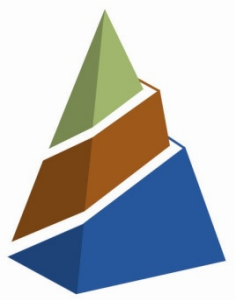

FINANCIAL SERVICES ASSESSMENT

Who Does Formal Finance Reach in Rural Malawi?

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DECEMBER 10, 2009

Financial Services Assessment project can be found on the web at http://www.fsassessment.umd.edu/

ABOUT THE PROJECT

The *Assessing the Impact of Innovation Grants in Financial Services* project is designed to examine the impact of financial services on the lives of poor people across the developing world. This project is funded by the Bill & Melinda Gates Foundation, which is committed to building a deep base of knowledge in the microfinance field. The IRIS Center at the University of Maryland, College Park, together with its partner Microfinance Opportunities, will assess a diverse range of innovations in financial services. The results of this project will shed light on the design and delivery of appropriate financial products and services for the poor, and the potential to scale up successful innovations to reach larger numbers of low-income households.

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Assessing the Impact of Innovation Grants in Financial Services is funded by a $6 million grant from the Bill & Melinda Gates Foundation.

REPORT SERIES

This report is part of a series that will be generated by the *Assessing the Impact of Innovation Grants in Financial Services* project. The reports are disseminated to a broad audience including microfinance institutions and practitioners, donors, commercial and private-sector partners, policymakers, and researchers.

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ABSTRACT

This paper examines the outreach of formal and informal service providers with savings and loan products in rural Malawi. Outreach is analyzed on two dimensions: breadth and depth. While many rural households use financial services from a variety of formal and informal sources, formal financial services are unlikely to reach poorer households, even among those that hold some cash savings at home. The households accessing informal financial services (most commonly loans from friends and family) tend to be poorer than those accessing formal services or non-users. Additionally, literacy seems to be an important contributor to access, suggesting an educational barrier either in demand for formal products or problems in understanding terms or application procedures.

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ACRONYMS

BMGF	Bill & Melinda Gates Foundation
CUMO	Concern Universal Microfinance Organization
DEMAT	Development of Malawian Enterprises Trust
EU	Economic Union
FINCA	Finance for International Community Assistance
FINCOOP	Finance Cooperative Ltd.
GDP	Gross Domestic Product
GoM	Government of Malawi
MFI	Microfinance Institution
MoAI	Ministry of Agriculture, Irrigation, and Food Security
MoF	Ministry of Finance
MRFC	Malawi Rural Finance Company Ltd.
MSB	Malawi Savings Bank
MSE	Micro and Small Enterprises
MUSCCO	Malawi Union of Savings and Credit Co-Operatives Ltd.
MWK	Malawi Kwacha
NABW	National Association of Business Women
NASFAM	National Smallholders Farmers' Association of Malawi
NBFI	Non-Bank Financial Institution
NBM	National Bank of Malawi

NGO	Non-Government Organization
OIBM	Opportunity International Bank of Malawi
RBM	Reserve Bank of Malawi
SACCO	Savings and Credit Cooperatives
SEDOM	Small Enterprise Development Organization of Malawi

EXECUTIVE SUMMARY

The *Assessing the Impact of Innovation Grants in Financial Services* project (the *Financial Services Assessment* project), jointly undertaken by the IRIS Center at the University of Maryland and Microfinance Opportunities, is assessing the impact of grants provided by the Bill and Melinda Gates Foundation (BMGF) to microfinance organizations for the design and development of innovations in providing financial services in developing countries. The research intends to assess the impact of new financial products, services, and delivery systems on outreach and client welfare. Through the use of baseline and end line quantitative surveys and qualitative studies, the research examines if and how the financial innovations supported by BMGF improve access to and use of financial services by the poor and impact client welfare. The research helps reveal the value proposition of financial innovations: the unique value added by the innovations to clients through the grantee institutions.

In 2007, the Bill and Melinda Gates Foundation provided funding to Opportunity International Bank in Malawi (OIBM) to purchase a mobile bank. The mobile bank is a roving bank fitted with the latest information technology mechanisms that provides rural Malawians increased access to financial services. The mobile bank was introduced in August, 2007 to serve three districts in central Malawi - Lilongwe, Mchinji and Dedza. As part of the *Financial Services Assessment* project, this study was designed to assess the welfare impacts on households due to the OIBM mobile bank.

In this paper, based on a study that collected quantitative data from 2,459 households in three rural districts of Central Malawi from February to April 2008, we examined the availability of financial services and if the poor are reached by the existing service providers. Specifically, we discussed the use of formal and informal savings and loan products among rural households to understand the breadth and depth of outreach by financial service providers. We examined the likely characteristics of users of formal finance. The study results are intended to inform OIBM of the potential clientele for their services. We summarize the major findings of the study and draw implications for expanding OIBM's outreach in Central Malawi.

A. MAJOR FINDINGS OF THE STUDY

A total of 2,459 households from three districts of Lilongwe, Mchinji and Dedza, where the OIBM mobile van was introduced in August of 2007, were randomly selected and interviewed during January – April of 2008. The interviews were conducted using a 30 page structured questionnaire developed for the study and pre-tested in the field prior to the survey.

1. Sample characteristics

- Most of the sampled households were headed by men (85% of sample).
- Average annual income among sampled households was about US $182.
- About 93% of the sample was engaged in farming while 66% also raised livestock or 44% also worked as wage laborers.
- Nearly 40% of sample fell below the poverty line of PPP $2 a day while only 4% were below PPP $1 day poverty line.
- Only 8% of households were food secure, and about 45% of sample were severely food insecure.
- Examining by gender of heads of households, about 7% of women headed households live under $1 / day poverty line compared to 3.1% among male headed households. The difference in poverty rates is significant indicating vulnerability among female headed households.

- About 58% of women headed households are severely food insecure compared to 43% among men headed households.

2. Breadth of outreach of financial services

- *Households in central Malawi have access to a wide range of formal and informal financial services that offer savings and loans.* There were over 20 different sources reported to provide loans and deposit services. About 938 households (38% of the total sample) reported having at least one loan and/or savings account with a formal or informal external agent in the period of one year.
- *Many borrow but some save.* Twice as many households reported an outstanding loan (31% of households) than reported a current external savings account (14% of the sample). There were 751 households (31%) that reported outstanding loans. Among the 751 borrower households, about 156 households also had a savings account (i.e., 45% of savings account-holding households also had loans). There were 595 households that had an outstanding loan, but no external savings. Along with the 156 households that reported loans and deposits, there were about 187 households that only held savings accounts – totaling about 343 households with deposits.
- *Savings are mostly formal while loans are mostly informal*: Of the savings, 84% were with formal institutions, while 82% of the loans were informal (75% with a friend/relative). The majority of households with savings accounts held them at formal or semi-formal financial institutions. External formal savings accounts included commercial banks; parastatal banks, MFI, Coops and NGOs. Informal savings were held with ROSCAs, moneylenders, families, and friends.
- *The most common lending agent was a borrower's friend or relative.* The commercial banks, including OIBM, were not prominent among formal sources. Only four loans were held with OIBM, representing less than one percent of all loans in the sample.
- *Use of deposit services among women headed households was considerably lower relative to male headed households.* The total savings to loans ratio among male headed households is about 51% while it is about 17% among female headed households. Both male and female headed households reported more informal than formal loans, and more formal than informal deposits.

3. Depth of outreach of financial services

- *Poverty rates among users of formal loan and deposit products are much less than those who use informal finance or non-users of any external finance.* About 1.7% of formal finance users lived under PPP $1 a day, while it was 2.7% among informal finance clients and 4.5% among non-users of any financial service.
- *Depositors were much less likely to be poor than people who borrow from external agents or who do not use any financial service.* Less than 1% of depositors lived below PPP $1/day poverty line while it was 3.1% and 4.5%, respectively, among borrowers and non-users of any financial service.
- *Households with formal loans are less likely to be poor while those with informal loans tend to be poorer. About* 3% of informal borrowers lived below PPP $1/day poverty line

compared to 2.5% among borrowers from formal sources and 4.5% among non-users.

- *Households using formal financial services were more likely to be food secure or only mildly food insecure compared to non-users of any external finance or users of informal external finance*. About 29% of formal finance users were severely food insecure while it was 55% among informal users.

4. **Factors associated with use of formal financial services**
    - *Distance could matter*. The use of formal financial services was high for households living within a five kilometer radius of the major trading center where the OIBM mobile banking van stops every week to provide financial services. However, use of formal financial services beyond five kilometers is unclear.
    - *Occupation matters*. The use of formal financial services was high among households that ran a business or were asset rich and households with members that were salaried employees or educated. The informal financial service use was high among households engaged in wage labor and those exposed to many household shocks.
    - *Asset levels and education matters*. The use of formal financial services was high among households that were asset rich and households with members that were educated.

B. WHAT IS THE SCOPE FOR OIBM'S EXPANSION IN THE REGION?

While it is not possible to tease out from these data (prior to having the panel data) the demand for financial services, especially for OIBM, the study provides directions that OIBM could consider in order to broaden and deepen its outreach in the study area.

First, tobacco growers appear to have a clear need for formal savings accounts both in order to receive payments and to help manage the bulk income they receive at harvest time. However, only 20% of tobacco growers had formal savings accounts. Eighty-one percent of tobacco-growing households without savings accounts reported "no money" as the reason for not opening a savings account. Perhaps more importantly are the findings that 13% of tobacco growing households reported that they had no need for an external savings account and that 3% said that they were not aware of an institution that could provide them with an account. The timing of the survey may have influenced this result, but, nonetheless, OIBM could increase its marketing efforts to increase outreach at times when there is potential demand for savings and loans.

Second, the business owners are another potential market for OIBM. Thirteen percent of business owners have formal savings accounts. While the majority of business owners without external savings also reported "no money" as the reason for not having formal savings, a small, but significantly greater number of business owners reported transactions costs and bank terms as a barrier than other types of households. For example, business owners were more likely to cite low interest rates, high minimum balance, distance to agent, or lack of an appropriate identification as a reason for not having a savings account. These are needs that OIBM can address when designing products for business owners. Business owners *with* formal savings accounts were also more likely than other households to report opening the account in order to get a loan. This service is an important feature of OIBM accounts that needs to be highlighted.

Third, OIBM may have a particular scope for expansion among business owners living outside Dedza and Mchinji towns. For the business owners living within 10 km of one of these larger trading centers, 23% have formal savings accounts and 15% have formal loans. For those living beyond 10 km from these centers, only 10% have savings accounts and 9% have loans with formal external agents. Bringing the financial services to more locations may, therefore, entice these

business owners to take up accounts. The relationship between service use and distance for business owners may be driven in part by the type of businesses that households operate in each area (for example, brewing is more common away from the towns, while retail is more common in the towns), but even after controlling for business type, proximity to the town was still associated with greater uptake. This distance cut off appeared less important for tobacco growers with respect to savings (20% for within 10km vs. 15% for above 10km), but living closer to the towns was associated with higher use of formal loans (16% for within 10km vs. 7% for above 10km).

Fourth, financial services are less used among female headed households compared to men. Traditionally, OIBM provides services to many women clients in many countries. With OIBM's experience in servicing women, it has an untapped market in women headed households in the study area as they expand in rural areas with the mobile van.

C. NEXT STEPS

The results presented in this paper are obtained from the base line study that is only intended to inform OIBM of the potential clientele for their services, at the initial stages of OIBM's expansion in the study area. The base line study does not explicitly examine breadth and depth of OIBM due to very limited outreach of OIBM at the time of this base line study. The end line survey of the same respondents is planned for 2010 to construct panel data. Analysis of the panel data will help assess if the presence of OIBM altered the use of financial services in the study areas, and if poverty status has changed among the sampled households that use financial services, causes for the change, and also change in breadth and depth of outreach of OIBM often about 2.5 years of operation in the study area.

Key issues for further enquiry to support the above analysis to explain the trends include:

- Effects of seasonality on food security and use of financial services
- Change in supply and entry by financial service providers in the study area with OIBM's entry.

The information could be obtained from the landscape study scheduled for June of 2010 and also from the eighteen month long financial diaries collected among 200 members and non-members of OIBM in the mobile van operational area during the period of June 2008 to December 2009 by the companion research team at MFO. Also, the study conducted by IRIS during August – September of 2009 on the enabling environment for financial services by OIBM could help provide context to the breadth and depth of outreach by OIBM in 2010.

STUDY BACKGROUND

The *Assessing the Impact of Innovation Grants in Financial Services* project (the *Financial Services Assessment* project), jointly undertaken by the IRIS Center at the University of Maryland and Microfinance Opportunities is assessing the impact of grants provided by the Bill and Melinda Gates Foundation (BMGF) to microfinance organizations for the design and development of innovations in providing financial services in developing countries. The research will assess the impact of new financial products, services, and delivery systems on outreach and client welfare. The approach taken by the *Financial Services Assessment* project emphasizes issues such as access to financial services and the role of the enabling environment. Through the use of baseline and endline quantitative surveys and qualitative studies, the research examines if and how the financial innovations supported by BMGF improve access and use of financial services by the poor and impact client welfare. The research helps reveal the value proposition of financial innovations: the unique value added by the innovations to its clients through the grantee institutions.

In 2007, the Bill and Melinda Gates Foundation provided funding to Opportunity International Bank in Malawi (OIBM) to purchase a mobile bank. The mobile bank is a roving bank fitted with the latest information technology mechanisms that provides rural Malawians increased access to financial services. The mobile bank was introduced in August, 2007 to serve three districts in central Malawi - Lilongwe, Mchinji and Dedza. This study was designed to assess the welfare impacts of households due to the OIBM mobile bank.

The research findings are disseminated through a series of topical reports that: (i) examine access to and use of financial services provided by the grantees and (ii) identify the value proposition of grantees' innovations in terms of welfare improvements. Collectively, these studies will allow us to understand the outcomes and impact of financial service interventions. This paper, written based on the findings from the baseline quantitative survey in Malawi, is one of the several such topical papers in the series. Other papers prepared in this series are listed in Annex A.

I. INTRODUCTION

The majority of households in rural, central Malawi rely primarily on seasonal farm incomes derived from one annual crop such as tobacco and maize (Diagne & Zella, 2001). Therefore, the households use several mechanisms including financial instruments to smooth their consumption (Diagne and Zeller, 2001; Johnson and Copestake, 2006). The use of financial services to facilitate household cash flow management and the resulting impacts on household welfare depends on access to financial services that reflects the availability of such services and is often measured through its use or uptake.

In this paper, we discuss the use of formal and informal savings and loan products among rural households in central Malawi to understand the breadth and depth of outreach by financial service providers. Breadth of outreach refers to the number of clients served and volume of financial services provided. Depth of outreach refers to the types of clients served, especially the poor and the excluded. We especially examine if formal finance reaches the poorest, and the likely characteristics of the users of formal finance.

In 2007, BMGF provided funding to OIBM to purchase a mobile bank, a van fitted with technology based mechanisms, to provide financial services in rural Central Malawi. The mobile bank went in to operation by August of 2007. During the period of January to April 2008, IRIS conducted a baseline survey to gather quantitative data from about 2,459 rural households in Central Malawi to assess the impacts at client level due to OIBM's mobile bank that started service in August 2007. In doing so, detailed information was collected on poverty status, food security conditions and use of financial services by the sampled households. The base line study results are only intended to inform OIBM of the potential clientele for their services. The base line study does not explicitly examine the breadth and depth of OIBM at this initial stage of OIBM's expansion into the study area due to very limited outreach at the time of this base line study. Therefore, discussion in this paper, based on the baseline survey, pertains to outreach of all formal and informal financial service providers with loans and savings during initial stages of OIBM mobile bank operations. The endline survey of the same respondents is planned for January March 2010 to construct panel data. Analysis of the panel data will help assess if the presence of OIBM altered the use of financial services, in the study areas, and if poverty status has changed among the sampled households that use financial services, and also breadth and depth of outreach of OIBM about 2.5 years of operation in the study area.

In this study, we interpret the breadth of outreach of financial services through client use of various financial services and not through the actual supply of financial services. We instead rely on the findings from a qualitative landscape study conducted by our companion research team at MFO in July 2007 that gathered information from suppliers in the study area (see McGuinness, 2008 for details). Also, in this paper, the baseline data on use of financial services are used to predict the likelihood of use of financial services by various households. Therefore, the estimates are associational between household characteristics and financial service use that reflect differential demand for these services from households of various poverty levels. The estimates should not be interpreted as changes caused by the use of financial services. The data were collected during the 2008 pre-harvest season (January-March) when little money is typically in circulation and households have to rely on cash savings, grain stocks, and loans to make ends meet. In households with school-aged children, cash needs can be particularly high as secondary school fees are due at this time as well. Thus, households are typically under high financial stress during this time period. Also, if they are unable to stock food, many households may become food insecure.

The next section describes the study area, the framework used to draw the sample for the study, and a demographic and basic socio-economic description of the sampled households. In Section III, the study findings on breadth and depth of outreach by formal and informal financial service providers are discussed to

understand if formal financial service is reaching the poor. The implications of the study findings to infer the potential of financial services, especially which are provided by OIBM in rural Malawi, are discussed in the concluding section.

II. THE STUDY SAMPLE

A. STUDY AREA DESCRIPTION[1]

Malawi is located in southern Africa, with a land area of 98,080 square kilometers and a population of about 13.2 million. The economy is dominated by the agricultural sector: 85% of the population lives in rural areas and 90% of the labor force derives its income from agriculture. Crop production provides 73% of rural household income.

Malawi is one of the poorest countries in the world, ranking 166 out of 177 on the Human Development Index. Its estimated GDP per capita is PPP US$600. As shown in Table 1, in 2005, 52% of the population lived below the national poverty line, while 22%of the population was considered ultra-poor, with incomes below that necessary for adequate food consumption. In terms of the international poverty line, 28% of the population lived on less than US$ 1 per day.

Poverty rates in the study districts of Mchinji, Dedza and rural Lilongwe in Central Malawi show that the Lilongwe Rural district has lower than national level poverty rates, while Mchinji and Dedza have higher than the national level rates. Mchinji also appears to have a much higher proportion of ultra-poor than the other two districts.

Table 1: Populations and Poverty Rates in Study Area (by National Poverty Line), 2005

District	Number of Households	Poverty Rate (%)	Ultra-Poverty Rate (%)
Lilongwe Rural	251,640	38%	12%
Mchinji	86,092	60%	30%
Dedza	135,849	55%	21%
Malawi Total	2,731,346	52%	22%

Source: IHSS 2004/2005

Table 2 shows the most important formal, semi-formal, and informal financial services providers in the study area by institutional type and product. The major providers of deposit services in the study area are commercial banks and one parastatal, Malawi Savings Bank (MSB). On the loan side, the major suppliers include microfinance institutions (MFI), NGOs, savings and credit cooperatives (SACCOs) and parastatals. Only a few institutions provide both savings and loans, including Malawi Rural Finance Company, Ltd (MRFC) and SACCOs such as Finance Cooperative Ltd. (FINCOOP) and OIBM.

[1] This section is adapted from McGuinness, 2008.

Table 2: Financial Institutions in the Study Area by Sector, Type, and Product

Sector	Type of Institution	Type of Products Offered		
		Savings	*Savings & Loans*	*Loans*
Formal	Commercial Banks	NBS Bank, National Bank, Standard Bank	OIBM	
Semi-Formal	Parastatals	MSB	MRFC	
	Coops		MUSCCO, FINCOOP, Ulimi	
	MFIs			FINCA, CUMO, PRIDE
	NGOs	CARE VSL		Several
Informal		ROSCAs		Moneylenders
				Family & Friends

The formal financial sector, represented by branches of commercial banks, is only present in the study area's large towns near the trading centers of Mchinji and Dedza. While OIBM, a new entrant into the study area, does not have a branch office in these two trading centers, the OIBM mobile bank stops twice a week to provide financial services to its clients. The mobile van also stops twice a week at four other smaller trading centers in the study areas. The parastatals, including MSB and MRFC, have a large outreach in the rural areas through their branches due in part to their many years of experience in rural finance. The outreach of the semi-formal financial sector is more dispersed than the formal sector or the parastatals. MFIs, SACCOs, and especially NGOs often have limited operational areas. Many NGOs operate at the village level (see Table 3).

Table 3: Financial Institutions Found in Study Locations

	Mchinji Town	Trading Centers on Mchinji Route	Lilongwe City	Trading Centers on Dedza Route	Dedza Town
OIBM mobile van	✔	✔	✔	✔	✔
Formal Savings Institutions					
MSB	✔		✔		✔
MRFC	✔	✔	✔	✔	✔
NBS Bank	✔		✔		✔
National Bank	✔		✔		

	Mchinji Town	Trading Centers on Mchinji Route	Lilongwe City	Trading Centers on Dedza Route	Dedza Town
Standard Bank			✔		✔
Post Office	✔	✔	✔		✔
MFIs & Loan Suppliers					
CUMO				✔	✔
FINCA	✔	✔	✔		✔
FITSE		✔	✔		
FINCOOP		✔	✔		
MARDEF	✔	✔	✔	✔	✔
MRFC	✔	✔	✔	✔	✔
MUSCCO	✔	✔	✔		✔
PRIDE Malawi		✔	✔		

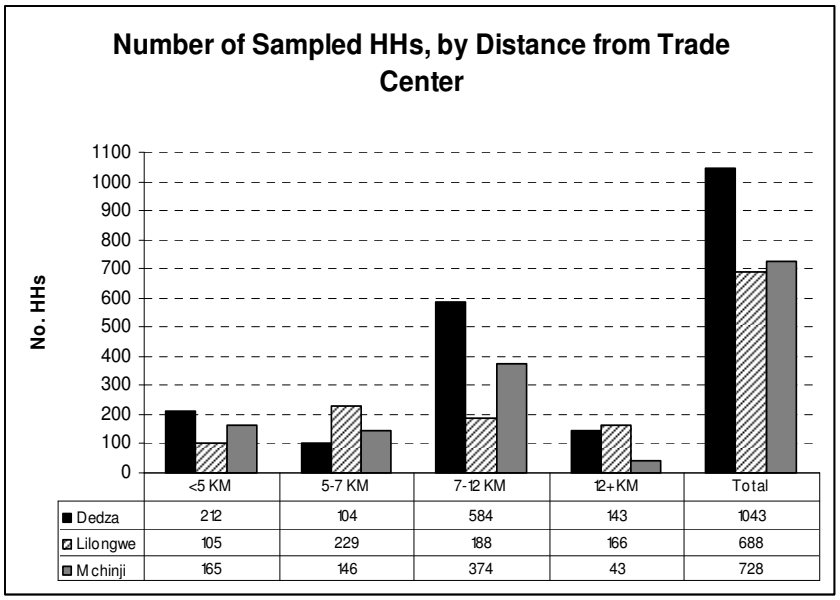
Note: MFIs may have a presence in a location without having a branch. Agencies of banks are included as well as branches.

B. THE SAMPLE

The sample for the study consists of randomly selected 2,459 households in the Lilongwe, Dedza, and Mchinji districts of Malawi. The households were drawn from a total of 118 "enumeration areas" (EAs) [2] randomly selected in the three study districts. These EAs are located within a 12 km radius of each of the six trading centers where OIBM mobile van stops every week. The EAs were randomly selected from the lists of EAs categorized by population and distance from the trading center. Within each EA, about 20-24 households were randomly selected for the survey. The response rate was very high with 97% of selected households agreeing to participate in both base- and endline surveys. Figure 1 shows the sample size in each district, by the distance of the EA from the trading center.[3]

[2] An enumeration area (EA) is a collection of about 250 households spread across a few villages. These areas were developed for the census data collection in 1998.
[3] Due to variations in population density, a larger proportion of our sample comes from Dedza district (1,043) than either Lilongwe (688) or Mchinji (728). Additionally, since Mchinji trading center is very close to the Zambian border (west) and a mountain (northeast), the population living 10 km from the call point was very small, leading to a limited sample size for that area. We used appropriate weights in our analysis to account for variations in populations.

Figure 1: Sample Size for the Study, by Districts and Distance from Trading Center



	<5 KM	5-7 KM	7-12 KM	12+KM	Total
Dedza	212	104	584	143	1043
Lilongwe	105	229	188	166	688
Mchinji	165	146	374	43	728

C. SURVEY INSTRUMENT [4]

The survey instrument used to gather data for the study was a 30-page structured questionnaire with eleven sections including household demographics, economic activities, poverty status, food security, physical assets, income, use of financial services, shocks experienced and mechanisms used to cope with them, and social capital. The instrument was pretested in the field prior to conducting the survey. It was also translated into the local language, Chichewa.

To assess the poverty status of the study sample, the IRIS research team designed a Poverty Assessment Tool (PAT)[5]. The Malawi PAT is based on the methodology originally developed by the IRIS Center to gather household data using a short survey with indicators that have been identified as the best predictors of whether a given set of households is poor/very poor. To determine the best indicators of poverty in Malawi, the IRIS team in 2007 used the data gathered for Central Malawi in the 2004-05 Second Integrated Household Survey (IHS-2), based on the World Bank's Living Standards Measurement Survey (LSMS). It analyzed the data using multiple statistical methods to identify a set of potential indicators to predict the poverty levels of a population. The indicators were then developed into a 34 question survey. These questions included asking about information on individual household members (e.g., level of education, health status), characteristics of the household's dwelling (roofing material, source of drinking water), household possessions (radio, car) and the behavior of household members (business ownership).

The survey collected information to predict the share of respondent households living below three poverty lines: the national poverty line, the $1/day PPP international poverty line (technically US$ 1.08 in PPP terms in 1993 prices), and the $2/day PPP line (US$ 2.16 in PPP terms in 1993 prices). The national poverty line was computed on the basis of the food plus basic needs--that is, the cost of a minimal caloric consumption basket plus the non-food consumption of those households who have approximately this level of food consumption. The incomes that correspond to the poverty lines are presented in Table 4.

[4] The survey instrument is available upon request in both English and Chichewa
[5] http://www.povertytools.org/

Table 4: Income Levels that Correspond with Poverty Lines in Malawi (in Kwachas and USD)

Poverty Lines	Malawian Kwachas /Year	USD/Year*
$2 a day line	1,889	12.72
National income line	1,559	10.50
Median income line	1,074	7.23
$1 a day line	945	6.36

*An exchange rate of 148.5 Kwachas to 1 US$ is used. For $1 and 2 a day, 1993 PPP conversion factor is used.

The Poverty Assessment Tool (PAT) provides a statistic that indicates the poverty rate for a sample or sub-sample/ segment of the population with high level of confidence. The tool does not yield individual expenditure levels for each household with a high level of confidence, even though these outputs are computed for and used by the final result. Indeed, PAT is not specifically designed to offer robust predictions on a household-by-household basis. Rather, it is constructed to offer accurate predictions of overall poverty of a sample or a sub-sample, even if the individual household predictions may be inaccurate.[6]

Therefore, in addition to poverty levels of the sample, we also examined the food security status using food security indices that provide an estimate of household welfare based on food consumption in a month prior to the survey. The food security indices, unlike the PAT estimates, allow us to identify the welfare status of each sampled household, not just the welfare status of the segment or sub-population to which the sampled household belongs. Additionally, they provide an indicator of household welfare during the time of high financial stress of the year when access to and use of financial services are most critical.

Our food security measures are a modified version of the USAID Food Insecurity Access Scale (HFIAS) for Measurement of Food Access (Coates, Swindale, and Bilinsky, 2007). The HFIAS provides several types of food security indicators, which we have modified to fit the Malawi context, based on a set of questions about the frequency of food insecurity "domains" in the previous month. Responses to these questions were used to group households according to the Household Food Insecurity Access Prevalence (HFIAP) constructions. The HFIAP categorizes households into four categories: food secure, mildly food insecure, moderately food insecure, and severely food insecure (see Table 5). Moderately and severely food insecure households have problems with adequate food intake (or serious lack of access to quality food). Mildly food insecure households usually have enough food, but may have poor food quality at times.

Table 5: Household Food Insecurity Access Prevalence (HFIAP) Criteria

Food secure	No problems with food access and rare or no problems with food quality.
Mildly food insecure	More frequent or more severe problems with food quality, but no food access problems
Moderately food insecure	Frequent food quality problems; occasional food access problems
Severely food insecure	Frequent problems with food quality and access.

Source: Coates, Swindale & Blinsky, 2007.

[6] For more information on why aggregate results are more accurate than individual household estimates, refer to methodological document on accuracy at http://www.povertytools.org/ that explains the definition of accuracy, gives a conceptual overview of the tool, and provides simple numerical examples.

D. SELECTED CHARACTERISTICS OF SAMPLED HOUSEHOLDS

As shown in Table 6, the sampled households were, on average, composed of five members, a household head about 41 years of age and a location about 8 Km from the six trading centers in the study area where OIBM mobile van stops every week.

Table 6: Demographic, Asset and Income Details of Sampled Households

Characteristics of Sampled Households; Averages (Standard Deviations in Parenthesis)

District	Age of Household Head (in years)	Household Size (#)	Farm Size (in hectares)	Asset Value (in MWK)	Business Income (MWK)	Farming + Business+ Other Incomes (MWK)	Distance from Trade Center (in km)
Dedza	40	5.1	2.5	65,500	645	15,750	8.1
	(38)	(5)	(2)	(31,100)	0	(6,800)	(8.4)
Lilongwe	41	4.9	2.6	66,449	719	23,051	8.0
	(37)	(5)	(2)	(38,548)	0	(8,800)	(7.2)
Mchinji	43	5.4	2.7	119,237	2,375	40,587	7.8
	(40)	(5)	(2)	(56,155)	0	(11,000)	(7.6)
ALL	41	5.1	2.6	81,758	1,178	26,277	8.0
	(38)	(5)	(2)	(39,970)	0	(8,700)	(7.8)

Households reported, on average, MWK 26,277 (US$177) as annual income in 2007 from farming, business and other sources including rents, remittances, and grants. Mchinji households were observed to report more than twice that of incomes in Dedza. This conforms to the national average incomes reported for the three districts. Note that Mchinji and Lilongwe are primarily tobacco-growing areas, while Dedza grows less tobacco and more potatoes (referred to as Irish potatoes), cassava, and vegetables. The crop in the Lilongwe-to-Mchinji area is very seasonal. However, in the Dedza area, farmers can grow crops year-round through the use of irrigation and rain fed (*dambo)* farming.

Annual income on average was about US $177.

Among all sampled households, some households reported operating small businesses, but the majority of sampled households were engaged in farming and owned, on average, approximately 2.5 hectares of land. As shown in Table 7, about 93% of the households were engaged in farming while a number of households also participated in livestock rearing (66%) or wage *(ganyu)* labor (44%). The majority of female household heads were engaged in farming (92%) compared to 80% among male headed households. Only about 2% of female heads of households were salaried employees relative to 10% among male household heads.

About 93% of the sample was engaged in farming while 66% also raised livestock or 44% also worked as wage laborers.

The main staple crop was maize; the most significant cash crop was tobacco. Other crops include groundnuts (peanuts) and vegetables. More than a quarter of households owned businesses that included trading in produce or groceries, brewing and selling beer, collecting and selling firewood, knitting, and baking donuts. Fifteen percent of households had a salaried member with employment in local government, schools, or hospitals.

Table 7: Economic Activities of Sampled Households

Types of Employment	% of households reporting	Male headed households	Female headed households
Business	26%	10%	2%
Salaried	15%		
Ganyu – day labor	44%		
Farm work	93%		
Animal Husbandry	66%		
None		0.5%	4.5%

Data shown in Table 8 indicate that about two thirds of households had members who were literate in the local language, *Chichewa*. About one fourth of the households also had members who could read and write English. The education levels of the sample appear to be on par with the national average of 65% adult literacy rate in 2007 (UNICEF, 2007).

Table 8: Education Level of the Sampled Households

Literacy level	%of households reporting
Read Chichewa	69%
Write Chichewa	67%
Read English	29%
Write English	26%

As shown in Table 9, only a small percentage of households fell below the PPP $1 per day poverty line (4%), though substantially more fall below the PPP $2 per day line (40%). We also collected data to calculate the percentage of households below the median national income and the national poverty line. Only 11% of households fell below the median national income, but 43% were under the national poverty line. Recall from Table 1 that the poverty rate based on the national poverty line was about 52% in Malawi. In all measures, the national poverty line seems to benchmark well with the PPP $2 per day measure.

Table 9: Poverty Rates in the Sample: Percentage of Households under the Poverty Lines

Poverty Lines	Sample Poverty Rate	National Poverty Rate
$1 / day PPP	3.70%	not available
$2 / day PPP	39.77%	not available
Median income line	10.78%	22.4%
National pov.line	42.74%	52%

Only 8% of the households were food secure. 45% of the households in the sample were severely food insecure.

Analysis of data from sampled households using the food security measures, which reflected food security in the month prior to the date of survey, showed that the majority of households suffer from some degree of food insecurity, particularly with respect to food quality (Table 10). Forty-five percent of households were severely food insecure, meaning that they have significant problems with food access. An additional 41% of households were moderately food insecure, meaning they have frequent problems with accessing quality foods or some problems accessing food at all. Only 8% of households were categorized as food secure. Households in Mchinji and Dedza districts appear better off overall than those in Lilongwe, though Dedza had significantly more severely food insecure households than Mchinji. Given the timing of the data collection, these measures may reflect the significant problems that households have with food access during the pre-harvest season.

It is interesting to note that the proportion of moderately insecure households (41%) compares well with poverty estimates obtained using PPP$2 a day line (40%), while the results for severely food insecure households (45%) relates well to the poverty rates among the sample obtained using the national poverty line (44%).

Table 10: Household Food Insecurity Access Prevalence (HFIAP) Among Sampled Households (% Reporting)

HFIAP	Lilongwe	Mchinji	Dedza	Total
Food secure	4%	11%	9%	8%
Mildly food insecure	5%	8%	6%	6%
Moderately food insecure	44%	42%	39%	41%
Severely food insecure	48%	40%	46%	45%

As shown in table 11, female headed households accounted for 15% of the sample (374 of the 2,459 households). In general, women are generally found to lack access to financial services and are targeted by many financial service providers that serve lower end of the populations. Therefore, we examined the data based on the gender of the household heads.

Table 11: Occupation, Income and Assets, by Gender of Household Head

Items	Male headed households	Female headed households	All households
Number of Households	2,085	374	2,459
Household members in farm work**	85%	97%	93%
Household members as salaried employees***	18.60%	5.90%	15%
Farm size (ha)	2.6	2.5	2.6
Farming+business+other income (MWK)**	28,924	11,520	26,277
Asset value (MWK)***	88,048	47,484	81,757

*** and **, respectively, indicate difference in means between male and female headed households is significant at 1% and 5% levels.

Female headed households are poorer and food insecure than more male headed households.

The results of the analysis presented in Table 12 show that household incomes and value of assets owned among female headed households are significantly lower relative to male headed households. This may have an effect on their poverty levels and food insecurity levels.

Table 12: Poverty Rates and Food Security, by Gender of Household Head

Items	Male headed households	Female headed households	All households
Sample size	2085	374	2459
Poverty rates (percentage of households under poverty)			
$1 / day PPP	3.1	6.9	3.7
$ 2 / day PPP	39.4	41.7	39.8
National pov.line	42.2	45.7	42.7
Food Insecurity Access and Prevalence (number of households and percentage to sample size)			
Food secure	177 (8%)	23 (6%)	200 (8%)
Mildly food insecure	141 (7%)	11 (3%)	152 (6%)
Moderately food insecure	881 (42%)	124 (33%)	1005 (41%)
Severely food insecure	886 (43%)	216 (58%)	1102 (45%)

As indicated by lower levels of assets and incomes, data show that more female headed households live under the poverty lines and are food insecure compared to male headed households. The difference in poverty rates between female and male headed households is especially significant for $1/day poverty line, which indicates the most vulnerable levels among all poverty lines.

III. STUDY FINDINGS

For the discussion below, we define a savings account to be any cash savings kept with a source in a location outside the owner's household, which can be either a person or institution external to the household. A loan is defined as any amount of money borrowed by a household member from a source outside the household – whether from informal entities such as money lenders, friends, relatives, Rotating Savings and Credit Associations (ROSCAs), or formal organizations such as commercial banks, MFIs, credit unions, agricultural cooperatives, and savings and credit cooperatives (SACCOs). These sources of loans and savings services are referred as external agents throughout this paper.

A. AVAILABILITY OF FINANCIAL SERVICES

Households reported access to 20 different financial service providers.

Households in central Malawi have access to a wide range of formal and informal financial services that offer savings and loans. In our inquiry of the sampled households, we asked if they currently held cash savings or outstanding loans with any of a list of external financial agents at the time of the survey. Overall, the households identified more than 20 different financial service providers. The agents ranged from the four commercial banks that operate in the area to other formal financial services providers such as parastatals, cooperatives, microfinance institutions and non-governmental organizations. Among informal providers, households reported relying on friends and relatives for loans and to hold savings for them. Money lenders and grocery stores also provided loans. ROSCAs were rarely reported. Table 13 summarizes the types of lender reported by the sampled households.

Table 13: Formal and Informal Financial Service Providers Used by the Study Sample

	Formal	Informal
Savings	Commercial Banks (OIBM, NBS) Parastatals (MSB, MRFC) Cooperatives, MFIs, NGOs	Friends and relatives ROSCA
Loans	Commercial Banks (OIBM, NBS) Parastatals (MSB, MRFC) Cooperatives, MFIs, NGOs	Friends and relatives ROSCA, Grocery Store, Money Lenders

B. HOW BROAD IS THE OUTREACH?

38% of sample was depositors or borrowers.

We present below the breadth of outreach by formal and informal financial providers among the study sample of 2,459 households.

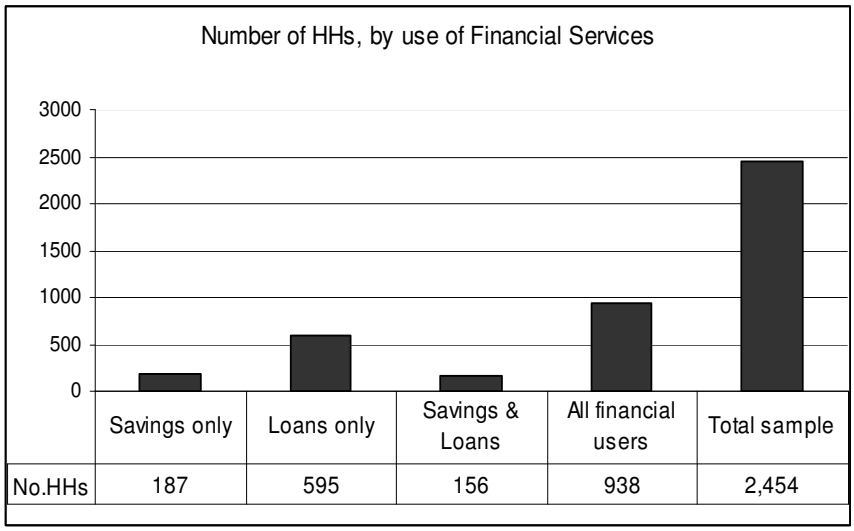
Loans and savings products are in demand in Central Malawi (Figure 2). There were a total of 938 households (38% of the total sample) that reported holding at least one savings account or an outstanding loan with an external agent - formal or informal at the time of the survey.

Twice as many households reported an outstanding loan than reported holding an external savings (Figure 2). There were 751 households (31%) that reported outstanding loans. Among the 751 borrower households, 156 households also had a savings account (i.e., 45% of savings account-holding households also had loans). About 595 households reported an outstanding loan, but no external savings. Along with the 156 households that reported loans and deposits, there were about 187 households that only held savings accounts – totaling 343 households with deposits (14% of the study sample).

Twice as many sampled households reported loans with external agents compared to deposits.

The proportion of households with outstanding loans in the sample is substantially higher than the national average of about 13% of households reported to have outstanding loans by the IHS survey conducted in 2004-2005, the 6% reported in McGuinness (2008) for households with current loans, and the 22% with any type of formal savings in the same study area at the time of her research. Note that McGuinness conducted the qualitative research using participatory rapid appraisals (PRAs) during the months of July 2007 when the harvests were completed and cash flows were high. However, she also reported that about 27% of her sample of 145 respondents used some type of formal finance for loans or savings or both within a year prior to the interviews. Our high level of borrowers and the preponderance of borrowers over depositors could be due in part to the time of our survey during the lean and rainy season when cash flows among the households are very low. Nevertheless, these observations indicate some seasonal effects on the use of financial services. Our study results also indicate that at least one third of the sampled households could access external finance to cope with household deficits.

Figure 2: Number of Households, by Use of Financial Services



84% of deposits were held with formal institutions, while 82% of loans were from informal sources.

Some save but many borrow - use of savings services was limited. Figure 2 also reveals that of the total sample of 2,454 households, only 343 households (14% of the sample) reported having at least one savings account. These households generally held either only formal accounts or only informal accounts – very few households (only 5 of the 343) held both formal and informal accounts. However, fifty-two of the 343 households held more than one formal and informal account, leading to a total of 408 accounts in the sample, and about 1.2 accounts per depositor household.

About one third of the sampled households reported an outstanding loan. As shown in Figure 2, a total of 751 households (31% of the study sample) had an outstanding loan at the time of the survey. Of these 751 households, 644 households (86%) reported one outstanding loan. But, 107 households (14%) had more than one loan outstanding, leading to a total of 866 loans in the sample. The average number of loans per borrower household was about 1.15.

The majority of households with savings held them at formal financial institutions (Table 10) while the majority of loans were from informal sources (Table 11). About 85% of the 343 households with savings accounts had an account with a formal or semi-formal financial institution while 15% held it with informal agents (Table 14). On the other hand, about 82% of the borrower households largely took loans from informal sources (Table 15). Of the informal sources, more than three-quarters of loans were from friends and family. In fact, formal loans were less prevalent relative to formal savings accounts (160 households had a loan with a formal institution, while 259 had a savings account with a formal institution), despite the fact that loan use overall was more common than savings.

Table 14: Number of Savings Accounts, by Service Providers

Agent	Number Accounts	% to total
I. Formal	**343**	**85%**
NBS Bank (NBS)	108	26%
Standard Bank (STB)	82	20%
Malawi Savings Bank (MSB)	39	10%
National Bank (NBM)	35	9%
OIBM	*34*	*8%*
Care – Malawi	19	5%
Malawi Rural Finance Company (MRFC)	4	1%
Cooperative	11	3%
Finance Cooperative Ltd. (FINCOOP)	7	2%
savings and credit cooperatives (SACCO)	2	0%
Concern Universal Microfinance Organization (CUMO)	1	0%
II. Informal	**58**	**15%**
Friend or relative's home	34	8%
ROSCA	14	3%
Friends' or relative's bank account	10	2%

Table 15: Number of Outstanding Loans, by Lending Agent

	Number	% to Total
Informal	**709**	**82%**
Friend / relative	653	75%
Local grocery store	31	4%
Money Lender	20	2%
ROSCA	5	1%
Formal	**157**	**18%**
CUMO	28	3%
MRFC	27	3%

Cooperative	27	3%
NGOs (other than FINCA)	26	3%
MARDEF	14	2%
FINCA	10	1%
OIBM	*4*	*0.4%*
NBS	3	0.3%
Pride Malawi	3	0.3%
Malawi Savings Bank (MSB)	2	0.2%
Standard Bank (STB)	2	0.2%
Others	39	5%
Total	866	100%

Use of deposit services among women headed households was considerably lower relative to male headed households (table 16). The total savings to loans ratio among male headed households is about 51% while it is about 17% among female headed households. Both male and female headed households reported more informal than formal loans, and more formal than informal deposits.

Table 16: Number of Loans and Deposits, by Gender of Household Head

Items	Male headed households	Female headed households	Total – All households
I. Loans			
Number of formal loans	138	19	157
Number of informal loans	610	99	709
Total	748	118	866
II. Savings			
Number of formal savings	326	17	343
Number of informal savings	55	3	58
Total	381	20	401
III. Total savings to loan ratio (%)	51	17	46
IV. *Formal savings to formal loans ratio (%)*	236	89	218

In order to place our sampled households in an appropriate context, we compared the information above with breadth of outreach by financial service providers in the study area and Malawi. McGuinness (2008) reported the breadth of outreach of formal financial institutions by volume of financial services in the study area. She showed there were more borrowers (443,614) than depositors (373,903), that the volume of loans (US$ 30 million) made was higher than the deposits collected (US$17 million), and that microfinance institutions were the major players (Table 17). Our study results conform to the trends noticed in the study area in that there were more borrowers than depositors and many loans from formal institutions were made by the microfinance institutions. However, the use of financial services appears high (38%) among the sampled households compared to the national average of about 13% (IHS survey, 2005).

Table 17: Breadth of Outreach by Formal Financial Institutions in the Study Districts
(As of March 31, 2007)

		Loans		Deposits	
Type of Institution	**Institution**	**No. of Loans Outstanding**	**Value of Loans Outstanding (USD)**	**No. of Depositors**	**Value of Deposits (USD)**
	OIBM**	8,276	$5,541,121	61,546	$6,766,414
Commercial Banks	MSB	61	$108,762	71	$19,101
	MARDEF	103,000	$4,497,336	NA	NA
Parastatals	MRFC	21,940	$6,737,267	198,373	$2,560,522
Coops	MUSCCO	237,445	$5,651,784	64,847	$6,508,335
	CUMO	15,800	$432,325	1,309	$56,021
	FINCA	20,823	$1,703,081	20,823	$923,338
MFIs	PRIDE MALAWI	7,825	$1,125,938	11,607	$313,778
	FITSE	9,171	$492,244	10,460	$159,523
NGOs	NABW	310	$20,171	600	$17,366
Sub-Total		424,651	$26,310,029	369,636	$17,324,398
All formal financial institutions		443,614	$30,321,183	373,903	$17,604,925

Source: Deepening Malawi's Microfinance Sector Project. Adapted from McGuinness, 2008. MARDEF data were obtained from MARDEF and are current as of July 2007. Sector totals were adjusted to reflect addition of MARDEF activity. Data was converted at rate of MWK 148.5: US$1.00.

It is notable that while OIBM reports to reach over 61,000 depositors and 8,000 borrowers in 2007, only 0.3% and 8% of our sample, respectively, were holding deposit or loans with OIBM. Note that OIBM data presented in Table 17 pertain to our three study districts. But, the data also include Lilongwe Urban and other villages that are not part of our study area. These non-study areas are serviced by OIBM branches for a longer time than the mobile van that is servicing our study villages within the three study districts only since August 2007.

On average, loan size was US $122, while deposit balance was US $140.

Substantially higher current savings balances were held in formal institutions than with informal deposit service providers (Table 18). The median balance among informal accounts was MWK 500 (US $ 3), only one ninth the median balance held in formal savings accounts of MWK 4,500 (US $30). Geographical differences explain some of this difference. The median current balance among the 123 accounts in Lilongwe is MWK 1,200 (US $8), less than one third that of Mchinji and about one sixth that of Dedza district. The lower balances in Lilongwe are consistent across formal and informal accounts. Median balances in Dedza are consistently the highest for both formal and informal accounts.

Table 18: Average Current Balance of Savings Accounts, by District

District	Average Balance	Median Balance	Number of Accounts
Lilongwe	5,010	1,200	123
Mchinji	27,530	3,824	146
Dedza	17,226	7,000	138
All	17,416	3,500	396
Formal			
Lilongwe	5,865	1,500	94
Mchinji	31,015	4,850	126
Dedza	18,386	8,500	120
All	19,657	4,500	339
Informal			
Lilongwe	1,692	0	24
Mchinji	5,800	900	18
Dedza	10,519	1,250	16
All	4,093	500	54

Loan size from formal sources was significantly larger than that from informal sources. Households reported remaining loan amounts outstanding at the time of the survey. Data in Table 19 show the average and median loan size per loan by lender type and by districts. The average loan size from all sources in all three districts was about MWK 4,498 (US$ 30) while median loan size was about MWK 1,000 (US$ 7). In all three districts, there was wide dispersion in loan size obtained from formal or informal lenders. The median loan sizes obtained from formal sources were ten times larger than from informal sources in all three districts.

Table 19: Average and Median Loan Size Borrowed per Loan (in MWK), by Lender Type and Districts

	Lilongwe	Mchinji	Dedza	All Districts
Formal (avg)	12,167	12,266	22,614	17,038
Formal (median)	10,000	10,000	10,000	10,000
Informal(avg)	2,036	1,812	1,786	1,873
Informal (median)	1,000	1,000	800	1,000
All (avg)	3,183	4,716	5,241	4,498
All (median)	1,000	1,500	1,000	1,000

Note: For each category, Averages reported in line 1 and medians are reported in line 2.

Data presented in Table 17 that captures the breadth of outreach by formal institutions in the study area indicate that in the formal sector, the median loan size was about US$68 while average deposits were about US$47. However, data in Tables 18 and 19 based on our study sample indicate that the average loan size and deposit balance, respectively, were about MWK 17,038 (US$115) and MWK 19,657 (US$132), much higher than the study area trends.

C. WHO ARE REACHED BY FINANCIAL SERVICE PROVIDERS?

McGuinness (2008), using qualitative research methods, found in the study area that the very poor did not have sufficient funds to save. The poor, however, saved with all five formal savings institutions, but their use of commercial banks was low. When the very poor and poor save, they were more likely to go to formal

institutions such as MSB due to the low opening balance requirement and convenient locations. The rich typically saved at commercial banks and to a lesser extent at MSB, and used it primarily as a pay point for their tobacco sales proceeds. This group had the ability to travel to Lilongwe, Mchinji, or Dedza to access bank branches and liked the status associated with banking at a commercial bank. In general, the very poor also had the least access to microcredit of the three socio-economic groups. All available loan programs and providers were accessible to the poor who also appeared to be the most significant market segment for moneylenders. The rich had access to the most sources of credit in the study area. McGuinness suggested that the NGOs providing microfinance were more successful at targeting the poor and very poor exclusively.[7].

This study, using quantitative methods and tools specially designed to assess the poverty and food security status of the households explores depth of outreach by financial service providers. In doing so, we examine access to financial services - formal and informal - by analyzing the poverty and food insecurity rates among financial service users and non-users, and we examine factors that are associated with the use of financial services by the poor.[8] The relationships we present shed some light on the reasons for the observed magnitude of use of financial services to help design better products and services to reach the poor. We examine below the use of financial services based on a number of household characteristics, including poverty levels, food security, employment type, educational attainment, asset status, and the distance between households and formal banks.

1. Poverty Rates and Financial Service Use[9]

About 1.7% of formal finance users lived under PPP $1 a day, while it was 2.7% among the informal finance clients and 4.5% among non-users of any financial service.

Poverty rates were lower among users of formal finance than among informal users or non-users of any financial service provided by external agents (Table 20). Formal financial service users, loans or savings or both, were less likely to be below any of the four poverty lines compared to households with non-users of any financial service and also users of informal finance. On the other hand, users of informal service providers were more likely to be below the PPP $2 per day line and the median poverty line, compared to non-users.

Table 20: Percentage of Households under Poverty, by Service Provider

Poverty Lines	Formal	Informal	Non-Users
PPP $1 per Day	1.66**	2.64@	4.49
PPP $2 per Day	22.1***	47.56@@	41.37
Median Income	4.42***	15.24@@@	10.84
National Poverty line	23.76***	48.78	45.17

*** and ** represent statistical significance at 1% and 5% levels, respectively, for differences between *formal* and non-users;

[7] Note that McGuinness (2008) used focus group discussions to first develop criteria to classify the population into very poor, poor, rich, etc., and later used the classification to elicit the information presented here. The criteria for classification may not necessarily follow the income or expenditure cut offs used in this study.
[8] Note that we only examine correlations or associations and not causal relationships between poverty rates / food insecurity and household characteristics and use of financial services.
[9] Discussion in this section does not include gender of the household head since the sample size required to calculate poverty rates for each sub-population is higher than what is reported for the sub-sample of female headed households.

@@@, @@, and @ represent statistical significance at 1% , 5%, and 10% levels, respectively, for differences between *informal* and non-users

Less than 1% of depositors lived below the PPP $1/day poverty line, while 3.1% and 4.5% of borrowers and non-users of any financial service, respectively live below the PPP $1/day poverty line.

By all four poverty lines, savers are much less likely to be poor than people who do not save with or borrow from external agents (Table 21). Households that borrow and save are similar to households that only hold external savings accounts in that they are significantly less likely to be poor than households without external accounts for all poverty levels. These households also have roughly the same poverty rate as households that only have a savings account when using lower poverty lines of PPP $1 and median lines. The prevalence of poverty is higher for households that borrow and save than those that only save using the higher poverty cut offs (PPP $2 a day and national poverty lines). However, these differences were only weakly significant. Poverty rates among borrower households were higher than that among depositors and non-users of financial services by all poverty lines except the lowest line of PPP$1.

Table 21: Poverty Rates, by Use of Financial Products (% of Households under Poverty Lines)

Poverty Lines	Non-users	Savings Only		Loans Only		Savings and Loans	
PPP $1 per Day	4.49	0.52	***	3.14		0.83	
PPP $2 per Day	41.37	14.66	***	47.6	**	23.14	***
Median Income	10.84	3.14	***	14.94	***	3.31	***
National Poverty line	45.17	16.23	***	48.89		24.79	***
Sample Size	1,605	191		542		121	

*** and ** represent difference from non-user households at significance levels of 1% and 5%, respectively.

3% of informal borrowers lived below the PPP $1/ day poverty line compared to 2.5% among borrowers from formal sources and 4.5% among non-users.

Compared to non-users, households with formal loans are less likely to be poor by most measures while those with informal loans tend to be poorer (Table 18). On the outset, households that exclusively borrowed from external agents, formal or informal, appeared close *to non-users.* Upon disaggregation by lender types, as shown in Table 22, households with formal loans were less likely to be under the PPP $2 per day, median income, and national poverty lines compared to non-users. Households with informal loans were more likely to be below these poverty lines, particularly when households that also save were removed from analysis. Note that more non-user households were under PPP $1 line compared to users of services from any type of lender.

Table 22: Poverty Rates among Borrower Households, by Lender Type

Poverty Lines	Non-Users	Any Loan(& savings)	Formal Loans (& savings)	Informal Loans (& savings)	Informal Loans Only (no savings)	
PPP $1 per Day	4.49	2.71	2.50	2.87	3.08	a** b***
PPP $2 per Day	41.37	43.14	30.00	46.85	50.44	, c**, d***
Median Income	10.84	12.82	5.63	14.72	16.30	b**, c**, d***
National Poverty Line	45.17	44.49	33.13	47.42	50.66	b*** , d**

Note:
a: Difference between households with no accounts compared to those with any loans (may also have savings accounts) is significant at the .01 percent (***), .05 percent (**), or .1 percent (*) level.
b: Difference between non-user households compared to those with formal loans (may also have savings accounts) is significant at the .01 percent (***), .05 percent (**), or .1 percent (*) level.
c: Difference between non-user households compared to those with informal loans (may also have savings accounts) is significant at the .01 percent (***), .05 percent (**), or .1 percent (*) level.
d: Difference between non-user households compared to those with informal loans but no savings accounts is significant at the .01 percent (***), .05 percent (**), or .1 percent (*) level.

While savers and households with formal loans appear better off, the welfare status may not be caused by the access to these services. It is likely that some households accessing these financial services obtained the services *because* they were better off. It appears that households need sufficient funds in order to open external savings accounts and sufficient collateral in order to receive loans from formal sources (McGuiness, 2008). Moreover, the costs of acquiring deposits and loans were found to be prohibitively high for some households either because they could not afford initial costs of opening an account, found travel costs too high, or found information gathering or the necessary paperwork to access accounts too arduous (Flory and Nagarajan, 2009).

2. Food Security Rates and Financial Service Use

We examined household welfare across financial service users based on measures of food security discussed earlier.

About 29% of formal finance users were severely food insecure while 55% of informal users were severely food insecure.

Households using formal financial services were more likely to be food secure or only mildly food insecure compared to the non-users of any external financial services (Table 23). Households using informal services were less likely than non-users to be food secure or mildly food secure and more likely to be severely food insecure. These outcomes, on one hand, could reflect that wealthier households are more likely to use formal services and be less vulnerable to food insecurity during the lean season. On the other hand, they could reflect the role of formal financial services in helping households to smooth consumption throughout the year. The endline data to be gathered in 2010 along with information from financial dairies gathered by the companion research team at MFO over a period of eighteen months since June 2008 are expected to respond to these and related issues on food insecurity and use of financial services.

Table 23: Food Security Status of Households by Financial Service Use (% of Households Reporting)

	Formal		Informal		Non-Users
Food secure	17.96	***	3.46	@@@	7.35
Mildly food insecure	10.77	***	3.46	@@	5.98
Moderately food insecure	42.27		38.01		41.43
Severely food insecure	29.01	***	55.08	@@@	45.23

*** and ** represent statistical significance at 1% and 5% levels, respectively for differences between *formal* and non-users;
@@@, and @@ represent statistical significance at 1% and 5% levels, respectively, for differences between *informal* and non-users.

The results above show that poor households are less likely to use formal services. Also, households accessing financial services, based on products used, appear to differ from each other and from non-user households in their food security status. In the next section, we discuss the likely characteristics of borrowers and depositors to understand the potential clientele for financial service providers in the study area.

D. WHO ARE LIKELY TO BE BORROWERS AND DEPOSITORS?

Studies show that financial service access is influenced by household characteristics such as, assets held and literacy levels. Access is also affected by the transaction costs of financial services.

In the section below, we first explore the simple relationships between use of financial services and transactions costs arising due to distance or educational levels or employment status of the households. Then, we present results based on a rigorous analysis of factors, such as household characteristics and distance from service points, that are likely to be associated with the use of financial services.

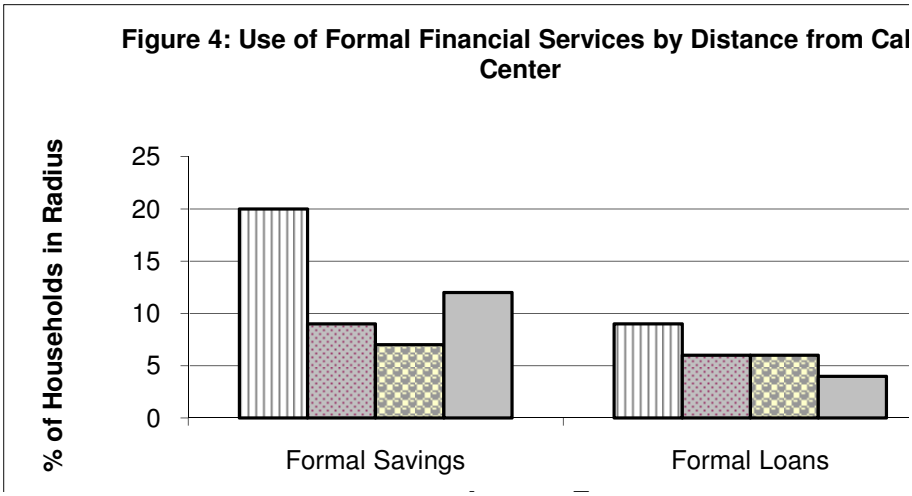
1. Financial Service Use and Distance

In another paper stemming from this dataset, we showed that travel time and travel costs were the largest of the transactions costs incurred by borrowers (Flory and Nagarajan, 2009).

The use of formal financial services was higher for households living within a 5km radius of a major trading center.

The use of formal financial services was higher for households living within a 5 km radius of the major trading center where OIBM mobile van makes a stop every week (Figure 3). However, beyond the 5 km radius, the effect of distance on use of formal financial services was less clear, particularly for formal loans. This result appears a bit contradictory to the conventional assumption that transactions costs increase linearly (or at least quadratically) with distance from financial service institutions and that high transactions costs could reduce the use of financial services. However, the finding also indicates that knowledge of financial service availability or inherent differences between households living close to or far from the major trading centers may also be associated with financial service use. Furthermore, it is highly probable that a high fixed cost is introduced after some distance from the trading center that matters more than incremental differences in distance (For example, someone needing to use public transportation will experience higher costs than someone within walking or biking distance.).

Figure 3: Use of Formal Financial Services by Distance from Call Center



We also found that the use of formal financial services was high for only those households living around the Dedza and Mchinji towns, where several formal financial service providers were permanently located (see Table 3 for details). The trend was not, however, clear among the households around the other four OIBM call points that did not have any permanent presence of formal financial institutions. The observation indicates that the pattern of using formal financial services among households living around trading centers that do not have any formal financial institution could be unclear. In this regard, OIBM's service using the mobile bank in such trading centers could likely make a difference. The endline data on the use of financial services among the same households interviewed for this round of analysis could help understand such effects.

2. Financial Service Use, Education, and Employment

Many formal institutions required potential clients to have some literacy in order to fill out the application forms. Also, literacy could facilitate learning about the terms and conditions of the formal accounts disseminated through brochures and pamphlets.

Formal financial service users, compared to informal finance, had significantly higher educational attainment and were more likely to be able to read and write in English and Chichewa. In fact, 90% of formal financial service users could read Chichewa. When limiting to just households with formal savings rather than formal loans, the literacy rate increased to 96%, which is significantly higher than that among households with formal loans but no formal savings (84%). Thus, even among users of formal financial services, there were differences between borrowers and savers.

It should be noted, however, that while educational attainment is associated with the use of formal financial services, it does not by itself serve as a factor affecting the use of formal services. Other factors such as household income or employment type, that correlate with education, could also affect the use of external finance. For example, salaried employees are generally more likely to require a higher level of education than those employed in farming or many types of wage labor.

Table 24 shows that households using formal services, compared to non-users, were more likely to be in salaried professions or to own a non-farm business and less likely to participate in wage (*ganyu*) labor or farming. This may also indicate that likelihood of a *ganyu* laborer to access formal financial services could be low compared to salaried workers. However, households using informal services, compared to non-users, were more likely to be *ganyu* laborers. Also,

significantly higher numbers of informal users were *ganyu* laborers and lower numbers were salaried employees compared to formal users. Taken together, the results may also imply that the likelihood of a *ganyu* laborer to access informal finance is higher than formal services. These associations also help explain the associations between financial service use and educational attainment.

Table 24: Employment among Sampled Households, by Employment Type and Use of Financial Services (% Households Reporting)

	Formal	Significance	Informal	Significance	Non-Users
Business	35.91	***	25.61	--	24.30
Salaried	29.56	***	10.98	--	12.27
Ganyu	25.97	***	57.32	@@@	44.36
Farm Work	86.74	***	93.50	--	94.39
Husbandry	71.55	**	63.82	--	64.98
Self-employed	36.19	***	29.47	--	27.66

*** and ** represent statistical significance at 1% and 5% levels, respectively for differences between *formal* and non-users;
@@@ represents statistical significance at 1% level for differences between *informal* and non-users

Tobacco is one of the major crops in the study area, especially in Mchinji. Most auction houses, through which tobacco growers auction their crops, directly deposit the proceeds in the farmers' account held in a formal institution. As a result, many tobacco farmers are likely to have a higher demand for formal financial services than other farming households, at least, in order to receive payments.

Only 20% of tobacco growers had a formal savings account even though most tobacco auction houses required one.

Households using formal finance were more likely to grow tobacco than non-users. While 40% of households with formal finance grew tobacco, only 26% of households without formal finance grew tobacco. The result should not, however, be interpreted as a saturated market among tobacco growers. Only 20% of tobacco growers had any type of formal account (which is still significantly more than the 12% of savers who do not grow tobacco) although most auction houses required them to have a savings account. While this may indicate that many tobacco farmers could sell outside the auction houses, it also shows that a substantial market for formal financial service providers exist among this group of households.

We also asked non-depositors why they did not hold savings with an external agent.

While 87% of the sample did not have savings accounts with any external providers, almost all households held cash at home.

Households in Dedza were more likely to report that they did not have a savings account because they had no money than households on the Mchinji route (94%compared to 81%). Dedza households were less likely to report aspects of the application process or features of the providers themselves as limiting factors as compared to those on the Mchinji route, such as needing an identification document to apply, not having access to funds in an emergency, or having to travel too far to access the account. These data suggest that the low take up of deposits among households in Dedza has less to do with the types of products being offered and more to do with their economic conditions. However, the findings need to be interpreted with caution. While 87% of sampled households reported that they did not have a savings account with formal or informal agents, nearly every household reported holding savings at home. These

data were also collected at the end of the hungry season when households had the least surplus in terms of food stocks, cash and livestock.

3. Factors Associated with use of Formal Services[10]

The above analysis revealed several patterns among households and individuals who hold formal accounts with external agents: they were found to be more likely above most poverty lines, to have higher education levels, and to be employed as salaried workers or business owners. But this simple analysis is limited in its ability to indicate which of the correlated attributes might be most-highly associated with formal financial service users in order to help OIBM with its expansion in the study area.

Using the multinomial logit regression method[11], we analyzed the likelihood of a households' use of formal or informal finance (savings or loans or both) based on factors such as educational status, literacy level, and distance from service point. We considered household wealth by including values of personal and business assets. We also considered locational characteristics of Dedza where the use of formal accounts was lower than Mchinji (13% of households compared to 17% of households on the Mchinji) and where households were poorer and less likely to grow tobacco. We also included a variable indicating the number of shocks that the household experienced in the previous year to see if formal or informal finance might have helped cope with the shocks. The results are presented in Table 25. [12]

Table 25: Likelihood of Use of Financial Services: Multinomial Logit Regression Results: Reference Group= Non-users of Financial Services

Independent variables	Details	Formal Sources	Informal Sources
Distance in kilometers	Distance between EA where the household resides to the nearest trading center where OIBM van stops	0.0166	-0.000584
Grade Level	Highest grade completed by the user / non-user	0.357***	0.123*
Literacy (dummy)	User / non user could read and write *Chichewa*	0.894***	0.199
Salaried (dummy)	There is a salaried member in the household	0.308*	-0.0165
Ganyu laborer (dummy)	Main occupation of the household is a wage laborer	-0.263*	0.426***
Animal husbandry (dummy)	Main occupation of the household members is animal husbandry	0.478***	-0.0307
Self-employed (dummy)	Household is engaged in running a business	0.489***	0.0608
Number Shocks	Number of negative shocks experienced in a year prior to survey date	-0.004	0.139***

[10] Due to sample size limitations, the analysis here only pertains to all formal services – loans and savings.
[11] Multinomial logit regression is used when the dependent variable consists of non-ordinal discrete set of more than two categories. See for more details: Maddala, G.S. "Limited-Dependent and Qualitative Variables in Econometrics" Cambridge University Press, 1999.
[12] The results are to be interpreted in comparison to the reference group of non-users of financial services.

Independent variables	Details	Formal Sources	Informal Sources
Value of Asset in MWK (Personal)	Value of marketable assets such as houses, livestock, durables used for personal purposes	1.12e-05***	-2.02e-05***
Value of Asset in MWK (Business)	Value of marketable assets such as store building, ware house, equipment, machinery, tools, livestock used for business purposes	1.73E-06	-4.73E-06
Dedza Town (dummy)	Households living in Dedza town	-0.264*	0.0783
Constant	Intercept term	-3.161***	-1.972***
		[0.293]	[0.222]

*Standard errors are reported in parentheses; ***, ** and * represent statistical significance at 1%, 5% and 10%, respectively.*

The use of formal financial services appears high among the salaried employees and business owners, the educated, and the wealthy. The results are suggestive that formal users are salaried or engaged in business or livestock raising. Use of formal services was not prevalent among the *ganyu* laborers. The significantly higher levels of educational indicators among formal users (literacy and grade level), even after controlling for employment types and wealth status of the households, suggest that literacy or information access could limit use of formal services.[13]

Formal finance use was associated with the wealthy households, while informal user households were likely to be asset poor.

The informal financial service use is highly associated with households engaged in ganyu labor and those exposed to household shocks, which may indicate use of finance for risk-management. Surprisingly, educational attainment is weakly but positively correlated with informal service use. Also note that personal wealth is negatively associated with informal service use indicating that the asset poor may use informal finance.

Distance was not significantly associated with use of either formal or informal financial service use. Note, however, that in the analysis, distance was measured based on the EA in which the respondent lives and the nearest trading center where the OIBM mobile banking van stops. A more relevant factor could be found in the actual distance between the households and their financial service providers. However, the variable used in the study could serve the purpose well for formal finance since all service providers are physically located near the trading centers. There are also very few mountains and rivers that could make the linearly measured distances suspect.

Residence near Dedza town reduced the likelihood of informal financial service use, but, surprisingly there was no significant use of formal financial service despite reduced travel costs from being close to financial service providers. Further enquiry into the reasons for such observation could be conducted during the end line study of the financial landscape to be carried out in June 2010 by the companion research team at MFO.

[13] However, there is a possibility that the relationship may simply pick up the effects of unobservable household characteristics that are associated with financial service use and education, but that are not controlled for with our wealth and employment measures.

IV. Implications of the Study

Based on a study that collected quantitative data from 2,459 households in three rural districts of Central Malawi from February to April 2008, we examined the availability of financial services and if the poor are reached by the existing service providers. Specifically, we discussed the use of formal and informal savings and loan products among rural households to understand the breadth and depth of outreach by financial service providers. We examined the likely characteristics of users of formal finance. The study results are intended to inform OIBM of the potential clientele for their services. We summarize the major findings of the study and draw implications for expanding OIBM's outreach in Central Malawi.

A. MAJOR FINDINGS OF THE STUDY

A total of 2,459 households from three districts of Lilongwe, Mchinji and Dedza, where the OIBM mobile van was introduced in August of 2007, were randomly selected and interviewed during Januray – April of 2008. The interviews were conducted using a 30 page structured questionnaire specially developed for the study and pre-tested in the field prior to the survey.

1. Sample characteristics

- Most of the sampled households were headed by men (85% of sample).
- Average annual income among sampled households was about US $182.
- About 93% of the sample was engaged in farming while 66% also raised livestock or 44% also worked as wage laborers.
- Nearly 40% of sample fell below the poverty line of PPP $2 a day while only 4% were below PPP $1 day poverty line.
- Only 8% of households were food secure, and about 45% of sample were severely food insecure.
- Examining by gender of heads of households, about 7% of women headed households live under $1 / day poverty line compared to 3.1% among male headed households. The difference in poverty rates is significant indicating vulnerability among female headed households.
- About 58% of women headed households are severely food insecure compared to 43% among men headed households.

2. Breadth of outreach of financial services

- *Households in central Malawi have access to a wide range of formal and informal financial services that offer savings and loans.* There were over 20 different sources reported to provide loans and deposit services. About 938 households (38% of the total sample) reported having at least one loan and/or savings account with a formal or informal external agent in period of one year.
- *Many borrow but some save.* Twice as many households reported an outstanding loan (31% of households) than reported a current external savings account (14% of the sample). There were 751 households (31%) that reported outstanding loans. Among the 751 borrower households, about 156 households also had a savings account (i.e., 45% of savings account-holding households also had loans). There were 595 households that had an outstanding loan, but no external savings. Along with the 156 households that reported loans and deposits, there were about 187 households that only held savings accounts – totaling about 343 households with deposits.

- *Savings are mostly formal while loans are mostly informal*: Of the savings, 84% were with formal institutions, while 82% of the loans were informal (75% with friend/relative). The majority of households with savings accounts held them at formal or semi-formal financial institutions. External formal savings accounts included commercial banks; parastatal banks, MFI, Coops and NGOs; and Informal savings were held with ROSCAs, moneylenders, families and friends.
- *The most common lending agent was a borrower's friend or relative*. The commercial banks, including OIBM, were not prominent among formal sources. Only four loans were held with OIBM, representing less than one percent of all loans in the sample.
- *Use of deposit services among women headed households was considerably lower relative to male headed households*. The total savings to loans ratio among male headed households is about 51% while it is about 17% among female headed households. Both male and female headed households reported more informal than formal loans, and more formal than informal deposits.

3. Depth of outreach of financial services

- *Poverty rates among users of formal loan and deposit products are much less than those who use informal finance or non-users of any external finance*. About 1.7% of formal finance users lived under PPP $1 a day, while it was 2.7% among informal finance clients and 4.5% among non-users of any financial service.
- *Depositors were much less likely to be poor than people who borrow from external agents or who do not use any financial service*. Less than 1% of depositors lived below PPP $1 / day poverty line while it was 3.1% and 4.5%, respectively, among borrowers and non-users of any financial service.
- *Households with formal loans are less likely to be poor while those with informal loans tend to be poorer*. *About* 3% of informal borrowers lived below PPP $1/ day poverty line compared to 2.5% among borrowers from formal sources and 4.5% among non-users.
- *Households using formal financial services were more likely to be food secure or only mildly food insecure compared to non-users of any external finance or users of informal external finance*. About 29% of formal finance users were severely food insecure while it was 55% among informal users.

4. Factors associated with use of formal financial services

- *Distance could matter*. The use of formal financial services was high for households living within a five kilometer radius of the major trading center where the OIBM mobile banking van stops every week to provide financial services. However, use of formal financial services beyond five kilometers is unclear.
- *Occupation matters*. The use of formal financial services was high among households that ran a business or were asset rich and households with members that were salaried employees or educated. The informal financial service use was high among households engaged in wage labor and those exposed to many household shocks.
- *Asset levels and education matters*. The use of formal financial services was high among households that were asset rich and households with members that were educated.

B. WHAT IS THE SCOPE FOR OIBM'S EXPANSION IN THE REGION?

While it is not possible to tease out from these data (prior to having the panel data) the demand for financial services, especially for OIBM, the study provides directions that OIBM could consider in order to broaden and deepen its outreach in the study area.

First, tobacco growers appear to have a clear need for formal savings accounts both in order to receive payments and to help manage the bulk income they receive at harvest time. However, as reported above, only 20% of tobacco growers had formal savings accounts. Eighty-one percent of tobacco-growing households without savings accounts reported "no money" as the reason for not opening a savings account. Perhaps more importantly are the findings that 13% of tobacco growing households reported that they had no need for an external savings account and that 3% said that they were not aware of an institution that could provide them with an account. As mentioned in the previous section, the timing of the survey may have influenced this result, but, nonetheless, OIBM could increase its marketing efforts to increase outreach at times when there is potential demand for savings and loans.

Second, the business owners are another potential market for OIBM. Thirteen percent of business owners have formal savings accounts. While the majority of business owners without external savings also reported "no money" as the reason for not having formal savings, a small, but significantly greater number of business owners reported transactions costs and bank terms as a barrier than other types of households. For example, business owners were more likely to say that low interest rates, high minimum balance, distance to agent, or lack of an appropriate ID as a reason for not having a savings account. These are needs that OIBM can address when designing products for business owners. Business owners *with* formal savings accounts were also more likely than other households to report opening the account in order to get a loan. This service is an important feature of OIBM accounts that needs to be highlighted.

Third, OIBM may have a particular scope for expansion amongst business owners living outside Dedza and Mchinji towns. For the business owners living within 10 km of one of these larger trading centers, 23% have formal savings accounts and 15% have formal loans. For those living beyond 10 km from these centers, only 10% have savings accounts and 9% have loans with formal external agents. Bringing the financial services to more locations may, therefore, entice these business owners to take up accounts. The relationship between service use and distance for business owners may be driven in part by the type of businesses that households operate in each area (for example, brewing is more common away from the towns, while retail is more common in the towns), but even after controlling for business type, proximity to the town was still associated with greater uptake. This distance cut off appeared less important for tobacco growers with respect to savings (20%for within 10km vs. 15% for above 10km), but living closer to the towns was associated with higher use of formal loans (16% for within 10km vs. 7% for above 10km).

Fourth, financial services are less used among female headed households compared to men. Traditionally, OIBM provides services to many women clients in many countries. With OIBM's experience in servicing women, it has an untapped market in women headed households in the study area as they expand in rural areas with the mobile van.

C. NEXT STEPS

The results presented in this paper are obtained from the base line study that is only intended to inform OIBM of the potential clientele for their services, at the initial stages of OIBM's expansion in the study area. The base line study does not explicitly examine breadth and depth of OIBM due to very limited outreach of OIBM at the time of this base line study. The end line survey of the same respondents is planned for January March 2010 to construct panel data. Analysis of the panel data will help assess if the presence of OIBM altered the use of financial services, in the study areas, and if poverty status has changed among the sampled households that use financial services, causes for the change, and also change in breadth and depth of outreach of OIBM about 2.5 years of operation in the study area.

Key issues for further enquiry to support the above analysis to explain the trends include:

- Effects of seasonality on food security and use of financial services
- Change in supply and entry by financial service providers in the study area with OIBM's entry.

The information could be obtained from the landscape study scheduled for June of 2010 and also from the eighteen month long financial diaries collected among 200 members and non-members of OIBM in the mobile van operational area during the period of June 2008 to December 2009 by the companion research team at MFO. Also, the study conducted by IRIS during August – September of 2009 on the enabling environment for financial services by OIBM could help provide context to the breadth and depth of outreach by OIBM in 2010.

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ANNEX A: PREVIOUS STUDIES UNDER THE PROJECT

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