FINANCIAL SUSTAINABILITY AND OUTREACH IN INCLUSIVE FINANCE: A DEPOSITORY MICROFINANCE PERSPECTIVE.

EVIDENCE FROM LOW INCOME SUB-SAHARAN AFRICA

ada 25 years

LUXEMBOURG AID & DEVELOPMENT

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INTRODUCTION AND BACKGROND

- The microfinance sector in **Low Income Sub-Saharan African (LISSA)** countries and in other parts of the globe, faces challenges in balancing the double bottom line objectives of microfinance provision; financial ***sustainability*** and ***outreach*** (Huq, Azad, Masun, Wanke, & Rahman, 2017).

- According to Bogan (2012), financial sustainability is the ability of the Microfinance Institutions (MFIs) to cover their operational and non-operational costs from the revenues earned thereby ensuring that they live long.

- Outreach is multidimensional encompassing ***outreach breadth***; the provision of a wide array or voluminous financial products and services to the clientele, and ***outreach depth***; which relates to the clientele's poverty status (Woller & Schreiner, 2004).

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- On the one hand, prioritizing outreach the 'original mission' of the MFIs in support of the **Welfarists' theory** (Woller, Dunford, & Woodworth, 1999) compels the MFIs to serve the poorest and very remote clientele with financial services of very small balances.
- But serving this niche market is very costly, and this thwarts financial sustainability.
- On the other hand, pursuing financial sustainability as promulgated by the **Institutionalists' theory** (Rhyne, 1998) incites the MFIs to charge high microcredit interest rates and to focus on the urban better-off poor with financial services of large average balances.
- This is deemed profitable and guarantees the assured continuity of the inclusive micro-financial systems but it results in '**mission drift**'; the shift of focus from serving the pro-poor to serving the better-off poor.

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- According to Cull & Morduch (2017), the increased preference for financial sustainability over outreach indicates that **the MFIs might be losing their moral compass**.

- Thus, financial sustainability and outreach have become an ‘either or’ question indicating that there is a **trade-off** in achieving these two goals alongside. Morduch (2000) dubbed this financial sustainability-outreach nexus; a **schism**.

- Moreover, a detailed look into existing microfinance literature shows that the financial sustainability-outreach nexus has always been told from a microcredit perspective (Ahlin, Lin & Maio, 2011; Zerai & Rani, 2011; Kipesha & Zheng, 2013; Wijesiri, Yaron & Meoli, 2016; Bayai & Ikhide, 2016b; El-Maksoud, 2016; Xu, Copestake & Peng, 2016; Amin, Qin, Rauf & Ahmad, 2017).

- Scanty literature exists on the **financial sustainability-outreach relationship in depository microfinance most particularly in Sub-Saharan Africa (SSA).**

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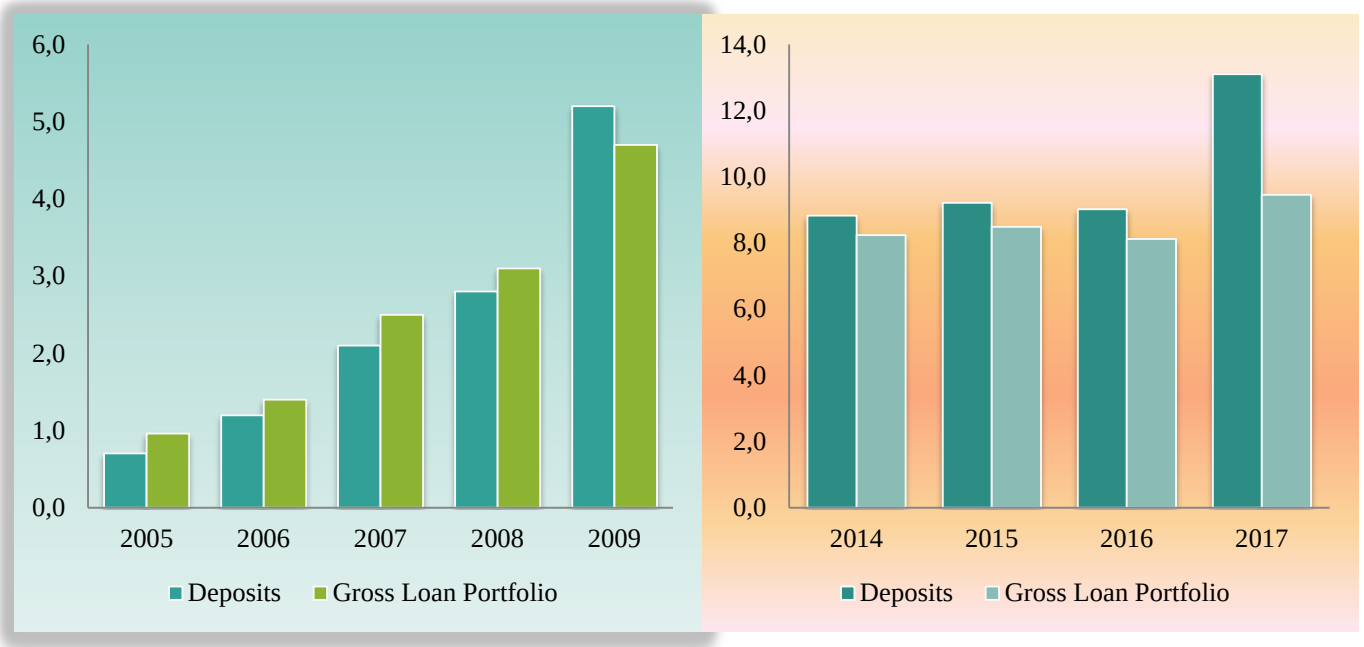
- The SSA region is experiencing a glut of microfinance deposits to the extent that the volume of deposits exceeds the volume of the gross loan portfolio since the year 2009.

Figure 1: SSA's Microfinance Deposits vs the Gross Loan Portfolio in US$ billions (2005-2009) and in US$ millions (2014-2017)



Source: Authors' own diagram based on data from the Microfinance Information Exchange (MIX) & Consultative Group to Assist the Poor (CGAP) annual reports, 2010; 2011; 2013; MIX, 2015, 2016, 2019).

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- Between 2009 and 2015, SSA was the second world's leading region in terms of mobilizing voluntary deposit volumes.
- Furthermore, exclusive to the SSA region is that the number of depositors far exceeds the number of borrowers (MIX, 2015) as shown in Figure 2 on the next slide. Lafourcade, Isem, Mwangi, & Brown (2005, p. 4) dubbed this phenomenon, "the African exception".
- These statistics have dismissed the long held view that deposits were the "forgotten half" of microfinance as the poor have demonstrated that they are also able to save but in relatively small proportions (Helms, 2006, p. 24).

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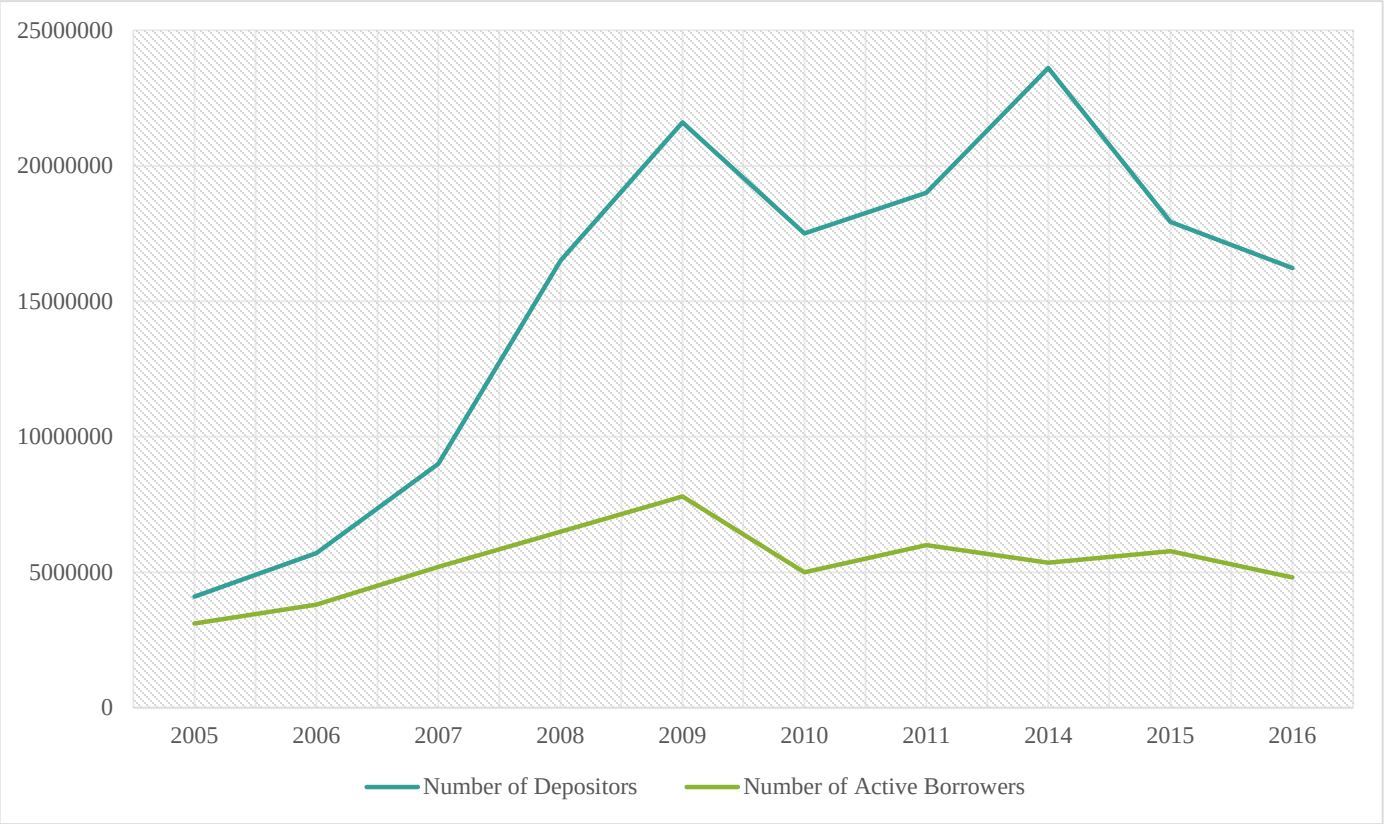
Figure 2: Number of Voluntary Depositors and Number of Active Borrowers in SSA between 2005 and 2016



Source: Authors' own diagram based on data from the MIX & CGAP annual reports

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RESEARCH OBJECTIVE

- The objective of this paper therefore is to examine whether there is any evidence of a mission drift or a trade-off in the LISSA's inclusive depository microfinance sector in the pursuit of financial sustainability and outreach goals.

- Thus, this paper tries to address the question: "Is there any evidence of a financial sustainability-outreach trade-off or mission drift in the LISSA's depository microfinance sector?"

- To the best of the knowledge of the researchers, no depository microfinance story has been told as yet on the financial sustainability-outreach nexus, most particularly for the LISSA countries where the Gross National Income (GNI) per capita (USD$1 025 or less) and the minimum wages are very low; and the rates of poverty, rural populations and financial exclusion are very high (Bhorat, Kanbur, & Stanwix, 2015; International Monetary Fund (IMF), 2016; World Development Indicators (WDIs), 2017).

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- This study will therefore provide an insight on the extent to which the depository microfinance sector in the LISSA region has been working towards building sustainable and inclusive financial systems in the perpetual fight against poverty and financial exclusion using deposits.

- The results obtained will benefit the DTMFIs' managers; national, regional and international policy makers in balancing social performance goals and financial performance goals in this era of the Sustainable Development Goals (SDGs), where microfinance provision is deemed as an esteemed tool in eradicating extreme poverty.

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LITERATURE REVIEW

Table 1: Empirical Literature Review

Studies	Findings	Conclusion
Zerai & Rani (2011) *India* Kipesha & Zhang (2013) *East Africa*	Positive Positive (Institutionalists)	Intensifying outreach breadth boosts financial sustainability.
Huq et al. (2017) *South Asia*	Negative (trade-off)	There exists a trade-off in pursuing financial and social performance goals leading to a mission drift.
Amin et al. (2017) *Latin America* Kipesha & Zhang (2013) *East Africa*	Neutral (no trade-off) Neutral (Welfarists)	Increasing outreach to the poorest (depth of outreach) does not impede working towards attaining financial sustainability.

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Table 1 (continued…)

Studies	Findings	Conclusions
Churchill & Marr (2017) *South Asia and Latin America and the Caribbean*	Trade-offs exist but their severity depends on the region	The nexus varies across locations and also depends on the variables used to measure outreach, the model specification and the goals to be achieved.

Source: Authors' table based on literature review

- With these arguments in mind, Cull et al. (2009) in Bayai & Ikhide (2016b, p. 285) reasoned that "**the exact nature of trade-offs in microfinance differ across regions, but meaningful trade-offs need to be recognized and weighted everywhere**".
- It is in this context that this study seeks to examine the financial sustainability-outreach link in the depository microfinance sector of the LISSA countries.

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METHODS

Data and Data Sources

- Unbalanced *panel dataset* for the years 2006 to 2017 of 64 purposively sampled, self-reporting *MIX* DTMFIs drawn across 18 LISSA countries . Purposive sampling enabled the selection of DTMFIs with the highest level of information disclosure as measured by the completeness of their datasets based on the 5 point diamond scale of the MIX database.
- Data on the *country specific variables* was sought from the *World Development Indicators*.
- Data on the *sub-regions* was extracted from the 2018 *United Nations Conference on Trade and Development (UNCTAD) Handbook of Statistics*.

Data Reliability and Validity

- Though there is self-selection bias of the MIX reporting MFIs, standardization of financial reporting and the MIX adjustments make the data to be objective, easy to extract, manipulate and synthesize.
- The *WDIs* are globally recognized and reliable estimates on country specific macro-economic fundamentals.

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Dependent Variables

- average deposit balance per depositor/GNI per capita (AVDGNI), an indicator of outreach depth.
- natural logarithm of the number of depositors (lnNODEP), an indicator of outreach breadth.

Independent Variables

(a) DTMFI-specific: strictly exogenous

- Lagged dependent variables *($AVDGNI_{it-1}$ & $lnNODEP_{it-1}$)*
- *Financial sustainability:* operational self-sufficiency *(OSS):* weakly exogenous
- *Financing:* deposits to total assets *(DTA)*
- *Productivity:* deposits per staff member (*DEPSTAME)*
- *Experience:* number of years of operation (*AGE)*
- *Size:* logarithm of total assets (*lnASSETS)*
- *Risk:* portfolio at risk greater than 30 days *(PAR)*
- *Gender:* percentage of women clientele *(POW*)

(b) Country-specific: strictly exogenous

- *Competition:* commercial bank branches (*ComBB)*
- *Location:* rural population *(RPOP)*

(c) Sub-regional: strictly exogenous

Central Africa *(CA),* Western Africa (*WA),* Eastern Africa *(EA*)-base category. Southern Africa *(SA)* not included.

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Data Analysis

- The **System Generalized Method of Moments (SGMM)** which was first developed by Arellano & Bond (1991) and later on refined by Arellano & Bover (1995) and Blundell & Bond (1998) was employed.
- This method is suitable where the number of cross sectional units "*N*" (64 DTMFIs) is greater than the time period under consideration "*T*" (12 years) (Baum, 2013).
- Furthermore, the SGMM is superior to other panel data methods in solving the endogeniety problem which is caused by reverse causality, omitted variables and measurement errors.
- The SGMM incorporates a lagged regressand as one of the regressors. This introduces dynamic bias as the lagged dependent variable correlates with the time invariant fixed effects which allows for individual DTMFI heterogeneity.
- Thus, the SGMM utilizes the one period lagged regressand as instruments in levels thereby ensuring no correlation between the endogenous DTMFI specific variables and the error term.

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Data Analysis

- Diagnostic tests utilized:

1. AR test for checking autocorrelation of the residuals
2. Sargan-Hansen test that checks for over identifying restrictions (Roodman, 2009).

- Failure to reject the null hypotheses in both tests confirmed the robustness of the SGMM model.

- The general form of a dynamic panel data model is shown in equations (1) and (2):

$$Y_{it} = \gamma Y_{it-1} + X'_{it}\beta + \epsilon_{it}; |\gamma| < 1 \quad (1)$$

$$\epsilon_{it} = \mu_i + \varepsilon_{it} \quad (2)$$

- where; Y_{it} is the regressand factor, Y_{it-1} is the lagged regressand, $|\gamma| < 1$ is the intercept and is less than one; X'_{it} is a 1 x *k* vector of regressors; β is *k* x 1 vector of parameters to be estimated on the regressors for *i* = 1, … *N* and t = 1, … *T*.
- μ_i denotes the time invariant individual heterogeneity and ε_{it} denotes the idiosyncratic error component.

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Data Analysis

- μ_i and ε_{it} are assumed to be independent and identically distributed *(IDD)* with a zero mean and constant variance $(0, \sigma^2)$ and are exogenous to each other hence;

$$\in (\mu_{it}) = (\varepsilon_{it}) = (\mu_{it}, \varepsilon_{it}) = 0 \qquad (3)$$

- Equation 4 is the empirical model for outreach depth (Welfarists' model) and equation 5 specifies the empirical model for the outreach (Institutionalists' model):

$$AVDGNI_{it} = \phi AVDGNI_{it-1} + \beta OSS_{it} + \gamma Z'_{it} + \varphi X'_{it} + \mu_i + \partial_t + \varepsilon_{it} \qquad (4)$$

$$lnNODEP_{it} = \phi lnNODEP_{it-1} + \beta OSS_{it} + \gamma Z'_{it} + \varphi X'_{it} + \mu_i + \partial_t + \varepsilon_{it} \qquad (5)$$

- where $AVDGNI_{it}$ and $lnNODEP_{it}$ are the dependent variables; $\phi AVDGNI_{it-1}$ is the one period lagged dependent variable for the depth of outreach model. $\phi lnNODEP_{it-1}$ is the one period lagged dependent variable for the breadth of outreach model.

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Data Analysis

- These lagged dependent variables are endogenous in the empirical models.
- OSS_{it} represents the weakly exogenous variable.
- The strictly exogenous variables are represented by the (1 x k) vector Z' (country specific and sub-region variables) and the (1 x k) vector X' (DTMFI specific variables).
- Φ ,β, γ and φ represent the estimation parameters.
- The error component is broken down into the unobservable individual DTMFI heterogeneity effects which are inevitable, μ_i, the time varying effects, ∂_t, and the idiosyncratic term, ε_{it}.

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Table 2: Descriptive Summary for the Variables used

Variable	Obs.	Mean	Std. Dev.	Min	Max
AVDGNI	393	39.058	70.946	0	691
NODEP	427	78958.59	139880.5	40	1148561
OSS	501	99.8478	32.75798	0.38	228.12
POW	390	61.557	25.782	0	100
DTA	486	41.889	24.051	0	103.77
DEPSTAME	426	340.542	304.229	0	2280
AGE	571	16.900	6.604	7	41
ASSETS	538	2094946.7	35134719.8	157185	214144887
PAR	419	6.865	7.964	-14.57	97
ComBB	556	2.762	1.485	0.36	9.46
RPOP	571	69.713	12.210	42.9	90.38
CA	571	0.0928196	0.2904339	0	1
EA	571	0.4886165	0.5003087	0	1
WA	571	0.4185639	0.4937561	0	1

Source: Authors' table based on data from the MIX

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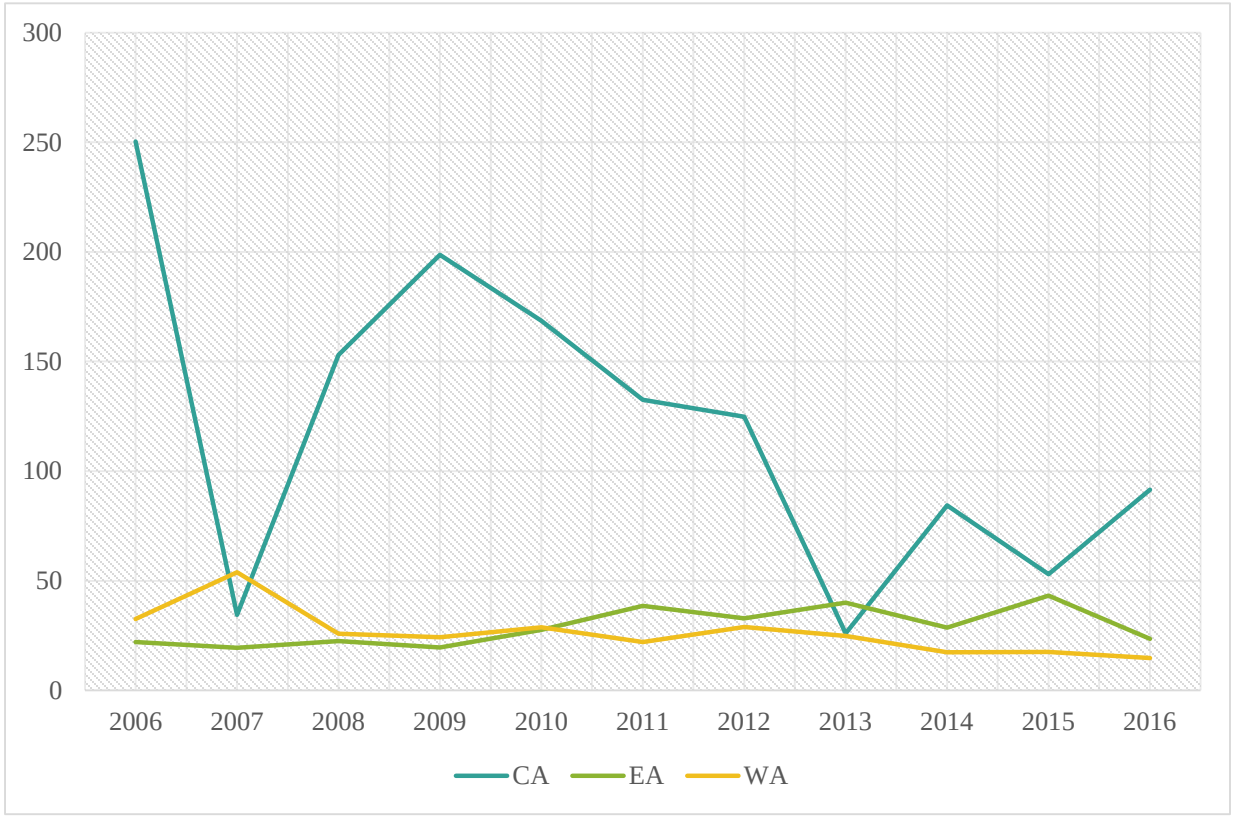
Figure 3: Descriptive Statistics on the Average Deposit Balance per Depositor/Gross National Income per Capita in the LISSA countries



Source: Authors' own diagram based on data from the MIX & CGAP annual reports

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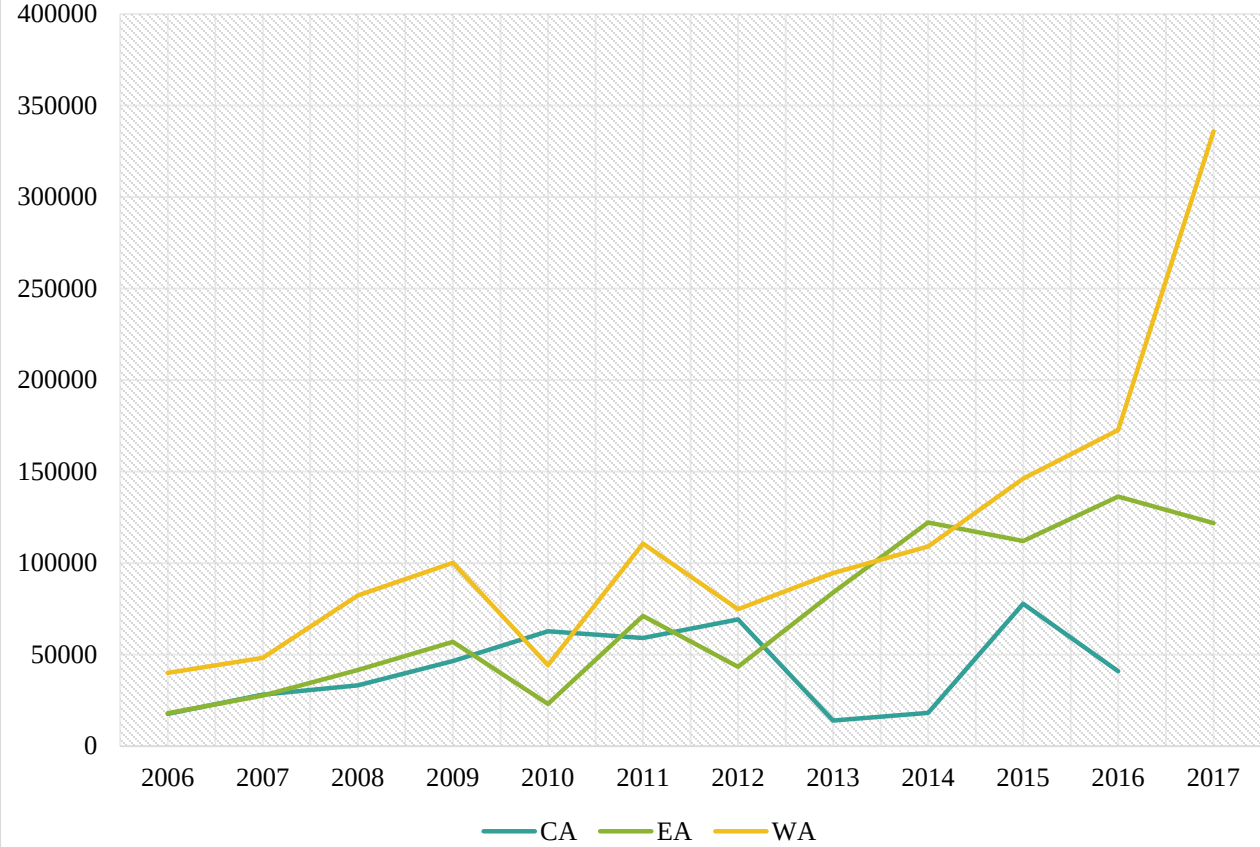
Figure 4: Descriptive Statistics on the Number of Depositors in the LISSA countries



Source: Authors' own diagram based on data from the MIX & CGAP annual reports

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RESULTS

Table 3: SGMM Regression Results for LISSA DTMFIs (baseline results)

Variables	AVDGNI	lnNODEP
Lagged Dependent Variable	0.2207917** (0.0947)	0.5661833*** (0.2014)
OSS	-0.0586011 (0.1438)	-0.002871** (0.0012)
POW	-0.1954064 (0.3138)	0.0009861 (0.0025)
DTA	0.6615132** (0.3142)	0.0012571 (0.0029)
DEPSTAME	-0.0584951* (0.0307)	0.0014543** (0.0006)
AGE	2.30412 (1.6639)	-0.0032384 (0.0076)
LnASSETS	-1.922134 (3.9104)	0.2808928* (0.1462)
PAR	-1.841811 (1.2196)	-0.0017356 (0.0042)
ComBB	5.33335 (10.2052)	-0.0155107 (0.0109)
RPOP	-0.5079222 (1.1255)	-0.16000 0.1246)
CA	8.291318 (27.4208)	-0.6037698 (0.3817)
WA	-10.64785 (18.3009)	-0.4115609** (0.2004)
EA (base category)		

table 3 continues on the next slide …

RESULTS

Table 3 (continued…..)

Number of Observations	173	185
Time Dummies	Yes	Yes
Number of Groups	53	55
Number of Instruments	30	36
GMM Instrument Lag	1	1
AR(1)	0.039	0.062
AR(2)	0.170	0.341
Hansen Test	0.420	0.167

***, ** and * denote the 1 %, 5 % and 10 % significance levels respectively. Robust standard errors are in brackets.

Source: Estimation

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Lagged dependent variables

- The lagged dependent variables in both tables are positive and significant indicating that the DTMFIs (both LISSA and non-LISSA) are persistent inclusive micro-financial systems in outreach depth and breadth. This means that their past deposits outreach programs have a bearing on their current and future ones.

Depth of outreach results

- No significant relationship was found between financial sustainability and the average deposit balance per depositor/GNI per capita implying that the average deposit size scaled by the GNI per capita does not have any bearing on self-sufficiency.

- Therefore, *no trade-off exists and no mission drift has occurred in outreach depth* of the inclusive depository microfinance sector of the LISSA countries.

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Depth of outreach results

- The DTA variable was positive and significant indicating that the LISSA DTMFIs are effective in the mobilization of intermediated deposits.
- The DEPSTAME variable is negative and significant with outreach depth indicating that administering deposit balances of varying amounts reduces the productivity of the personnel handling them.
- No significant relations were found between outreach depth and AGE, POW, lnASSETS, PAR, the country-specific variable and the sub-regional dummies.

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Breadth of outreach results

- Outreach breadth (log of the number of depositors) was negative and significant with financial sustainability. Thus, a decrease in the OSS by 0.002871 % stifles the growth rate in the number of depositors that the LISSA DTMFIs can reach. *Therefore, a trade-off exists* in achieving these two goals.
- A positive but insignificant relationship between the deposits to total assets ratio and financial sustainability was found.
- DEPSTAME was positive and significant with outreach breadth.
- The log of assets was positive and significant with the log of the number of depositors.
- Congruent with the outreach depth model, no significant results were found for AGE, POW and PAR, the country specific macroeconomic control.
- The Western Africa sub-regional dummy has significant relations with outreach breadth.

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Table 4: SGMM Regression Results for Non- LISSA DTMFIs (robustness check)

Variables	AVDGNI	lnNODEP
Lagged Dependent Variable	0.3648837* (0.1911)	0.573393*** (0.1612)
OSS	0.0231336 (0.0258)	-0.0009713 (0.0029)
POW	-0.0184133 (0.1593)	0.0005544 (0.0055)
DTA	0.1612537** (0.0691	0.0070217 (0.0059)
DEPSTAME	-0.0095889 (0.0070)	-0.0003049 (0.0008)
AGE	-0.1524078 (0.1529)	0.0028929 (0.0341)
lnASSETS	1.516333** (0.6865)	0.329551** (0.1384)
PAR	0.1891486 (0.1187)	-0.0114483 (0.0299)
ComBB	-0.4248347 (1.6680)	-0.1787035 (0.1894)
RPOP	-0.1833772 (0.7051)	0.0461848 (0.0381)
CA	36.53592*** (8.3586)	-2.1888212 (1.3474)
WA	15.53547 (16.1749)	-1.111276* (0.6316)
EA (base category)	26.51652 (28.5465)	-2.428264* (1.2856)

Table 4 continues on the next slide …

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Table 4 (continued…..)

Number of Observations	122	132
Time Dummies	Yes	Yes
Number of Groups	32	32
Number of Instruments	31	30
GMM Instrument Lag	1	1
AR(1)	0.090	0.052
AR(2)	0.198	0.110
Hansen Test	0.130	0.825

***, ** and * denote the 1 %, 5 % and 10 % significance levels respectively. Robust standard errors are in brackets.

Source: Estimation

In both models (outreach depth and outreach breadth), no significant outreach relationships were found with financial sustainability indicating that no trade-off or mission drift exists in outreach depth and breadth in the non-LISSA's depository microfinance sector.

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CONCLUSIONS

- We conclude that in depository microfinance, there is neither a trade-off nor mission drift in outreach depth but a trade-off exists in outreach breadth.

- Also, it is possible that the DTMFIs work with different segments of the market, the poorer and the better-off segments in terms of deposits, with no trade-off between outreach and sustainability due to cross subsidisation.

- However, the DTMFIs can have different policies in terms of credit as they also provide credit as well. Some of these institutions may restrain access to credit by the poorest segments as they are less profitable and riskier or there may be interest rate caps in place. Under such circumstances, there might be signs of mission drift in the access to credit.

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- From the significance of the deposits to assets ratio in the outreach depth model, it is concluded that the LISSA DTMFIs are active in balancing the needs of surplus and deficit units in microfinance provision.
- But this is done at the expense of the productivity of the personnel that handles deposits as outreach is deepened. In marked contrast, the deposit-taking staff members are productive as outreach is broadened.
- Further conclusions are that the country specific controls do not influence the financial sustainability-outreach nexus but the sub-regional factors do have a slight influence.

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RECOMMENDATIONS

- Since the study concluded that neither a trade-off exists nor mission drift has occurred in outreach depth, it implies that the LISSA DTMFIs can intensify their deposit mobilization strategies amongst the poorest populations.

- It is therefore recommended that the LISSA DTMFIs diversify their deposit collection instruments to include mobile savings accounts, diaspora remittances accounts and agent banking, amongst others.

- As the study concluded that a trade-off exists in outreach breadth, it is recommended that the LISSA DTMFIs formulate cost cutting measures in their deposit-taking programs as the numbers of both the pro-poor and the better-off depositors increase. This will help boost financial sustainability.

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- Inclusive outreach breadth measures such as free account opening through mobile phone technologies, paying high interest rates on depositors and many clustered office networks should be avoided as they are embedded with exorbitant costs which have undesirable repercussions on realizing financial sustainability.

- Agent banking and mobile phone technologies can be leveraged on to increase formal financial services to the low income populations.

- **For further research**, there is need to deepen the knowledge on savings access and use, and its role on replacing or complementing credit and other micro-financial services in a bid to increase financial access to low income populations.

THANK YOU FOR YOUR ATTENTION

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