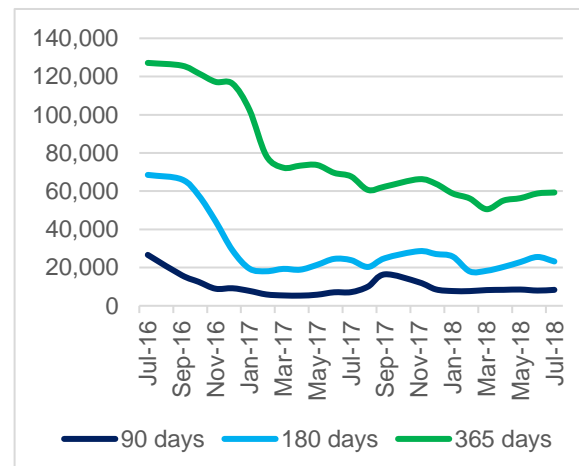
In Nigeria, there is also considerable variations observed in terms of amount of Target Savers account balance. **Figure 13** demonstrates that barring a few states, such as Bayelsa and Taraba, during the period 2016-2018 the average Target Savers account balance decreased substantially across Nigeria. The only positive story emerging is that in 2018 uptake of Target Savers is also seen in states such as Kebbi, Zamfara, Sokoto, Katsina, Jigawa (see Pink color in **Figure 13**).

FIGURE 2: STATE-WISE TARGET SAVERS ACCOUNT BALANCE, 2018
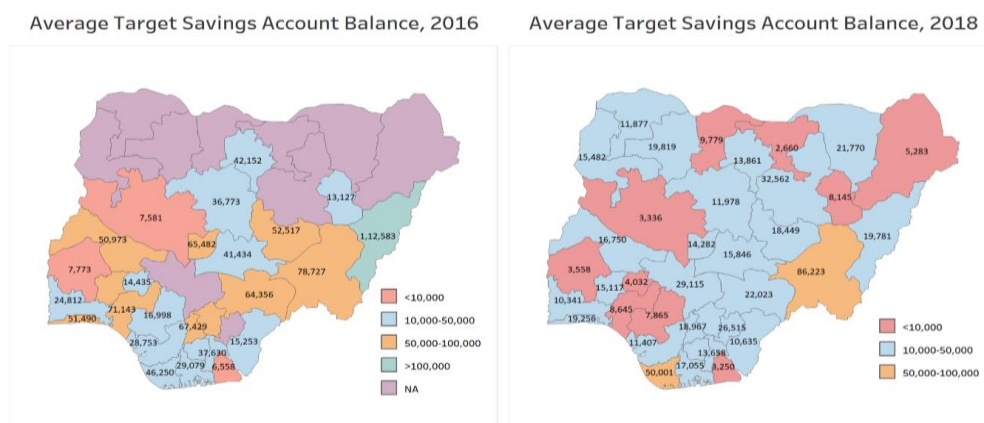
Total deposits of BETA customers, including Target Savers accounts, increased from 4.3 billion NGN in July 2016 to 7.2 billion NGN in July 2018. This demonstrates that customers indeed mobilized deposits to their BETA savings accounts. However, as of July 2018, 80% of the total deposits were mobilized by 4.4% of the customers with account balance more than 50,000 NGN and 94% of the total deposits were mobilized by 11% of the customers with account balances of more than 10,000 NGN (See **Error! Reference source not found.**). The team also observed that nearly 86% of total deposits are mobilized in BETA savings accounts and only 14% are kept in Target Savers accounts.

TABLE 2: DISTRIBUTION OF TOTAL DEPOSITS

Accounts with balance	% Customers	% Target Savings Accounts	Total Deposits (billion NGN), July 2016	Total Deposits(billion NGN), July 2018	% of Total Deposits Mobilized ,July 2018	% of Total Deposits Mobilized in BETA Savings Account, July 2018
> 0 NGN	100%	10.8%	4.3	7.2	100%	86%
> 3216 NGN	17.4%	3.2%	4.2	7.1	97%	86%
> 10000 NGN	10.7%	1.7%	4.0	6.8	94%	86%
> 20000 NGN	7.7%	1.0%	3.8	6.5	90%	86%
> 50000 NGN	4.4%	0.6%	3.3	5.8	80%	87%
> 100000 NGN	2.5%	0.4%	2.7	5.0	69%	86%

3.3. BETA Agents

BETA Agents or BETA Friends are generally respected community members who recruited by Diamond Bank to provide formal financial tools to the low-income Nigerian women. BETA Agents use a mobile application to open bank accounts and process transactions on behalf of the bank thereby minimizing the barriers to financial inclusion among the unbanked customers. Therefore, BETA Agents are critical in increasing uptake and active usage of BETA accounts. The transactional data suggests that during the period July 2016-July 2018 the total number of BETA Agents has increased (+20 percent) from 1,947 to 2,416. During the same period, the number of active agents doing at least one monthly transaction has increased from 1,477 to 1,923 (**Figure 14**). The growth in number of BETA Agents is not consistent with BETA Saving Accounts, which grew by 80 percent during the same period.

FIGURE14: NUMBER OF ACTIVE BETA AGENTS, JULY 2016- JULY 2018
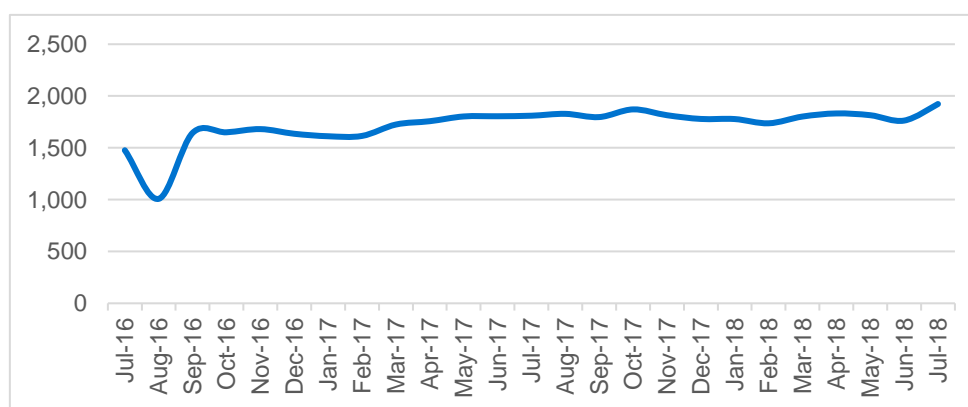
The colors in the map show (**Figure 15**) the total of number of agents and the number of active customers per agent across Nigeria. Lagos (530) has the highest number of agents followed by FCT Abuja (153), Anambra (144), Rivers and Abia (111) and 15 districts (see red) have less than 20 agents. Number of active customers served per agent also differs across states. For example, in Jigawa each agent serves only 22 customers whereas in Plateau this number increases to 156. Findings suggest that agents in few states such as Plateau are over-utilized and this may affect the quality of interaction with customers. On the other hand, agents in states such as Jigawa seems under-utilized thus contributing to increased transaction cost to the bank.

The correlation between the number of total customers (both active and inactive) per agent and the account activity rate clearly highlights that states with optimum number of customers (100-200) per agent are more likely to have higher account activity (**Figure1**). In states with more than 300 customers per agent, less than 40 percent of the customers use accounts in a month.

FIGURE 3: STATE-WISE NUMBER OF BETA AGENTS
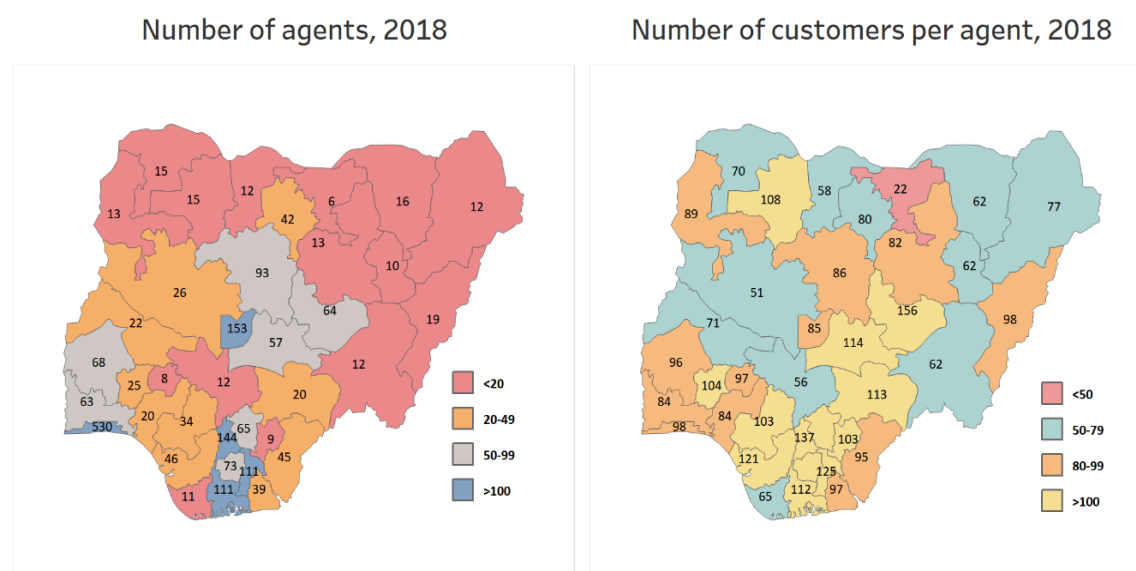
Number of agents, 2018

Number of customers per agent, 2018

The correlation between the number of total customers (both active and inactive) per agent and the account activity rate clearly highlights that states with optimum number of customers (100-200) per agent are more likely to have higher account activity **(Figure 16)**. In states with more than 300 customers per agent, less than 40 percent of the customers use accounts in a month.

FIGURE16: CORRELATION BETWEEN TOTAL NUMBER OF CUSTOMERS *PER AGENT* **AND ACCOUNT ACTIVITY RATE IN A STATE**
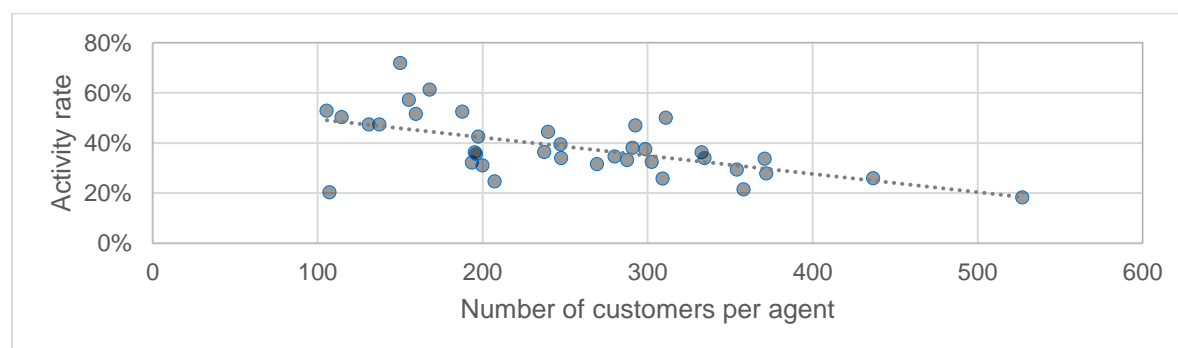
4. Predictive Modeling:

To have a sound understanding of variables that affect the transaction amount, Women's World Banking built a predictive model. As previously discussed, transaction amount follows an asymmetric distribution and is right skewed, signifying that the distribution mean is higher than its median. After running statistical tests, the team decided that quantile regression was best-suited predictive model for this particular study.

The quantile regression model expresses the transaction amount (outcome variable) as a function of gender, age, state, transaction type (debit/credit), number of monthly transactions, account age

(in months) and seasonality (dry/rainy season). The team created 5 percentiles based on transaction amount of customers (10th, 25th, 50th, 75th, 90th) as seen in **Table 3**. Additionally, an Ordinary Least Square (OLS) test was run on the same specifications to compare the robustness of the results. The quantile regression model at the lowest percentile demonstrates the effects of explanatory variables on the transaction amount for low-value transactions and the highest percentile shows the effects of high-value transactions. Results of OLS and quantile regressions are illustrated in **Table 3**.

Table 3: Predictive Model Output

Transaction Amount	OLS	Q(0.10)	Q(0.25)	Q(0.50)	Q(0.75)	Q(0.90)
Gender (Female)	-1943 (-40)	-293 (-157)	-361 (-91)	-704 (-96)	-1468 (-82)	-2169 (-39)
Customer Age	73 (31)	4 (39)	2 (10)	-4 (-10)	-30 (-32)	-71 (-25)
State (Lagos and Anambra)	1570 (33)	253 (143)	292 (78)	494 (71)	840 (49)	619 (12)
Account Age (in months)	161 (68)	6 (66)	8 (45)	22 (67)	70 (86)	219 (88)
Transaction Type (Deposit)	-11235 (-153)	89 (45)	-482 (-116)	-3263 (-421)	-10598 (-560)	-8729 (-150)
Number of monthly transactions	230 (65)	-3 (-29)	18 (84)	94 (243)	215 (227)	427 (147)
Season (Dry)	3041 (57)	67 (37)	124 (32)	361 (50)	1219 (70)	3801 (71)
Total	2,856,614	2,856,614	2,856,614	2,856,614	2,856,614	2,856,614

t statistics in parentheses. All coefficients are statistically significant at $p < 0.001$

5. Key Takeaways from Descriptive Statistics and Predictive Modeling

The team found that customer's gender, age, geography, transaction type, account age, number of times a customer uses its account, and seasonality have significant effect on their transaction amount. In addition, these effects vary significantly across customers who are in different quantiles.

Below are the eight Key Takeaways determined from the findings in the Table 3:

- There is a significant gender gap in account usage between men and women. Women transact at lower amounts (per transaction) as compared to men. As the transaction amount increases, the gender gap widens and in general, men make larger transactions. However, this gap is removed with account maturity. Unfortunately, the gender gap pertaining to transaction amount does not vanish with account maturity and even widens with larger transactions.
- There is no correlation between frequency of account usage and geographic location of BETA customers. There is a significant correlation between transaction amount and geographic customer location, although.

- There is not a strong correlation between account usage and account penetration (number of BETA customers in each Nigeria state).
- Male customers on average deposit 30 percent more money per transaction and withdraw 10 percent more as compared to female customers. However, the distribution of transaction amount is highly skewed; 4.4 percent of customers, majority men, make more than 80 percent of all transactions. If the small portion of men with high account balances is removed then the study shows that women customers tend to save more as compared to their male counterparts.
- Customer's age and its impact on transaction amount varies between lower and higher percentiles of BETA savers. Age has a significant effect on customers who transact at lower amounts (10th percentile); older customers make larger transactions. Customers who transact at higher amounts (90th percentile), tend to be younger customers.
- Account maturity has a limited effect on customers who transact at lower amounts (10th percentile), however, the effect of account maturity increases for those making high-value transactions.
- Customers tend to make larger transactions in the dry season as compared to rainy season. Customers who transact at highest percentile make larger transactions.
- Higher numbers of BETA agents in geographic locations is highly correlated with increased account usage. BETA Friends are an essential catalyst in increasing active account usage.