



FINANCIAL SERVICES ASSESSMENT

Cash In, Cash Out:

*Financial Transactions and
Access to Finance in Malawi*



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ABSTRACT

Using a Financial Diaries methodology, Microfinance Opportunities undertook a project to explore the extent to which Opportunity International Bank of Malawi (OIBM) added value through the introduction of a mobile “bank-on-wheels” serving rural locations in Central Malawi. We collected the transactions data (all inflows and outflows, including use of financial services) for just under 200 low-income households, half of whom were OIBM clients using the mobile bank, for 18 months over 2008-09. The sample was mostly a mix of poor farmers and microentrepreneurs (median per capita daily income: \$2 purchasing power parity [PPP]). The study found that banks and individual cash transfers dominated the financial service market—banks captured the “big money,” while individual cash transfers helped mediate day-to-day needs. Use of the OIBM van dropped off over time, though several factors unrelated to the bank may have been at work. Multiple lines of transactional evidence suggest that OIBM and its van succeeded in adding value for its women clients. On the topic of risk management, cash flow was unsteady—business owners commonly faced weeks of zero income, for example—and banks including OIBM played a smoothing role, though it was small compared to informal mechanisms. Also, households commonly needed to pay lump-sum expenses that exceed the sample’s median weekly income for an entire household (\$55). Again, the banks played a role in supporting clients through these circumstances, but only in a small minority of cases. The behavioral insights from this study will help inform improvements in microfinance operations, and we will continue to develop the Diaries as a practitioner’s tool.



ABOUT THE PROJECT

The Financial Services Assessment 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 (MFO), 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 on the potential to scale up successful innovations to reach larger numbers of low-income households.

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REPORT SERIES

This report is part of a series that will be generated by the Financial Services Assessment project. The reports are disseminated to a broad audience including microfinance institutions and practitioners, donors, commercial and private sector. Additional copies can be downloaded at www.fsassessment.umd.edu.

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Except where otherwise noted, all photos taken by Elizabeth McGuinness, 2007, during advance fact-finding mission conducted in connection with this study. Photograph on page 37 (credit: Jessica Bachay, 2010) shows a ledger entry from a post-study stage of Malawi data gathering.

In instances when the report refers to individuals, names and identifying information have been altered.



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Executive Summary

The aim of this project was to explore the extent to which a formal financial service provider, Opportunity International Bank of Malawi (OIBM), was able to add value to the households it served through specific service innovations. Our approach employed a Financial Diaries methodology to gather data on the financial lives of low-income households in Central Malawi, including both clients and non-clients of OIBM. The transactions data at the heart of the study contain weekly information on all participants' purchases, sales, and exchanges of goods and services, inclusive of all financial services. We applied this data to describe and analyze the use of informal and formal financial services in the full context of the economic lives of the participants in the study.

The project traces its roots to 2005, when OIBM received a grant from the Bill & Melinda Gates Foundation (BMGF) to pioneer a model of low-cost, technology-driven rural service delivery in Malawi. A BMGF-sponsored mobile banking van was the first of these delivery channels to be rolled out, and it became the primary focus of research. The van is essentially a high-tech bank-on-wheels, with both an ATM and a human teller on board, traveling on a regular schedule and making stops to provide a full range of services in areas without OIBM brick-and-mortar branches. The idea was that the van adds convenience by providing these services closer to the places clients live and work.

In our approach to the service innovation, we draw a sharp distinction between *uptake* and *usage* of financial products. From the client perspective, uptake is often about trying something new. Usage is more likely to be ongoing and an acknowledgement of the value proposition of the financial service, and is more likely to generate product development insights consistent with a vision of “client-led microfinance” (Cohen, 2002). We also place special emphasis on certain subtopics including risk management strategies and gendered dimensions of financial behavior.

We began with a group of research questions related to OIBM service innovation including:

- How and when are the banking van services being used?
- What kinds of participants tend to use the bank the most and for what purpose?
- How does bank use relate to overall well-being in areas such as risk management?
- What is the value proposition of OIBM and its service innovations?

As the study progressed, more questions were added, including:

- What is the value proposition of formal over informal financial services?
- What is the value proposition of formal savings account use?
- How do the formal and informal financial service domains coexist?

At the start of data collection, the project recruited roughly 200 households, half of which contained at least one OIBM client (setting up the client versus non-client comparisons was fundamental to the study). The households were located in areas that corresponded with the stops of the OIBM banking van in its two routes out of Lilongwe. The project's eight fieldworkers resided at these van stops and interviewed participants to record their financial transactions once per week. The project ran in this manner from July 2008 to December 2009.

At the close of data collection, we cleaned the database, and our final sample became 172 households. The final number of individual participants across these households is 257. All told, the sample encompasses 861 individuals when we include minors and economically-inactive adults in the participant households.

The sample was mostly a mix of poor farmers and microentrepreneurs, plus some salaried employees such as teachers and healthcare workers (median per capita daily income for all: \$2 purchasing power parity [PPP]). The sample skewed female, mostly due to OIBM's successful outreach to women clients. The formal financial sector was familiar to this group; about half of all participants were engaged with it, and many employed overlapping instruments.

Our database from this sample consisted of 230,825 individual transactions (post-cleaning). The mean number of transactions per week per household was 19. Food was by far the most common expense, and most money was earned through some form of microentrepreneurship, with salaries and cash-cropping for a smaller subpopulation of the sample. In the business domain, men carried out more transactions per week as well as much higher monetary transactions

when compared to women. In the household domain, women carried out more transactions at lower dollar amounts, suggesting that men took control of the bigger, more momentous household transactions. The single-female heads of household in the sample (a substantial portion of our sample) showed only marginal differences from married women in these areas, suggesting that there are gendered features of the Malawian economy that cut across all types of households.

Our analysis of financial-service use begins with the informal and semi-formal sectors. Individual cash exchanges were ubiquitous and helped mediate day-to-day needs for many in our sample, suggesting a pervasive informal safety net among family and friends. Women received more of these inflows, and most of those were from men, suggesting gender-based dependency relationships. However, in the Malawian context these relationships can be more complicated and less coercive than some researchers assume. Central Malawi also features a variety of non-bank financial institutions, such as non-governmental organizations (NGOs), as well as community-based financial services, such as rotating savings and credit associations (ROSCAs). But both were relatively uncommon across our sample and involved dollar amounts that are fairly insignificant compared with other domains of financial activity.

Banks, including OIBM, played a significant role in terms of dollar volume within our sample. Most bank use occurred as savings transactions, either deposits or withdrawals, with a top quartile of frequent users leading the way. Banks also issued loans within our sample, but these were secondary, and OIBM was nearly the only commercial bank creditor in this market. Use of bank inflows tended toward business purchases, especially stock, with bulk household purchases also important. Most of these bank inflows were withdrawals

from savings accounts rather than loans, suggesting that savings accounts were the more responsive instrument for our population in the sense that the cash can be accessed right away when a large need arises.

In sum, the data on financial-service use suggested two dominant foci of activity: banks and individual cash transfers. The informal transactions in the latter category dominated the market in terms of frequency of incidence. The banks captured the “big money,” with far fewer transactions by instance, but much higher dollar amounts.

Tightening the focus to OIBM-based transactions, we noted that use of OIBM and its van dropped off markedly over time. Various explanations for this can be posed, including the “enthusiasm effect,” or novelty factor, that assuredly occurred after the high-tech vehicle first began rolling into rural and peri-urban trading centers. Account dormancy among OIBM clients was relatively low, though infrequent use of the accounts was a very common pattern. We also examined movement of participants from informal to formal services, focusing on those who became OIBM clients during the study, and found that in these cases OIBM services were accessed infrequently and rarely replaced the informal finance in clients’ lives. The wild-card in this picture is that all usage patterns took place in a context of apparent declining economic conditions. That economic trend may have been related to a drop in tobacco price, though the evidence is far from clear-cut.

We took a special look at the gendered implications of OIBM’s services. In general, multiple lines of evidence suggest reason to explore the idea that OIBM and its van added more value for women than men. Over time, women fared better than men in terms of savings patterns. Also, women’s utilization of cash gifts (i.e., dependency) was less over

time compared with participants who did not use OIBM. Using a natural experiment that emerged from our sample distribution, we found that women may value the geographic convenience of the van stops more than their (more mobile) male counterparts. In sum, the bank may be affording its women clients some protective effect compared with non-clients of the bank.

In the final part of the report, we move from descriptive findings to more analytics. The focus of the work generally is risk management, and we examine it two ways. First, we used an income/consumption-smoothing framework, focused on the strategies that low-income households employed to smooth their cash flow and make it less variable over time. And second, we examined a “useful lump sum” framework, focused on the extent to which households face unusually large expenditures and the strategies they employ to help mitigate those needs.

Income-smoothing analysis includes an analysis of economic shocks commonly thought to disrupt cash flow. The transactions record is rife with funerals and hospital visits, but their effect on household well-being was mitigated by the relatively low costs in most cases. At the same time, we examine zero-revenue weeks—instances when business-owning households earned zero money over the course of a week—and find them to be strikingly common across the sample. Eighty-five percent of the sample experienced at least one zero-revenue week, and the median number of zero-revenue weeks for all these households was nine. When we link these zero-revenue weeks with our events data, we conclude that 53 percent of the microentrepreneur households experienced at least one zero-revenue week related to an unanticipated event such as an illness, a funeral, a crime, or an accident, and that these constituted about six percent of all the zero-revenue weeks.

Overall the evidence suggests the zero-revenue weeks were a real challenge to our sample, causing dramatic declines in food expenditures in those weeks. Seasonality played a role in this, with the so-called “hungry season” presenting lower income but less income variation than other times of year for a combination of reasons. Both OIBM and other banks played a significant role in helping manage these weeks, but the contribution applied to a minority of cases. Informal inflows (i.e., the social safety net) played a far greater role.

In our “*lump-sum*” analysis, we found that the sample had a strikingly high cash flow (median amount: \$187/household/week) and a persistent need for large outlays of cash (median amount: \$75 every 3.8 weeks). The majority of lump-sum needs pertained to business (e.g., stock purchases), but there were also many household-based expenses as well. Sometimes peaks in cash flow and lump-sum expenses matched up, but often they did not, creating the need for some manner of financial intervention in the household.

Our data suggest that about half the time households covered their lump-sum expenditures with their regular cash flow, and half the time they did not. In the more dire weeks, formal financial services such as OIBM played a role, but the instances were relatively uncommon and hence the role was relatively small. As with shocks, informal inflows were far more significant in terms of plugging these holes in household finance. The same is true of money stored informally at home—participants turned to that resource far more often than they did to the banks. All told, the findings suggest a large market for services that help accumulate “usefully large lump sums” of a size that a bank can easily cover, and plenty of opportunity for an institution like OIBM.

Moving forward, we premise this study on the idea that aggregate transactions data provide a more accurate lens through which microfinance institutions (MFIs) can view the financial preferences and behaviors of consumers. This, in turn, can enable the MFIs to develop better products and delivery mechanisms. In essence, these data focus our attention on the terms and conditions of the financial products an MFI offers, as well as their delivery system. It is a new take on and extension of “client-led microfinance,” with insights drawn from use patterns, long advocated by Cohen (2002), enabled by a novel form of market data.

Through this lens, we can discern both the successes and challenges of the OIBM van as a service innovation, while suggesting ways to deepen impact in the market. Based on these findings, for example, OIBM might think strategically about capturing a share of flow to help pay for lump expenses. Business-related bridge loans or flexible lines of credit are two possibilities that come to mind on the credit side. Alternatively, contractual savings products requiring small, regular contributions could help consumers save in order to meet such needs. On the topic of gender, the clear evidence of women’s greater reliance on cash gifts suggests a space for bank intervention whereby the institutions help women receive those gifts cheaply and safely if senders are far away (i.e., an effective remittance service, like Kenya’s M-Pesa). Banks might also help women to set aside their cash gifts for lump-sum accumulation in a secure place (i.e., a savings account) to meet the lump-sum needs that we know inevitably come.

The use of the Financial Diaries methodology for understanding elements of clients’ financial preferences and behaviors offers much promise. We will continue to develop the Diaries as a practitioner’s tool.



Section 1: Project Description

This 18-month, 200-household Financial Diaries study was a massive undertaking. The following chapters, which provide an overview of what we set out to do and why, make this abundantly clear. In this section, the reader will find the practitioner-oriented thinking that inspired the project and continues to direct our analysis. We also introduce the service innovation at the heart of the project, as well as the logistics and challenges of implementing Financial Diaries on this scale.

I: Introduction

ADDING VALUE

What value do formal microfinance service providers deliver to the poor?

Data from *Portfolios of the Poor* (Collins et al., 2009) and other sources tell us that it is rare for the poor to lack access to informal services and the support of friends and family. As a result, microfinance institutions (MFIs) and banks, as providers of formal financial services, must deliver something of value that the informal sector and friends and family cannot deliver, either through better pricing, product design, or mode of delivery (Stuart, 2010).

But what do the poor value in terms of financial services?

Morduch and Rutherford (2003) suggest that the poor value reliability, convenience, continuity, and flexibility. Robinson (2006) also argues that they value consistency and a service that they can trust, both in terms of being able to gain easy access to their money and the physical security of the place where it is being kept. They also value access to usefully large sums of money (Rutherford, 2000, 2005). The experience with M-Pesa in Kenya and data on global remittances suggest that the poor value the ability to send money safely across long distances. Finally, we note suggestions in the literature that women value having access to formal financial services because it gives them some independence and perhaps privacy from men by giving them a ready source of external financing.

This report uses data on the economic transactions of a sample of 172 households in Central Malawi to explore the extent to which a formal financial service provider, Opportunity International Bank of Malawi (OIBM), was able to add value to the households it served. The research focused on households living in areas where OIBM attempted to increase its outreach through a mobile bank van that made weekly stops in various locations along a main highway. As a service innovation, the van bears especially upon Morduch and Rutherford's "convenience" dimension (i.e., it offers all the services of a fixed bank branch, but at stops/locations closer and potentially more convenient to the places clients live and work).

The transactions data on which this report is based contain weekly information on all participants' purchases, sales, and exchanges of goods and services, inclusive of all financial service transactions. In other words, the report describes and analyzes the use of informal and formal financial services in the context of the economic lives of the people availing themselves of those services.

As a crude measure of value added, we asked: what share of the market did formal and informal services have over the 18-month study period? We also drilled down on the financial landscape via transactional data in multiple ways. The purpose here is to identify patterns of use that suggest whether a user finds value in a given financial service, either because

that service dominates a particular sphere of economic life or because we observe increasing use of it.

The Financial Diaries represent a new alternative in the quest to understand the lives of the poor and how microfinance services can help them.

We focus on the use of financial services to accumulate usefully large sums of money (lump sums) and to provide assistance in cash-flow management in general. Consistent with Dercon (2000, 2005), we found that the cash flow was uneven—in a word, lumpy—with periodic lump-sum needs and inconsistent income. Did the households in our study use formal financial services to accumulate funds that they then used to pay for lump sums? How prevalent was the use of such services when a household experienced a shock? In this analysis the reader will discern our basic position that microfinance’s core value is found not (necessarily) in raising clients out of poverty but in reducing their vulnerability vis-à-vis economic shocks and lumpy cash flow (see Yunus, 2003, for contrast).

In addition, our report pays particular attention to differences between men and women in the financial management challenges they face, the resources they have to deal with them, and whether women’s roles change as a consequence of having access to bank services (see more below in “A Note on Gender”).

With an eye toward the microfinance industry, we are drawing a sharp distinction between *uptake* and *usage* of financial products. From the client perspective, uptake is often about trying something new. Usage is more likely to

be ongoing and an acknowledgement of the value proposition of the financial service, and is more likely to generate product development insights consistent with a vision of “client-led microfinance” (Cohen, 2002).

Ultimately, we take a ground-up look at how OIBM and other providers are serving the market. We examine whether they are missing out on market opportunities because their product designs or delivery systems do not meet the needs of the market, and our data provides the basis for potential improvements in products or delivery.

VALUE, USE AND IMPACT

What about the link between value and impact? If we define impact as greater utility at the time of the use of service, then value and impact are the same thing. But impact means more. Having an impact means making people better off, along dimensions such as asset accumulation, health, income, education of children, etc. To the extent that poor people value these things, impact and value coincide—they value what they perceive is good for them. But people can fail to value something that could benefit them, such as a contractual savings account; and so, despite the good intentions of the bank, there is very little uptake of the product.

In addition, people can value what is not good for them in a couple of ways. First, people often value something in the short run that is bad for them in the long run (e.g., they take out a loan in the short run because they need the cash, without thinking through the long term consequences of having to repay the loan). Or they value the idea of a flexible savings account, but find they can never accumulate useful lump sums because they keep withdrawing small amounts.

Second, a person's interaction with a financial service is multi-dimensional. As noted above, there are many things that people value in a service that have to do with their interaction with that service. But they also value these things because they enable them to use the money in a particular way that is valuable, which may ultimately lead to an impact. For example, the poor value timeliness in their access to savings (value) because it helps them manage risks better (value), which, in turn, protects their assets and thus enables them to accumulate assets over time (impact). Furthermore, because they are managing risk better, there is less stress in the household, which is valuable in and of itself.

Focusing one's attention on what value a particular service adds can bring new dimensions to our understanding of use as well as ultimate impact. In sum, in this report, we will focus on the value being added or created, but we will do so with an eye to the potential impact of that value. And, where possible, we will look at the impact of the intervention directly.

PROJECT-FOCUSED, PRACTITIONER-ORIENTED DIARIES

The Financial Diaries represent a new alternative in the quest to understand the lives of the poor and how microfinance services can help them. The methodology has gained considerable traction over the past year, primarily through the publication of *Portfolios of the Poor* (Collins et al., 2009). A handful of other studies have added their own iterations (cf. Dupas & Robinson, 2009; Kamath, Ramanathan & Rathna, 2009), with others in planning or implementation stages.

Distinguishing features of our approach include:

- *Project-focused/use as impact assessment* – Our Diaries research is set up with a client group and a comparison group to

examine exposure versus the counterfactual. We use aggregated data on each to draw conclusions about the impact of the particular intervention. The methodology is project-focused. The goal is to capture key junctures when client households use a particular innovation and compare the results to households without access to the innovation. We identify the impact of a project innovation on the overall well-being of the recipient.

- *Scope* – We widened the relevance of the Diaries methodology by expanding the size of the sample and lengthening the duration of the studies. This shift enabled us to move beyond case studies and anecdotal evidence to aggregation and patterning of data.
- *Units of analysis* – We analyzed the transactions data at three levels: units, individual, and household. This enabled us to tailor the analysis to delve deeply into end-user issues in ways impossible with a narrower frame of analysis. Transactions-level analysis, for example, can probe deeply into risk management practices by isolating unusually large household expenses and studying the transaction patterns surrounding them.
- *Linkage between transaction data and product design and delivery* – Collectively, these data suggest that when we look at the number of people, plus value of transactions and frequency of transactions, we can identify previously-unseen trends and opportunities to design and deliver improved financial services. Our intent is to identify the key product design and service-delivery parameters that microfinance service providers should take into account when working out how to best serve their clients.

A NOTE ON GENDER

Gender has long played a role in the microfinance industry, with product design

and delivery built on gendered premises (e.g., that women invest money in family and have better repayment rates than men). We suggest that the successful integration of women into livelihood-sustaining or wealth-creating activities requires an understanding of the degrees to which gender defines constraints, both to participation in, and benefits from, the activities under study (Manfre & Sebstad, 2010).

This premise is a defining concept behind this study. We administer a gender lens mostly through simple disaggregation (i.e., separating out the data in terms of men and women and examining the differences). The approach lines up with recent scholarship on the topic; for example, the recent USAID handbook on gender analysis that called on scholars “to organize and interpret, in a systematic way, information about gender relations to clarify the importance of gender differences for achieving development objectives” (Rubin et al., 2009, p. 15).

The Diaries provide unique, empirical illumination of the differences in financial practices between men and women, gathered on the ground and in “real time” over an extended study period. The results both help confirm and expand assumptions about such differences.

PROJECT OVERVIEW

Background

The Diaries study belongs to a larger project known as the Financial Services Assessment (FSA), which was funded by the Bill & Melinda Gates Foundation (BMGF) to assess the impact of innovations in microfinance by BMGF grantees. Microfinance Opportunities (MFO) and the IRIS Center at the University of Maryland (IRIS) are implementing this assessment project over five years (concluding in July 2011). Research sites are connected

to BMGF grantees at various locations around the world including Malawi, Kenya, Pakistan, and Peru.

The approach adopted in this project is mixed-methods, and the project endeavors to examine the impact of these innovations in terms of poverty alleviation. The aim is to identify the most promising products, services, and delivery systems in current microfinance. The approach taken by FSA uniquely emphasizes issues such as access to financial services and the role of the regulatory environment. The division of labor is largely IRIS on the quantitative research and MFO on the qualitative research, though our Diaries research spans both realms.

The Place of the Financial Diaries within the FSA Project

BMGF has made a major investment in researching the outcomes and impacts related to the service innovations of OIBM. Other Malawi-based research in the FSA project series includes a large-scale Impact Assessment Panel Study (carried out by IRIS), a Financial Landscape study, both baseline and endline (carried out by MFO), and an Enabling Environment study (carried out by IRIS). All were designed and carried out from 2007 to the present.

The Financial Diaries project offers value as a stand-alone study. However, its combined quantitative and qualitative insights on the key causal processes of the intervention also work in complementary fashion with the Impact Assessment Panel Study. The Panel Study will deliver indicators of change in the same area, with roughly the same population, at two points over a fixed time period (Point A and Point B). That time period corresponds approximately with the execution of the Diaries study. Hence, the panel will measure change between Point A and Point B across a large, generalizable sample. For their part, the

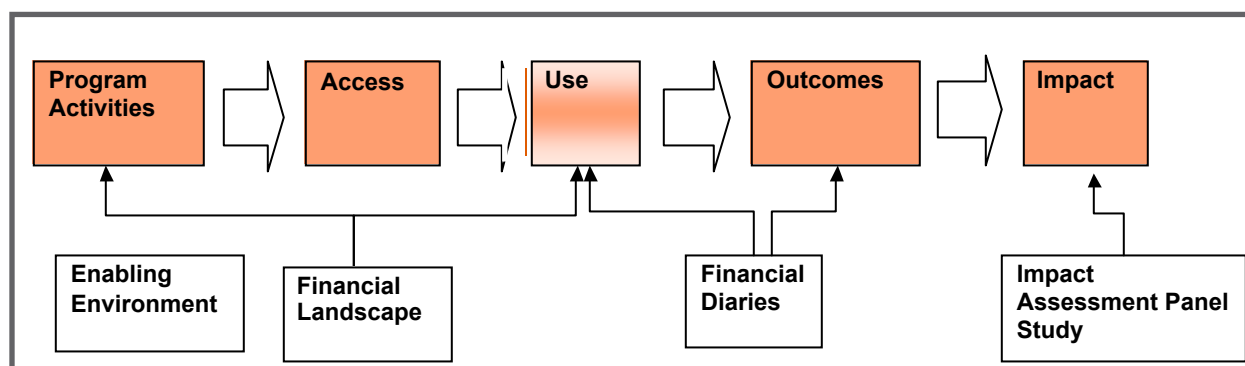
Diaries will help shed light on what occurred between Point A and Point B—the processes of change, as played out in the transaction record, that gave rise to impact. Together, the studies will generate a comprehensive picture of the impact of OIBM’s intervention.

In fact, the Diaries study works in complementary fashion with all elements of the FSA study (Figure A). The Financial Landscape focuses on the range of available financial services, access to services, and client preferences. The Diaries study then drills down on use, employing those use patterns to examine processes leading to outcomes and impact, where outcomes are changes in behavior and impacts are changes

Conclusion. All help convey our story of value and use, though in different ways. The first three sections are largely descriptive in nature, while the fourth (Managing Risk) constitutes our most significant analysis.

Across these sections, we present 12 chapters. Following this Introduction (Chapter I), we provide background on the setting (Chapter II) and research design (Chapter III). Then the report immerses the reader in the financial lives of our sample with general socioeconomic descriptives (Chapter IV) and an overview of the transactions data we recorded (Chapter V). Then we turn to the participants’ interaction with the supply side of financial services. We begin with a look at the informal and

FIGURE A—CAUSAL MODEL OF FULL PROJECT, WITH ALL COMPONENTS



in well-being. The Panel Study focuses on impact, though it also provides measures of outcomes. Finally, the Enabling Environment study provides the context for all findings by illuminating the broader conditions in which financial services are delivered.

ORGANIZATION/STORY OF THE REPORT

This report is about value and use of financial services. It examines whether low-income people gain value from using formal financial services. In its most skeletal form, the story we tell in this report is in five parts: 1. Project Description; 2. Project Data; 3. Financial Transactions; 4. Managing Risk; and 5.

semi-formal financial market, with particular attention paid to individual cash exchanges (Chapter VI). Then we turn to our participants’ interactions with banks (Chapter VII). Next we break OIBM out from the data set. We look at trends over time in van use, and economic context that may be mediating that use (Chapter VIII).

We carry on with an examination of the van’s special significance for women consumers (Chapter IX). The two final chapters analyze use patterns in relation to economic shocks (Chapter X) and “lumpy” cash flows (Chapter XI). We conclude with a summation on value and impact, and industry implications (Chapter XII).

II: Setting and Context

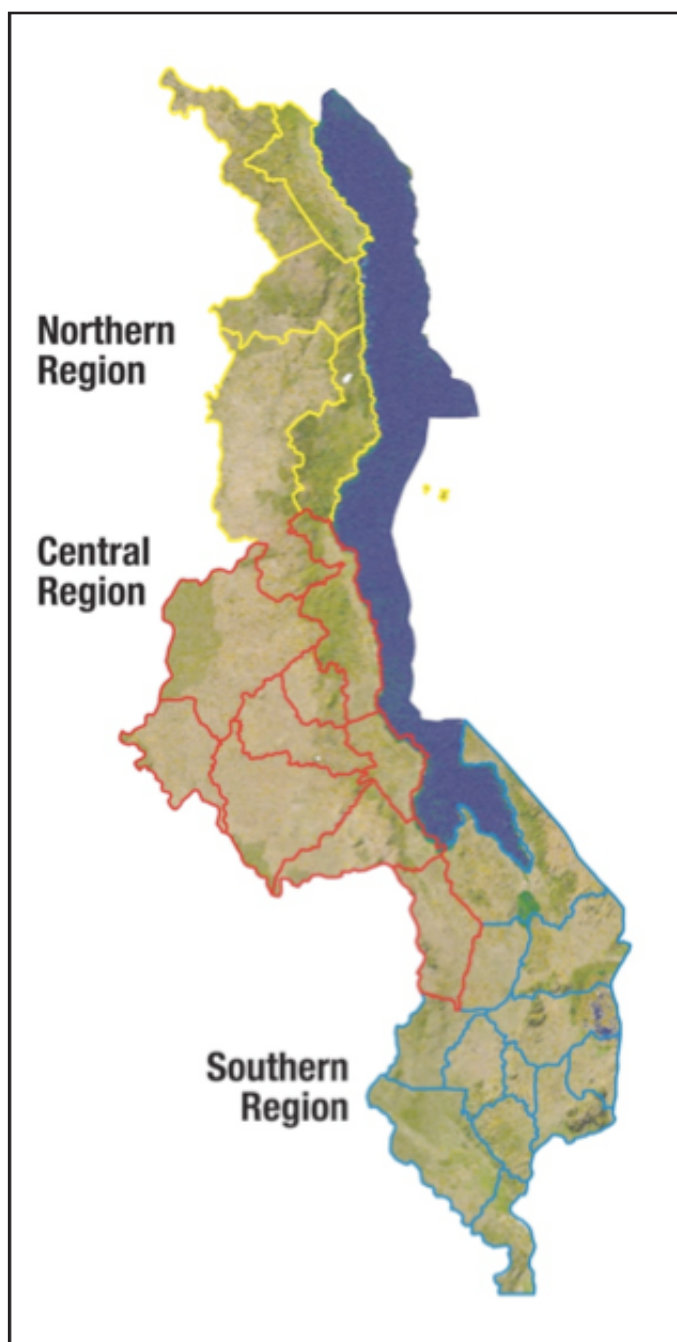
OPPORTUNITY INTERNATIONAL BANK OF MALAWI—AN OVERVIEW

Opportunity International Bank of Malawi (OIBM), headquartered in the Central Region in Lilongwe, the capital of Malawi, is a commercial bank which started operations in 2003 as a savings-led institution. The stated mission of the bank is “to provide high value financial services to meet the needs of economically disadvantaged Malawians.” OIBM offers a variety of financial products and services, including loans, savings, insurance, payment services and foreign exchange products. Though their focus is the economically-active poor, the bank actively serves a diverse range of client market segments, including the better-off and corporations as well as the poor.

OIBM has four full-service branches located in Lilongwe and two other regional cities. Additionally, consistent with its rural expansion plan (explained in more detail below), the bank has opened a total of 16 other “satellite” and “kiosk” locations, which represent scaled-down versions of its full-service branches. OIBM also operates four mobile bank van routes.

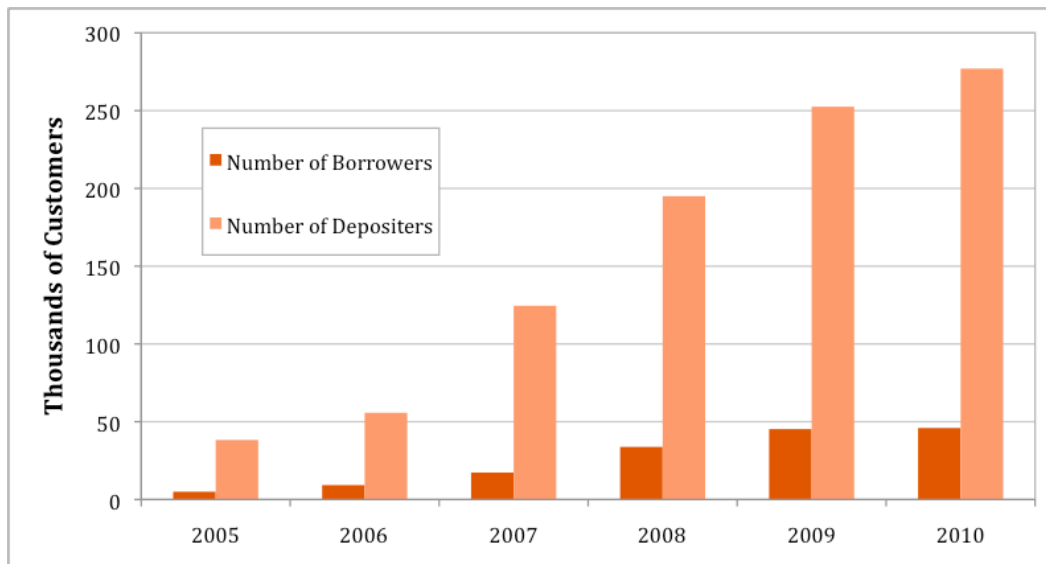
Since 2005, OIBM has shown strong growth in both savings and loan activity, though the former continues to dominate in terms of number of clients (Figures C and D).

FIGURE B-MAP OF MALAWI



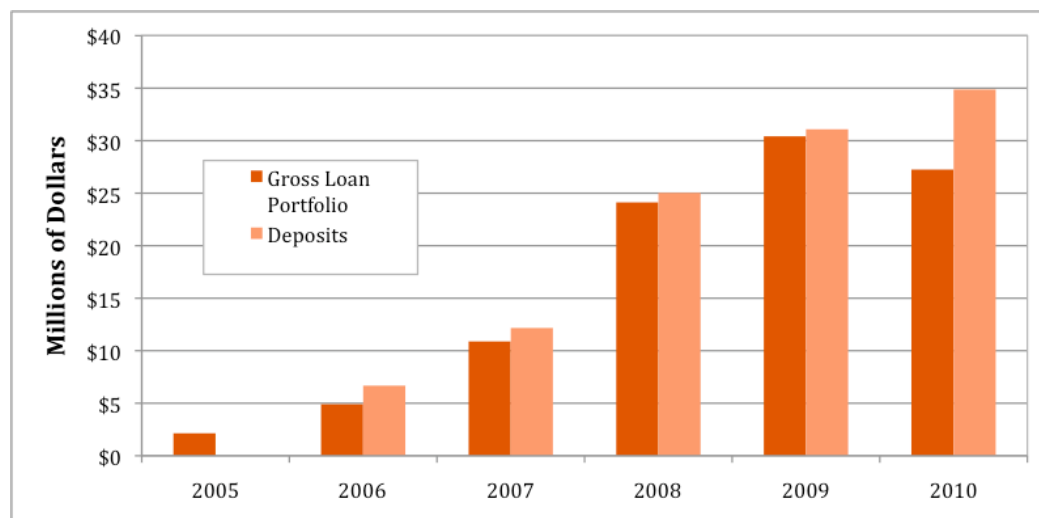
Source: http://commons.wikimedia.org/wiki/Atlas_of_Malawi?uselang=fr; (enhanced by Lance Marburger).

FIGURE C-OIBM'S OUTREACH, 2005-2010



Source: Mixmarket.org and internal OIBM reports

FIGURE D-OIBM LOAN PORTFOLIO AND DEPOSITS, 2005-2010



Source: Mixmarket.org and internal OIBM reports

OIBM'S INNOVATIONS

In 2005, OIBM received a grant from BMGF to pioneer a model of rural service delivery in Malawi, which they described as “a scalable, technology-driven, low cost approach to providing a full range of financial services to families living in remote rural areas.” (OIBM, 2005, p. 3). It is a technology-based alternative to the rural expansion plans spearheaded by microfinance banks elsewhere in the world, where the emphasis has been on new branch openings (see Burgess & Pande, 2003, for an Indian case study; Aportela, 1999, for a Mexican case study).

Success for OIBM depends on how their innovations help the bank extend its reach.

The expansion plan is multi-tiered. The technological components of the innovation, which include biometric smart cards, satellite branches, mobile bank branches, ATMs, cell phone-based mobile-banking services, and point of sale (POS) devices, are being used to deliver a range of financial products including loans, savings, and insurance to the rural population. The BMGF-sponsored banking van was the first of these delivery channels to be rolled out and therefore became the primary focus of the FSA research in Malawi. (Several major components of the innovation plan, including the POS devices and the cell phone banking, were rolled out in 2010, too late for comprehensive assessment as part of the FSA project.)

The van is essentially a high-tech bank-on-wheels, with both an ATM and a human teller on board, traveling on a regular schedule and making stops to provide a full range of services in areas without brick-and-mortar branches. The services are identical in nature and range to those offered at OIBM's brick-

and-mortar branches. The van is, in effect, a direct stab at elevating convenience in service provision, or “the opportunity to make all kinds of transactions... close to the home business, quickly, privately, and unobtrusively,” in the words of Morduch and Rutherford (2003, p. 7).

The rationale for OIBM's innovation is that only five to 10 percent of the rural population in Africa is believed to be reached by microfinance services. The outreach of formal financial service providers is generally constrained by limited branch networks and difficulties in reaching the sizeable populations that reside away from major cities and towns. For their part, rural microentrepreneurs who currently use banking services sacrifice considerable resources in the form of transaction costs (e.g., transportation fees and the opportunity costs of time) to reach the point of access to their bank.

Success for OIBM depends on how their innovations help the bank extend its reach, presumably while lowering costs and facilitating access for these clients. OIBM's approach here is likely influenced to some extent by industry trends and recent research linking the number of deposit locations to factors like propensity to save (cf. Ssewamala & Sherraden, 2004).

SERVICE CONTEXT OF MALAWI

Malawi is a small southern African country, with a land area of 98,080 square kilometers. The population is estimated at 13.1 million, with 54 percent under the age of 18 (NSOM, 2008). It is one of the poorest countries in the world, ranking 160 out of 181 on the 2009 Human Development Index (UNDP, 2009), though its position in many such indices has improved somewhat over the past five years. Thirty-nine percent of the population lives below the national poverty line; 15 percent of the population is considered ultra-poor (NSOM, 2009).

FIGURE E - THE OIBM MOBILE BANKING VAN



and low development levels in general. That made the van a very powerful marketing tool for OIBM and its products.

In its original proposal to BMGF, OIBM couched the van's value mostly in terms of transaction costs: "The high monetary and opportunity costs associated with traveling long distances using unreliable transportation mean that many struggling entrepreneurs outside of the city cannot access financial services. OIBM will service peri-urban markets from a city hub by bringing the bank from the hub to the

outlying centers." (OIBM, 2005, p. 7). The innovation presumably would enable clients to access banking services more cheaply, more efficiently, and perhaps more often than they would otherwise.

The innovation's initial value proposition was also examined in context by McGuinness (2009), who concluded that value centered on the idea of bringing the bank to the customers, much in the way envisioned by OIBM. It was also noted for its "one-stop shopping" potential: for many clients, OIBM's complete service array (savings, loans, remittances, etc.) could be accessed in a single visit close to home. The van was also noted for its potential to increase OIBM's outreach among rural, agricultural, and possibly poorer customers.

The economy is dominated by the agricultural sector, with 85 percent of the population living in rural areas (NSOM, 2008). Most Malawians depend on subsistence agriculture. Eighty-five percent of all households are smallholder producers and more than three-quarters cultivate less than one hectare of land. The majority of land under cultivation (70 percent) is used to grow maize, the staple crop (McGuinness, 2008, p. 5).

Crop production also provides 73 percent of rural household income (Burritt, 2005, p. 3) and four-fifths of all export revenues, of which tobacco accounts for 53 percent. Yet because the agricultural sector is dominated by smallholder production (McGuinness, 2008, p. 5), agricultural activities only contribute 35 percent of national GDP.

WHY DID THE VAN MATTER?

At the time of its launch in 2007, the banking van was the only delivery model of its kind operating in its service area in Central Malawi. It was also a striking, high-tech innovation that stood out in an area marked by low technology

III: Research Design

As conceived in this project, the Diaries methodology centers on induction. Though we had a set of research questions and hypotheses about what we might find, we approached the data with the goal of letting it tell the story and lead the analysis (see Besley, 1992, pp. 122-125, for parallel remarks on application of inductive versus deductive methodologies).

RESEARCH QUESTIONS

We began with a group of questions related to OIBM service innovation. These include:

- How and when are the banking van services being used?
- What kinds of participants tend to use the bank the most, and for what purpose?
- How does bank use relate to overall well-being in areas such as risk management?
- How does bank access affect intra-household dynamics, particularly as related to female empowerment?
- What is the value proposition of OIBM and its service innovations?
- How do transaction patterns relate to impact?

As the study progressed, the questions became more focused. At the same time, the various stakeholders in the project began expressing interest in broader financial access questions, which the massive database that was emerging from this study was well-suited to address. Those include:

- What is the value proposition of formal over informal financial services?
- What is the value proposition of formal savings account use?
- What are the particular patterns of use that create value for individuals and households?
- How do people move from informal to formal banking, or vice versa?
- How do the formal and informal financial service domains coexist?
- What is the value proposition of OIBM specifically?

Ultimately, this analysis and report focused on a mix of findings, relevant both to the original more project-specific questions, and to the broader financial access questions that emerged later.

METHODOLOGY

Primary Survey

As conceived for this project, the basic aim of the Diaries methodology was to track transactions, meaning all inflows and outflows of cash and non-cash household assets, on a weekly basis. In other words, we captured all cash and non-cash resources coming in, and the same going out—every basket of tomatoes bought, every kilo of maize sold, every dollar earned as a day-laborer, every gift given or received.

More precisely, the kinds of transactions we captured include:

- Purchases of goods and services
- Sales of goods and services
- Income from employment
- Borrowings or proceeds from ROSCAs
- Savings or contributions to ROSCAs
- Money lent out
- Loan payments made or received
- Insurance premium payments, including burial funds
- Insurance payouts
- Winnings from gambling/lottery
- Barter exchanges
- Gifts given and received
- Food/grains taken from or put into storage
- Intra-household cash transfers

All of the above transactions, except the last two, are external to the household and involve exchange partners who live and eat separately from the participants. “Food/grains taken from storage” is self-explanatory. The last transaction, intra-household cash transfers, was used to capture the dynamics of the household through the monitoring of flows of cash between household members who are participants.

For each transaction, fieldworkers collected a variety of information, about 10 data points in all. This included information about the persons involved in the transaction (both the participant and the exchange partner); the amount of money involved; the quantity of the goods or services; the location of the transaction; and other data. Once the fieldworkers established a complete record of the week’s transactions, they also asked participants whether any significant events had taken place in the past week that related to (or helped contextualize) the transaction record. Fieldworkers also asked about the amount of cash on hand in the household, though this data was problematic, and will be discussed later in this chapter.

Data collection took place using a deliberately short and simple survey instrument—the front and back of a single sheet of paper. The idea was to limit the burden of an already-intensive interview process as much as possible. Participants were provided with notebooks in which to keep draft records of their transactions before the visit from the fieldworker.

Cross-Sectional Survey

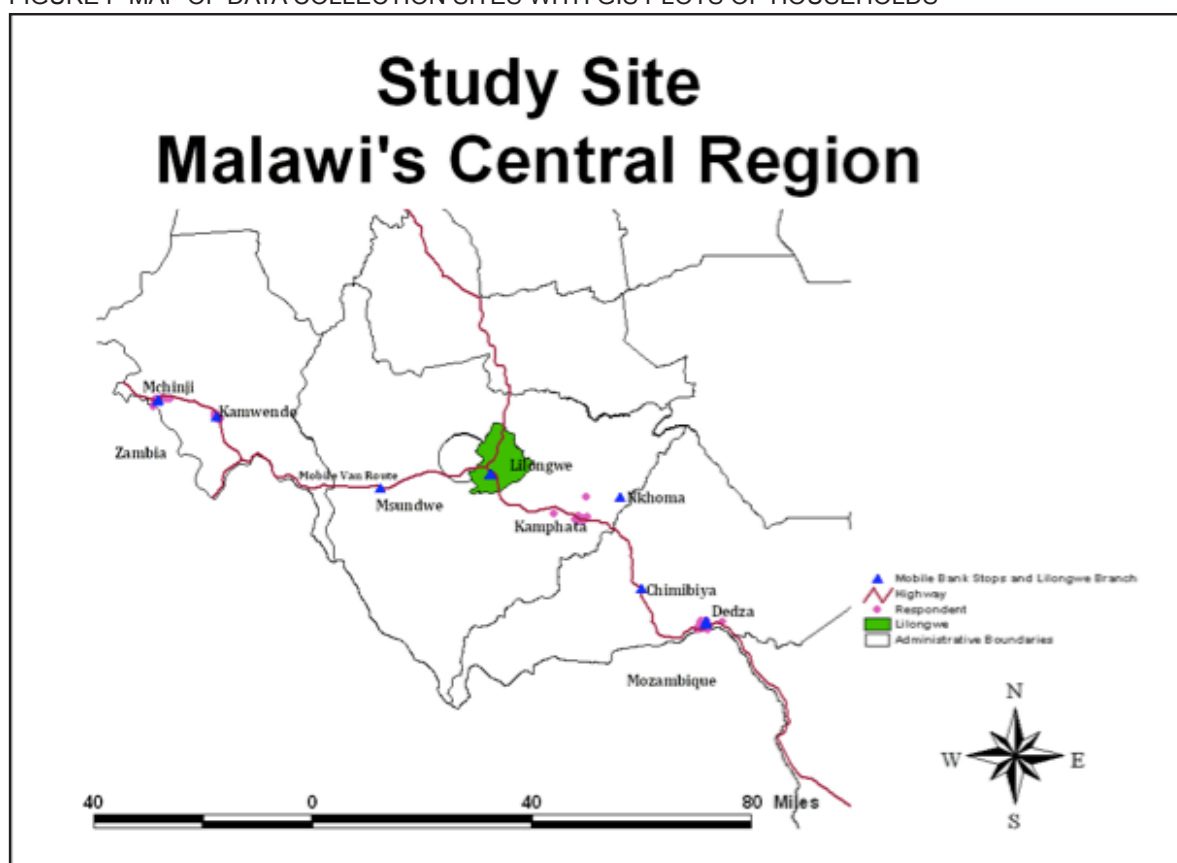
In addition to the primary survey, fieldworkers also administered portions of a cross-sectional quantitative survey developed by IRIS for use in its panel study in Malawi. The idea was to collect additional demographic and financial information to help contextualize the transaction data and perhaps enable supplemental analyses (e.g., changes in permanent assets). The sections of the IRIS questionnaire employed by our fieldworkers were as follows: 1. Household Roster; 2. Assets (general); 3. Consumer and Productive Assets; 4. Access to and Use of Savings Services; and 5. Access to and Use of Loans.

The first administration occurred not immediately upon enrollment of participants, but within a few months of the start of their participation. The reasoning was that, for data-quality purposes, it was better to wait until a certain level of rapport was established between fieldworker and participant. The second administration occurred in the final month of the study.

SAMPLING TECHNIQUES/LOGISTICS

Our aim at the start of the study was to recruit roughly 200 households, located in areas that corresponded with the stops of the OIBM banking van in its two routes out of Lilongwe. Half were expected to be OIBM client households (meaning at least one participant member of the household had an active account with the bank), while the other half would be non-clients.

FIGURE F-MAP OF DATA COLLECTION SITES WITH GIS PLOTS OF HOUSEHOLDS



Source: World Food Program/Vulnerability Assessment and Mapping Unit, 2008 (for the administrative boundary and highway route data).

The clients were recruited using random selections from OIBM client lists, plus snowballing techniques to find other OIBM participants in the same vicinity as those initially recruited (see additional discussion below). Our comparison group was recruited using a peer-referral technique. Essentially, we asked recruited clients to refer us to someone living nearby (generally in the same community) who was “like them” but not an OIBM client. We defined “like them” as matching the recruited participants on at least four of five of the following socioeconomic variables: 1) gender; 2) age; 3) family structure; 4) occupation; and 5) food security.¹

In terms of geography, at the time of recruitment, the banking van made six regular stops: Nsundwe, Kamwendo, and Mchinji

going west, and Nkhoma, Chimbiya, and Dedza proceeding southeast. After viewing the OIBM client lists and considering the recruitment possibilities, the team decided to drop Nsundwe and Chimbiya, because at the time they lagged far behind the other calling points in terms of numbers of registered clients. The other four stops became our recruitment sites, with one variation: our fieldworkers had difficulty recruiting a sufficient number of clients within a reasonable geographic range around Nkhoma. Therefore the project team made a decision to shift recruitment and subsequent data-gathering to the nearby trading center of Kamphata. It was uncertain at the time whether the OIBM clients there would seek service at the Nkhoma van stop or at the main OIBM branch in Lilongwe (further away but accessible via public transportation on the main paved road). As it turned out, the answer was almost exclusively the latter, which

¹ Food security was suggested to us by key Malawian informants as a locally (indigenously) observable variable that serves to distinguish Malawians from each other socioeconomically at the village level.

brought some interesting implications for the analysis to be discussed in a later chapter.

Our aim in enrolling a household in the study was to secure participation of all economically-active adults in the house—meaning all individuals older than 18 who earned income, spent household funds, and participated in household financial decision-making.² In the majority of cases, the full economically-active household roster was indeed recruited. The number of participants per household ranged from one to four.

Our aim in enrolling a household in the study was to secure participation of all economically-active adults in the house. In the majority of cases, the full economically-active household roster was indeed recruited.

As expected, we were unable to recruit all economically-active members of certain households; households falling short amounted to nine percent of the final sample. We included these cases in the analysis when using individuals or transactions as units of analysis, but excluded them when employing the household as the unit of analysis.

As expected, our sample encompassed a substantial number of single, female-headed households. This kind of household is quite common in Central Malawi due to a variety of factors, including the high incidence and mortality rate of HIV/AIDS among males. Another factor is the central region's matrilineal

² For the purposes of this survey, a household was defined as a group of people sleeping under the same roof (hut, not compound) and eating from the same pot. This definition was reached after consultations with various experts on Malawian culture (e.g., Pauline Peters, personal communication, 2007). In the areas we surveyed, adult children who marry move out of the household, and so our participant household tended to resemble a North American "nuclear family" with the addition of unmarried adult children (especially males) and older or widowed grandparents.

culture, which sometimes de-emphasizes the productive role of the male partner.³

Polygamous households also entered into the sample. In such marriages in Malawi, co-wives do not co-reside; rather, each has her own dwelling. And as such, we treated the polygamous wives in the sample as autonomous households, with the part-time residing husband asked only to recount his transactions that related to the particular wife in the study. Our sample included a small number of cases of mobility or migration (i.e., one or more economically-active members leaving the residents for extended periods or residing semi-permanently in another location as a migrant worker). In these cases, we counted the mobile/migrant individual's remittances back home as income to the household. Our field team also expended all possible efforts in recruiting the mobile/migrant member to the study. Generally, this meant approaching the individual on a visit home and asking that he or she record transactions in a notebook while away, to be shared in interviews with the fieldworker upon return.⁴

In any manner of research as intensive as the Diaries, participant dropout is a concern. From the start, we anticipated a dropout level of up to 10 percent, meaning we aimed to finish the study with at least 180 households (pre-purge). We also expected the dropout problem to be particularly salient in the early stages of the study, as participants realized the extent of the commitment and decided that it was not for them. To counter the early dropouts, we allowed the field team to recruit some replacements for early dropouts.

³ In a matrilineal culture like Central Malawi, a child's father does not share the child's lineage. As a result, the father's role in rearing the child can be overshadowed in some cases by the mother's male relatives (e.g., maternal uncles), since they are the closest male relatives of the child's same lineage. In extreme cases, according to Malawian key consultants, the mother may even be pressured to separate from her husband after children are conceived, as the husband is viewed as a means to an end but never a true member of the family.

⁴ This recruitment of migrants worked in some cases but not others. In cases when it failed, the household was relegated to the "incomplete" portion of the sample and excluded from household-level analysis. To be clear, however, this only occurred when the migrant was actually considered part of the household. When the migrant did not reach a specified threshold of time spent in the household to be included as a member, then we counted the household as complete.

We did not systematically investigate the characteristics of the dropouts, compared with the sample as a whole, to look for bias effects on the sample. Anecdotal evidence suggested that there were many reasons for, and no prevailing participant types among, the dropouts. We expect to take up this topic in more detail in future studies.

IMPLEMENTATION LOGISTICS

For this research, the Malawi-based field team consisted of 13 full-time and two part-time staff. All were employed and coordinated by the Centre for Development Management (CDM), a Malawian consulting firm based in Lilongwe.

Anchoring the team was the group of eight fieldworkers. These individuals were responsible for recruitment of participants and all phases of data collection, including the immensely important process of establishing long-term rapport with the participants. The eight fieldworkers resided at their research sites during the week (i.e., one of the four areas surrounding or adjacent to a banking van stop, as noted above). They traveled established routes on bicycle each week, meeting and interviewing their roster of participants at set times. Each Saturday, they returned to the CDM main office in Lilongwe to turn in their handwritten data sheets.

The project's data manager reviewed all data arriving at the central office and routinely sent requests for clarification back to the fieldworkers. He also worked with the U.S.-based researchers in addressing any queries that came about via the U.S.-based cleaning and clarification processes, both during and after data collection.

As noted earlier, the project ran 18 months, from July 2008 to December 2009. Prior to this, there was a ramp-up period of roughly six weeks, from late May to early July 2008.

Data from the ramp-up was excluded from analysis, because both fieldworkers and participants needed time to become familiar with the protocol before confidence in the data could be established.

Incentives for participation included cash and in-kind gifts made to participants at various points in the study. These gifts were deliberately modest as the team was mindful of their potential to distort household financial management.

A second somewhat unexpected incentive was the monthly reports the project team distributed to the participants. These were summaries of business income and expenses as well as household spending, customized and generated for each household, and then distributed to participants by our fieldworkers. The research plan always entailed distribution of these reports once the study was underway, but what we did not expect was the response. The participants thoroughly appreciated these reports; many reflected that it was their main reason for remaining in the study. They explained that the reports gave them insight into their own budgeting and financial management that they could get no other way.⁵

SEASONALITY ISSUES

The Central Region employs a seasonal calendar reflective of its agricultural orientation. This seasonality has great effect on transactional patterns and hence great import to this study.

The cycle begins with “Land Preparation Season” from July to October, followed by “Planting Season” from November to December. The most difficult time of the year for many Malawians is the “Food Deficit Season” or “Hungry Season” from December to

⁵ The monthly reports and the Diaries process as a whole quite obviously delivered a financial education effect to participants. We were well aware of this effect and considered its implications in terms of distorting the results. Our position is that it is not a major concern, since our primary analysis focuses on the difference between OIBM clients and non-clients, and the two groups received equal financial education in this manner, thereby correcting for the effect.

March, when crops are under cultivation and food stores often run low. “Harvest Season” occurs between April and August, with the exact timing of the harvest varying by crop.

Our study ran July 2008 through December 2009, and as such, we began in a harvest season, ran through a planting cycle, captured a second harvest season, and most of a second planting season. Many key comparisons are later made between our first and fifth quarter (i.e., our first harvest season and second harvest season) because these are complete quarters in our record, exactly one year apart. This represents our effort to correct for seasonality in looking at change over time.

RESEARCH CHALLENGES

Sampling and the Pragmatics of Diaries Research

Initially, our intent on sampling was to “piggy-back” on the randomized sample of the IRIS center’s panel study. We would select a random sub-sample of both clients and non-clients from the study and recruit them for participation in the Diaries. There were obvious advantages of this approach, including the potential to examine correlations and interrelations between the panel data and Diaries data, since these participants would generate both.

This plan was scrapped after it was determined that working in the same geographic area presented insurmountable problems for study design, specifically, concerns over contamination of the sample for the panel study. Even without these concerns, some doubts remain as to whether the randomized sub-sample would have worked for the Diaries study. Our fieldworkers, for example, would have had difficulty reaching many of the randomly-distributed, more distant IRIS participants on their bicycles. (Equipping each fieldworker with a car was beyond the budget confines of our study.)

Our resulting sample has two biases that the reader should keep in mind, but which we do not feel compromise our results. First, our sample is not distributed randomly within our target sampling area. Our fieldworkers traveled on foot or bicycle, and with this came the necessity for geographic clustering. Traveling 15 or 20 kilometers into the rural hinterlands on unpaved roads that become almost impassible in the rainy season was not a reasonable expectation. Our resolution was to use OIBM client lists to find random participants in and around the trading centers where the banking van stopped, then to use snowballing or purposive techniques to find other clients in the vicinity (plus their comparison participants, using peer referrals).

The resulting sample carries a bias in that the proximity to trading centers and main roads entails mobility, engagement with the formal economy, and perhaps affluence that may not be representative of the population of Central Malawi. The economic realities of the rural smallholder farmer 50 km from the main road, for example, may be markedly different from those of our sample. On the other hand, OIBM’s presence in the more remote areas, away from the main roads, tends to be far less than around the trading centers. For business reasons, OIBM chose bank stops adjacent to relatively dense populations that the bank felt would present the most demand. Thus the sample likely reflects many aspects of OIBM’s target market, which was the aim of the study.

A second bias comes from the fact that we ended up recruiting a subset of the population willing to commit to the study’s considerable long-term demands. A significant number of individuals declined to participate in the study before the sample was complete. This introduces the potential for a self-selection bias, though the precise effect remains an open question. For example, some owners of

successful businesses refused to participate because they felt themselves to be too busy; hence successful entrepreneurs may be underrepresented in the sample. On the other hand, some successful business owners joined because they were eager to learn more about the budgeting and profitability of their business via the monthly reports; hence there may have been a countering effect.

Arguably, there is a third bias as well: that given the inherently intrusive nature of our methodology, people would modify their behavior significantly, possibly without being consciously aware of doing so, in response to being surveyed so intensely and being provided with monthly reports on their own financial management. Our way of correcting for this bias is to focus on comparisons between the clients and non-clients, both of whom received this same “treatment.”

Unstable client and comparison groups

Another challenge inherent in the study design is that client and comparison groups were not “controlled” and hence not guaranteed stable. Some households that were not identified at the start as clients of OIBM might become clients during the 18 months of the Diaries project, while others identified as clients may close or allow their accounts to go dormant.

In the end, as expected, we had a certain number of cases falling into both categories. As a resolution to the “muddying” of the client and comparison group caused by these cases, we elected to dispense with self-identification as the basis for distinguishing the two groups and divide the sample by whether participants recorded at least one transaction with OIBM over the study period. By this criterion, roughly equal numbers of individuals “switched classification.” So, 28 individuals who did not identify themselves as clients went on to complete at least one transaction, and

30 individuals who did identify themselves as clients failed to complete a transaction. The analysis proceeded with these reclassifications. As we show later, there is little difference in the basic demographics of the OIBM user group and the non-user group.

Attitudes toward cash balances

As noted earlier, our methodology and our survey tool included questioning about the amount of cash on hand at the moment, both on the person of the interviewee and in the house. It was anticipated that this data would be recorded accurately and that these figures would become integral in “balancing” the inflows and outflows of each household.

Our fieldworkers did in fact record this data as instructed. However, the U.S.-based team conducted analyses of this data, and by placing the cash balance data in the context of household finance and past transaction records, we concluded that this data was, on the whole, unreliable.

After conferring with our Malawian key informants about the results of these analyses, we learned that the findings are consistent with a particular feature of Central Malawian culture (i.e., that people are extremely reluctant to provide information on the money they have secreted away, in their houses or elsewhere). The rapport our fieldworkers established with participants was remarkable, to the point that participants openly shared their illegal and otherwise illicit transactions in many cases. But even with this rapport, the cash balance data remained flawed, and these results did not surprise our Malawian colleagues in the least.

In the end, we elected to throw the cash balance data out of the analysis. To deal with the loss of the “check” the balances gave us in verifying the inflow and outflow data, we

conducted extensive analysis of the balances of the inflow and outflow data and followed up with field workers where we felt those imbalances were not credible.

Data entropy = MUM + WFA + EOS

The above equation was developed in a somewhat tongue-in-cheek manner to document behavior we know to exist that can skew the inflow-outflow balance of our households, which we examined individually for all households as part of our data cleaning/clarification process. We refer to these imbalances as “data entropy” and identified the following three root causes:

- “Money under mattress” (MUM) – This is essentially the issue outlined in the previous section. The cash balances data was deemed unreliable and excluded from the analysis. Assuming that participants were in fact holding cash in their homes or on their person, MUM means that the inflow and outflows will always be imbalanced to some extent.
- “Week frittered away” (WFA) – This refers to the likelihood that our respondents did not record all expenditures, especially small ones that they quickly forgot. In this case, we are referring strictly to outflows; inflows tend to be much larger and less frequent, thus harder to forget.
- Estimates of sales (EOS) – The microentrepreneur segment of our segment often estimated the revenue earned through particular kinds of sales on a weekly basis. So, instead of a comprehensive list of every 10-cent grocery item sold, we received a weekly EOS. This was deemed a methodological necessity, in that the data team and our database would have been completely overwhelmed with detail otherwise. But it opens the door to some inaccuracy.

The first two items on the list exclusively skew the balances positive, while the third can skew it either way. One would expect that the net effect would be the creation of a balance skewed toward the black, and that is indeed what we found in the sample overall. In our cleaning/clarification process, we tolerated a certain level of positive imbalance, within our established limits, knowing that the above factors were probably at work and there was little we could do about it.

Positive imbalances beyond our established limits were not tolerated. If resolution of the imbalance could not be found, the households were purged from the analysis. Negative imbalances were scrutinized even more, as these were more difficult to explain using our “entropy” equation.

VALIDITY AND RELIABILITY OF THE APPROACH

Our sample size and sampling technique straddle accepted qualitative and quantitative standards. We see the method as encompassing aspects of both orientations. We aggregate data to produce quantitative findings, but also collect “real-time” transaction data over a long period, enabling us to expound on the social processes that produce the quantitative findings (a more qualitative endeavor).

As general social science research, we followed precedent to ensure the internal validity of the research (cf. Yin, 2003; Bernard, 1995). Steps included:

- Employing redundancy in data collection by repeatedly interviewing participants with the primary survey instrument up to 73 times (not that the data would necessarily repeat, but the patterns should be validated).
- Using multiple sources of evidence, including the primary survey, the cross-

sectional survey, debriefing interviews with fieldworkers (who came to know the participants well), and secondary sources; we triangulated the evidence wherever possible.

- Employing a variety of accepted analytic tactics including pattern matching, explanation building, and addressing rival explanations.
- Having key informants review draft findings.
- Developing an extensive research database, which speaks directly to the reliability of the research vis-à-vis future inquiries.

As for external validity, our sample was neither large enough nor fully random to be generalizable to the broader population in the conventional statistical sense. However, our sample captures a solid gross indication of typical characteristics of the economically-active poor of Central Malawi (OIBM's target population). This is based on our range of ethnographic knowledge about Central Malawi, coupled with the expert input of our Malawian key informants. The sample is diverse, with low and high income outliers, and this reflects the diversity of Central Malawi. In sum, one can learn a great deal about how Central Malawians manage their money from reading our report. Backing up our claim are more than 5 million data points from our sample of 257 people.

When analyzing the data, inevitably we faced quandaries on sample segmentation (i.e., how far can we proceed in slicing up our sample to apply analyses before the small n undermines validity?). To this question, we applied both common sense and formal statistic tests. The latter consisted of Mann-Whitney tests of significance, which is a non-parametric test most appropriate for use with data that is not normally distributed, which is the case for much of our data (see next section).

METHODOLOGICAL NOTES: PPP DOLLARS, MEANS/MEDIANS, AND INCOME CALCULATIONS

All monetary figures expressed in this report are in purchasing power parity (PPP) U.S. dollars. The calculation is as follows: we began with Malawi Kwachas, divided by 145 (an average conversion figure for the study period), and then multiplied by a PPP conversion factor of 2.172.⁶

In addition, many analyses in the following chapters will employ medians as well as means, and sometimes just medians. Generally, medians are favored in this study because, in areas like income, there are some high outliers in the sample that inflate statistical means. We believe that medians are the more meaningful measure of typical characteristics of the sample.

Finally, this report employs income calculations based on exchanges of cash. It does not include valuations of gifts received in-kind, nor valuations of food grown in participants' own gardens and consumed in the household (nor deductions for gifts given or inputs used in the garden). All of these transactions types were recorded and remain in our database, but they require more careful review and will be subject of future analyses. Generally, we were interested in the role of financial services in helping people manage money/cash, and so we focused on cash incomes. We recognize that this is not the only perspective on income.

⁶ The 2.172 conversion factor was derived from the United Nations Millennium Development Goal statistics, which include a table setting the conversion of local currency into international dollars. At the time we were calculating the numbers for this report, only the 2007 conversion was available. The UN's regression analysis estimated that there were 65.965 Malawian Kwacha to the PPP\$. In 2007 the nominal exchange rate between Kwacha and dollars was 143:1. As such, for Malawi the ratio of exchange rate \$ to PPP\$ was 2.172:1. During the time of our study, the nominal exchange rate of Kwacha to dollars was 145:1. So we estimated the Kwacha to PPP\$ for our study period as 145/2.172 or 66.759:1. A subsequent UN report with updated information that included the 2008 Kwacha to PPP\$ estimated that the PPP exchange rate was 69.061:1. As a result, our PPP\$ numbers are about 5 percent below what they would have been had we used the latest UN conversion factor.

20 th June 2010	
Am home	320
Ndliw	640
chips	60
Church	300
	<u>7.20</u>

21 st June 2010	
Banked	54,000
Ndliw	8400
Kamba	100
Transport to Boma	300
	<u>54,800</u>

22 nd June 2010	
Children Burial	23,900
Transport to and from LL	1400
Ndliw	150

23 rd June 2010	
Makala bag	500
chips Mahewu	240
Ndliw	230
poet Money Gooden	400
	<u>1890</u>

24 th June 2010	
Wahwa njirwa	500
Ndliw	250
Joseph withdrawn	8,000
Mahewu, Kamba	160
	<u>8,940</u>

25 th June 2010	
Bought 3 bag cement	780
Mchanga	800
Anganyu	4
Omanga Withdrawn	40

Section 2: Project Data

With nearly 5 million data points, the database generated by our project is an extraordinarily detailed record of the daily financial lives of low-income Malawians. We expect that it will live on long past this report and continue to be mined for insights applicable to many areas of development. In this section we begin introducing the reader to this database and the sample of Malawian households behind it. We also provide an overview of the financial transactions that comprise our data.

IV: Description of the Sample

PARTICIPANT PROFILES AND A GENERAL OVERVIEW OF THE SAMPLE

In order to give the reader a better sense of “typical” participants in the study, we present three profiles of users whose households were on or very near the median income level for the sample (see the sidebars).

Our final (post-cleaning and post-purge) sample totaled 172 households. The number of individual participants in the study spread across those 172 households totaled 257. The final sample encompassed 861 individuals residing in participant households including minors and economically-inactive adults. These numbers reflect a purging of households deemed unreliable or unsuited for our final analysis.¹

TABLE 1
DEMOGRAPHIC CHARACTERISTICS OF HOUSEHOLDS

Indicator	Value
Mean Size of Household	4.9
Median Size of Household	5
Mean Number of Children per Household	2.1
Median Number of Children per Household	2
Percent of Households with at Least One Non-Nuclear Co-Resident	22%
Mean Age Head of Household	41
Median Age of Head of Household	38
Top 3 Self-Identified Livelihood (Percent of Households):	
Household (non-farm) Business	43%
Farmer	37%
Salaried Profession	17%

¹ We purged households for one of three reasons: 1) an inflow-outflows imbalance that exceeded our tolerance levels (discussed in the previous chapter); 2) an insufficient number of weeks of participants; or 3) input from the fieldworkers suggesting low and irreparable data credibility.

Women comprised the majority of the final sample for several reasons. First, OIBM reached out to women clients with many of its programs; for example, its overall loan client base was 55 percent female as of May 2010. Second, for whatever reason, women tended to be more receptive to the initial approach of our fieldworkers in their recruitment. (Many men joined later, often after their spouses were recruited.) And third, our “peer referral” technique for identifying the comparison magnified the imbalances created by the first two factors, in that client participants generally referred us to someone “like them” on gender as well as our other specified characteristics. About two-thirds of the sample households were married. The remaining one-third of the sample broke down into never married, widowed, and divorced/separated (Figure H).

Nearly all of the single households—33 percent of the sample overall—were female-headed, which may be indicative of the prevalence of such households in Central Malawi.

Participant households averaged about five people, with two children per family, plus non-nuclear co-residents in about 20 percent of cases. Just over 40 percent of household heads identified their livelihood as business-owner, with farmer following close behind at 37 percent (recorded as part of the cross-sectional survey; see Table 1).

THE UNBANKED PARTICIPANT

BASIC INFORMATION:

Married household (monogamous); husband is 32 years old; wife is 30 years old; and household consists of the husband, wife, one parent, and three daughters (ages 3, 7, 9).

LIVELIHOOD:

The couple farm but also self-identified as entrepreneurs. The husband is involved in petty trading and active in bartering for goods. He routinely trades goods like cups for shoes or secondhand clothes; he also trades maize grown in his garden for different types of food. The wife sold vegetables, grown in the household garden, for the first part of the study. After she gave birth in August, the wife was reliant on cash gifts from relatives.

INCOME:

- Mean Weekly Income: \$85.61
- Per Capita Weekly Income: \$14.27
- Per Capita Daily Income: \$2.04

This household was described as poor by other Malawians. Their house, a key local indicator of poverty status, is made of an iron sheet roof, mud floor, and brick walls.

PERSONAL INFORMATION/ EVENTS:

During the project, the husband moved to Lilongwe in search of employment. After a short stay, he failed to find a job, so he moved back to his village. The husband also traveled to Mangochi (a large town in southern Malawi) between weeks 20 to 29 to seek medical attention.

FINANCIAL TRANSACTIONS:

The husband self-identified as an OIBM client, but during the course of our study he never reported a transaction with OIBM. If there was in fact an account with OIBM, it was completely dormant during the study. The household was quite active, however, in informal cash exchanges. Inflows in this area exceeded outflows by a vast amount, suggesting that the household was dependent financially to some extent on the support of family and friends. In the form of cash gifts and remittances, the husband received a total of \$195, while giving out only \$13. (All remittances were informal, such as cash carried by a friend or associate.) He also received informal loans from friends totalling \$107, while giving out just \$10. For her part, the wife received \$198 worth of cash gifts and remittances, and gave out \$7.

TRANSACTIONAL FLOWS:

The husband made business purchases almost every week, which ranged in size and are largely the driver of the irregularity in Figure G. In the deficit balance weeks, the husband spent most of his large expenditures on goods for his business. The dramatic Week 7 dip was caused by a large purchase of cups to sell via petty trading, plus the purchase of a cell phone. The Week 38 deficit was the result of a series of business stock purchases, with a group of pots and pails being the largest. The weeks with the highest positive balance are explained by high sales and low expenditure (e.g., little to no stock purchases).

FIGURE G - WEEKLY INFLOW-OUTFLOW BALANCE FOR "TYPICAL" UNBANKED PARTICIPANT

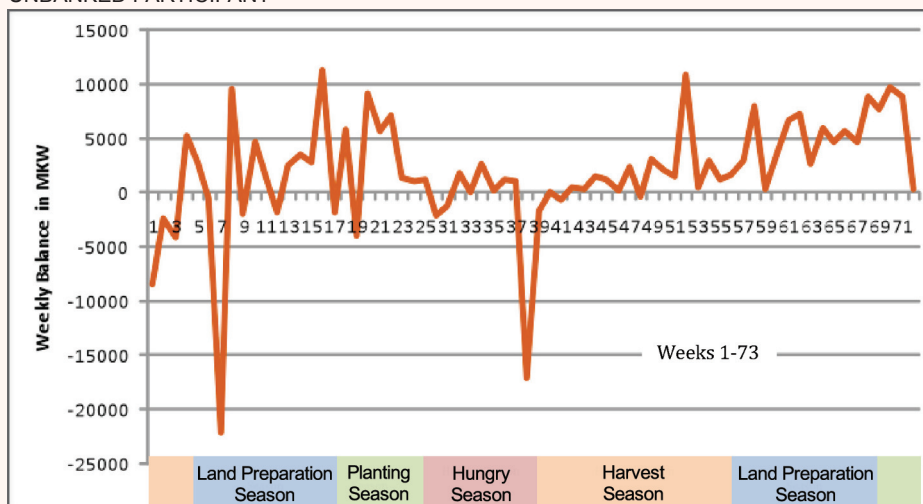
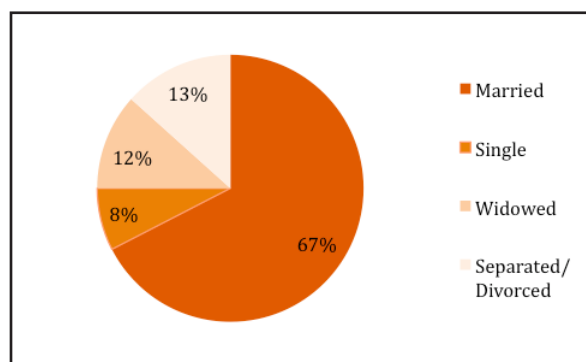


FIGURE H - BREAKDOWN OF SAMPLE HOUSEHOLDS BY MARITAL STATUS



BANKED STATUS

Half of the final sample (49 percent) was OIBM client households, consistent with our aims at the start.

Broken down in terms of individual participants, the sample is 38 percent OIBM clients, indicating that in a significant number of client households, only certain members of the households banked with OIBM. The percentage banking with other institutions (and not overlapping with OIBM) stands at 17 percent, while the unbanked portion stands at 45 percent.

The figures noted above become considerably more complex when we examine the overlap between users of OIBM and other financial institutions, as well as the range of type of financial institutions accessed in this area (Table 2). Only 20 percent of participants used OIBM exclusively, and less than 10 percent used other banks exclusively. The rest of

the banked segment (26 percent) employed some combination of financial instruments—OIBM, other banks, and non-bank financial institutions. We will discuss the institutions comprising these categories in more detail in the next chapter.

INCOME LEVELS AND LIVELIHOOD

As seen in Table 3, the median per capita income of \$2/day (PPP) for our sample is identical to the widely-recognized international poverty line. The mean is considerably higher, reflecting some high outliers in the sample. The median weekly household income was \$55, while the mean was \$99.

By comparison, the Welfare Monitoring Survey 2009, conducted by Malawi's Agriculture Statistics Division of the National Statistical Office (NSO), concluded that 39 percent of the Malawian population was poor by international standards. Their methodology was different from ours, but the figures suggest some rough parallel between our sample and the nation as a whole. Within our sample, using medians, 50 percent of our sample was poor (i.e., below the median of \$2/day), as compared with the Welfare Monitoring Survey's 39 percent.

In terms of the sources of income (see Table 1), as noted earlier, the largest segment of the sample identified their livelihood as microentrepreneurship (43 percent), followed

TABLE 2
BANKED STATUS BY PARTICIPANT, INCLUDING OVERLAP

Institution	Percentage of Sample
OIBM Only	20%
OIBM and Other Bank	12%
OIBM and NBFi	2%
OIBM and Other Bank and NBFi	4%
Other Bank Only	9%
Other Bank and NBFi	4%
NBFi Only	4%
Unbanked	45%

TABLE 3
KEY INCOME STATISTICS

Income Indicators	Value
Median Per Capita Daily Income	\$2.00
Mean Per Capita Daily Income	\$3.43
Median Household Weekly Income	\$55.00
Mean Household Weekly Income	\$99.00

THE NON-OIBM BANKED CLIENT

BASIC INFORMATION:

Married household (monogamous); husband is 28 years old; wife is 27 years old; and the household consists of the husband, wife, and one daughter (age 2).

LIVELIHOOD:

The husband is involved in petty trading and has a firewood business in addition to subsistence farming. The husband is also a church pastor and earns some wages from this. Overall, he spends most of his time working at his business and farming. The wife has a charcoal business and is also involved in other forms of petty trading.

INCOME:

- Mean Weekly Income: \$42.90
- Per Capita Weekly Income: \$14.30
- Per Capita Daily Income: \$2.04

FINANCIAL TRANSACTIONS:

The husband was a client at Mchinji NBS Bank, though he only reported one cash deposit to the bank in week 4. The account remained dormant through the rest of the study. This sparse use of bank services was typical for a large portion of the banked sample. Husband and wife were active in informal cash exchanges, particularly cash gifts and remittances. Like the previous case, inflows greatly exceeded outflows, suggesting some measure of dependency (i.e., they received financial support more than they provided financial support to others). The husband routinely received remittances and cash gifts from members of the church, relatives, and friends; there were 46 remittances and cash gifts reported that totaled \$1,364. He gave cash gifts totaling \$11 to friends and sellers. The wife received 32 cash gifts totaling \$363, the majority from her brother. She gave three cash gifts to various people of a total of \$2.

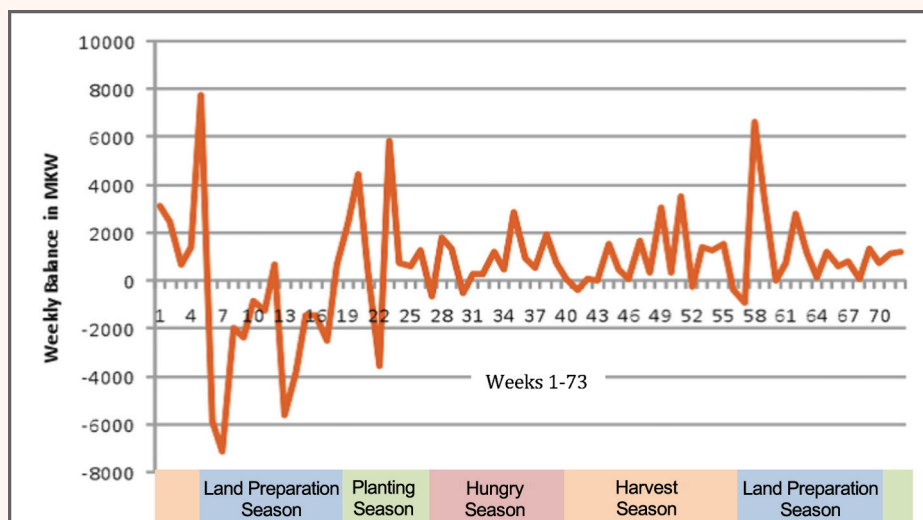
PERSONAL INFORMATION/ EVENTS:

The husband changed churches in September 2009 because he was misusing the church's money (which could potentially explain some of the large "cash gifts" he received from church affiliates).

TRANSACTIONAL FLOWS:

The large deficit weeks early in the study (7, 13, 22) were the compound effect of multiple household expenditures, business stock purchases, and low sales during those weeks. In these weeks, household expenditures that reached outlier levels (i.e., unusually large expenses that help drive the deficits) included transportation, food, soap, fuel, fertilizer, and rent. The surplus weeks (5, 23, 58) were the reverse pattern—high sales and low expenditures, with limited stock purchases.

FIGURE I - WEEKLY INFLOW-OUTFLOW BALANCE FOR "TYPICAL" NON-OIBM BANKED PARTICIPANT



by farming as a close second (37 percent), and salaried employment third (17 percent). We can compare those findings to Table 4, which displays sources of inflows (i.e., gross income) by total dollar amount (as a sum of transaction amounts).

TABLE 4
TOP SOURCES OF INCOME (AGGREGATED)

Source of Income	Income Amount	Number of Transactions	Mean Amount of Income Earned
Petty Trading	\$599,916	5,517	\$109
Sales of Food	\$475,035	5,959	\$80
Sales of Clothing	\$430,026	2,933	\$147
Sales of Household Items	\$323,801	2,745	\$118
Employment	\$220,297	1,774	\$124
Agriculture (cash crops)	\$165,188	265	\$623
Transportation	\$174,510	339	\$733
Construction	\$25,813	214	\$121
Sales of Health-related Items	\$24,334	172	\$141

The top four sources of inflows square with the idea that microentrepreneurship was dominant in the sample. We used “petty trading” as a designation for market traders who routinely dabbled in sales of many different kinds of goods, but compounded those sales in single figures for our surveys. The categories of “food,” “clothing,” and “household item” refer to sales thereof, again by market traders or owners of small stores. The fifth line for “employment” refers to salaried income. The following line for “agriculture” refers mostly to sales of cash crops.

The average amounts vary widely in these top inflow sources. Agriculture leads this category, well ahead of the other top inflow sources, at an average of \$623 per transaction. This is almost certainly a reflection of the small but significant portion of the sample engaged in tobacco farming and sales. Tobacco farming is one of the most lucrative activities in Central

Malawi, with the crop generally sold all at once on the floor of Malawi’s tobacco auction (see discussion in McGuinness, 2008).

VERIFYING THE COMPARISON GROUP

Table 5 helps demonstrate the viability of our comparison groups and the “peer-referral” technique we used to compose it. It is identical to Table 1 above, except that the sample has been broken out into its client and non-client components, in addition to supplying the overall total.

Comparing the client and non-client columns, most figures appear to be reasonably comparable.² To help confirm that observation, we performed non-parametric Mann-Whitney tests on statistical significance.³ The differences between client and non-client households were all found to be statistically insignificant, with two exceptions:

1. Age of head of household of client and non-client households show a statistically significant difference at the five percent level.
2. Income levels vary significantly between clients and non-clients, with OIBM clients better off. We are not entirely certain why the sample ended up this way. As noted earlier, our most explicitly socioeconomic variable in matching clients to non-clients was food security, and the precise relation between food security and income in Malawi may be complex and not fully understood. In any case, readers should bear in mind this difference between clients and non-clients in our sample.

² The statistics in Table 5 are based on the 157 households where we are confident we have complete and accurate data. As noted in the previous chapter, we ultimately distinguished between OIBM and non-OIBM households based on their transactional history during the course of the study. If someone in the household had a transaction with OIBM, then they were counted as an OIBM household. In cases where we did not have complete household data (9 percent or 15 households total), we could not make a determination as to whether the household was an OIBM household or not.

³ The age variable is skewed and not appropriate for a simple ANOVA test that assumes a normal distribution.

THE OIBM USER

BASIC INFORMATION:

Married household (monogamous); husband is 47 years old; wife is 44 years old; and household consists of the husband, wife, three other co-residing relatives, and five children (ages 5 to 24).

LIVELIHOOD:

The husband has a medicine business and the wife has a confections business. They self-identified as farmers, but most of income comes from the two microenterprises.

INCOME:

- Mean Weekly Income: \$115.32
- Per Capita Weekly Income: \$14.41
- Per Capita Daily Income: \$2.06

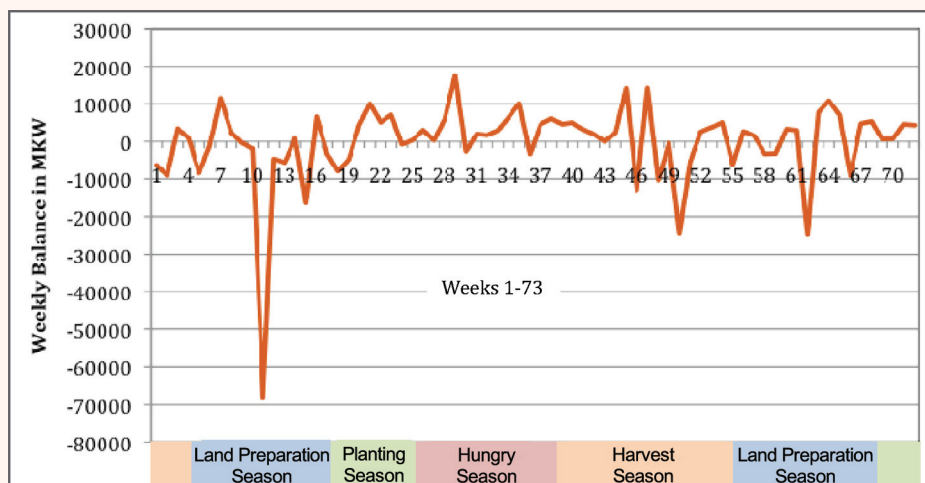
FINANCIAL TRANSACTIONS:

The husband had a group loan from OIBM for about \$600, taken in April 2009. He had paid about half of it off at the close of the study in December. The husband also had a bank account with OIBM, in which he recorded a single transaction over the study period: a deposit for \$120. In total, the household transacted with OIBM 13 times (11 loan payments, one loan disbursement, and one deposit). The husband stated that he became an OIBM client primarily to get loans. The wife took three group loans from the Microloan Foundation (an MFI) over the course of the study, beginning in week 7. The amounts were about \$300, \$450, and a smaller loan for \$37. The loan required that she have \$75 on deposit through the Microloan Foundation. On the informal side, the husband received seven cash gifts and remittances totaling \$115. The largest cash gift was \$75 in week 24 from his brother-in-law. He gave out cash gifts that totaled \$39. He also received informal loans with a total value \$180. The wife received 22 cash gifts or remittances, totaling \$762, from friends and relatives, mostly her brother. She gave a total of \$233 in cash gifts and remittances, mostly to relatives. She also received four inflows from a ROSCA, starting in week 45, for a total of \$94. The informal inflows in this case occurred throughout the study, with no apparent correlation with OIBM or Microloan loans disbursements. Hence it does not appear the formal/semi-formal loans were replacing informal activity.

TRANSACTIONAL FLOWS:

The pattern seen in Figure J is typical of the sample in its fairly regular pattern punctuated by various spikes or "lumps." Week 11, with the negative spike, was the coincidence of several cash needs: both loan payments were due and the husband purchased major business stock (medicines and related goods). The week with the largest surplus (29) came about via a cash gift from a relative.

FIGURE J– WEEKLY INFLOW-OUTFLOW BALANCE FOR "TYPICAL" OIBM USER



METHODOLOGICAL NOTE: SELF-IDENTIFIED OCCUPATION VERSUS CALCULATED INCOME

Most of the discussion of livelihood thus far has centered on self-identified category of occupation by way of the cross-sectional survey. This is one way to identify livelihood, but the Diaries methodology poses an interesting alternative.

In a cross-sectional survey, an enumerator is essentially recording what people report vis-à-vis livelihood. But by using Diaries data to total income in particular ways, we can record somewhat more objectively over time, at least as revealed by the sum of their transactions.

Here we make this precise comparison. In the middle column of Table 6 is the complete list of self-identified livelihood types, as drawn from the cross-sectional survey. In the right column are figures that break the sample down by primary source of recorded income.

The divergences are sharp. Though the biggest segment of the sample self-identified as farmers, only a small fraction earned most of its income from farming. We can see that by income, the sample was in fact overwhelmingly microentrepreneurial.

Other significant differences emerge as well. No single individual in the cross-sectional survey self-identified as a casual laborer, but eight percent of the sample in fact earned

most of its income this way. One can speculate that the difference relates to the relatively low social status afforded to earning income though casual labor.

To be clear, we are not suggesting that these are two different ways of asking precisely the same question. Self-identified livelihood draws in a multitude of considerations beyond income. This is especially true of the farmer category. People likely identified as farmers because they farm for subsistence and mostly feed their families that way (as opposed to cash-cropping). Or they may self-identify as farmers because they spend more time on farming than any other activity. Or they may self-identify as such simply because they see themselves as farmers; it is their chosen identity.

TABLE 5
COMPARISON OF DEMOGRAPHIC CHARACTERISTICS OF CLIENTS TO NON-CLIENTS

Demographic Characteristics	OIBM Client Households	Non-Client Households	Total Households
Mean Size of Household	4.73	5	4.9
Median Size of Household	5	5	5
Mean Number of Children per Household	2.17	2	2.1
Median Number of Children per Household	2	2	2
Percent of Households with at least one non-nuclear co-resident	18%	26%	22%
Mean Age Head of Household*	38	43	41
Median Age of Head of Household*	36	40	38
Top 3 Self-Identified Livelihoods^ (% of households):			
Household Business	40%	45%	43%
Farmer	36%	38%	37%
Salaried Profession	18%	15%	17%

TABLE 6
COMPARISON OF SELF-IDENTIFIED LIVELIHOOD TO ACTUAL MAIN SOURCE OF INCOME

Livelihood Type	Self-Identified Livelihood	Actual Main Source of Income
Farming	43%	3%
Microentrepreneur	37%	72%
Salaried Prof	17%	12%
Wage Labor	2%	3%
Casual Labor	0%	8%
Other	1%	2%

FIGURE K - CENTRAL MALAWIAN WOMEN INTERVIEWED DURING PLANNING PHASE FOR FINANCIAL DIARIES



The point is that when asking subjects to identify livelihood, surveys may be tapping into a host of other cultural constructs that have little to do with income. Depending on their methodology, one-off surveys may run the risk of conflating the two issues and treat self-identified livelihood as the last word on primary source of income.

The Diaries is a new, fairly objective way to test the limitations of surveys that rely on self-reporting. We expect this will be an interesting area for future inquiries.

OUR STORY, PART I

Our sample begins to assume its basic form in this data. It is mostly a mix of poor (median PPP\$2/day) farmers and microentrepreneurs, some salaried employees, and it skews female. The formal financial sector is familiar to this group; more than half are engaged with it, and many employ overlapping instruments. The reasons for engaging (use patterns) remain unexplored so far, with the next chapter opening those arguments.

V: Transactions — From Units to Aggregates

BASIC OVERVIEW

We closed the data collection with just under 270,000 individual transactions in our database and over 5 million data points. The transactions fell to a final count of 230,825 after the cleaning and purging process.

The mean number of transactions per week per household was 19. The total value of the all transactions, inflows and outflows, which is to say, the total flow and volume of the Malawian economy for 861 individuals for 18 months, was about \$5.5 million.

HOW MONEY WAS USED AND EARNED

Considering the data in terms of outflows, we gain a clearer sense of where most money went from these households (see Table 7). Food far outweighed all other expenses. Financial transactions (ranging from flows into savings accounts to cash gifts handed out) comes second, followed by household-related items and agricultural expenses (e.g., farm inputs for subsistence farming).¹

Looking at household expenditures only, we can benchmark the food expenditure data with data from a synthesis of survey data that covers 13 countries and focuses on a mix of the poor and very poor. In this, Banerjee and Duflo (2007) found that subjects spent a combined 56 to 78 percent on food. Our sample spent considerably less—40 percent. The difference

TABLE 7

MOST SIGNIFICANT CATEGORIES OF OUTFLOWS

Type of Expenditure	Amount	Number of Expenditures	Mean Amount
Food	\$732,095	128,791	\$6
Financial	\$416,720	4,797	\$87
Business	\$383,054	1,779	\$215
Clothing	\$307,882	4,246	\$73
Household Item	\$153,005	10,576	\$14
Transportation	\$127,362	5,576	\$23
Agriculture	\$116,372	1,123	\$104
Employment	\$77,281	2,281	\$34
Miscellaneous	\$59,924	365	\$164
Fuel	\$53,807	8,399	\$6
Communication	\$37,490	5,339	\$7
Health	\$32,568	9,411	\$3
Construction	\$30,576	691	\$44
Education	\$23,886	705	\$34
Housing	\$21,294	570	\$37

may be due to our population's reliance on subsistence agriculture, though at least some of the studies cited by Banerjee and Duflo were comparably agricultural. Another, more likely, factor may be that our population was somewhat more affluent (half our households were over the \$2 per capita poverty line) and able to diversify spending. Yet other measures seem to be at odds with that. Education, for example, accounted for just two percent of the expenditures in our study, which is near the lowest of measures cited across the 13 countries.

As for inflows, we revisit the top five sources of inflows as noted in the previous chapter (see Table 8).

¹ We had no established categories at the start of the data collection. We developed them gradually based on the data brought in by the fieldworkers, adding and editing categories into a logical set. We favored parsimony in our categorization, aiming to employ no more categories than we needed to manipulate the data in meaningful ways.

TABLE 8
MOST SIGNIFICANT CATEGORIES OF INFLOWS (REVISITED)

Source of Income	Amount	Number of Transactions	Mean Amount
Petty Trading	\$599,916	5,517	\$109
Sales of Food	\$475,035	5,959	\$80
Sales of Clothing	\$430,026	2,933	\$147
Sales of Household Items	\$323,801	2,745	\$118
Employment	\$220,297	1,774	\$124

The top four sources of inflows are all sales items—petty trading, food, clothing, and household items. This reflects the dominance of these revenue sources as a livelihood strategy in the sample, at least in terms of cash income. Salaried employment (i.e., “employment”) represents a secondary but significant source of income in the sample.

TRANSACTIONS AND GENDER

Gendered Cash Flow

By aggregating the transaction data, we get an overview of some of the key differences in the roles men and women play in the Malawian economy, as seen in our sample (see Table 9).

Beginning with the breakdown of business-related transactions, we see that men are carrying out both more transactions per week as well as much higher dollar-amount transactions—the median man is carrying out nearly four times the transactions of the median woman. The implication is obvious: men control a disproportionate share of business activity compared with women, insomuch as the act of transacting implies control over the finances behind it.²

In terms of household transactions, women are carrying out more transactions per week (10.1 per week) compared with their male

TABLE 9
TRANSACTION SUMMARY BY GENDER

Gender	Transaction Purpose	Median Number of Transactions (per Week)	Median Amount of Transactions (per Week)
All	All	9.7	\$51
Men	Business	0.54	\$21
Women	Business	0.14	\$4
Men	Household	7.4	\$36
Women	Household	10.1	\$31

counterparts (7.4 per week). This suggests some degree of control by women over household finances. However, the finding comes with a caveat: the amount the median man spends on household transactions is slightly larger than the median woman’s. That suggests that men may be less involved in day-to-day management of the household, but take control of the bigger, more momentous household transactions. As the next section points out, there is strong reason to believe these differences are not driven by a gender-based division of labor among Malawian couples.

Focusing on the business side, we glean more insight about gender differences (see Table 10). Men exceed women both in terms of net cash income and gross flow of business-related funds. Dividing the latter figure by the former, an interesting difference is revealed in the form of a flow-to-income ratio: men handle nearly \$2 for every dollar earned, while women handle about \$1.25 for every dollar earned.

TABLE 10
WEEKLY BUSINESS CASHFLOW AND NET INCOME BY GENDER (EXCLUDING DIRECT DEPOSITS)

(Median Week Values)	Men (n = 93)	Women (n = 164)	Total (n = 257)
Net Cash Income	\$57	\$26	\$37
Cash Flow	\$98	\$46	\$63
Cash Flow / Income	1.9	1.25	1.4

² Differences between number and amount of business expenditures by gender are statistically significant at the 1% level, as are differences in number of household expenditures. Weekly amounts of household expenditures are not statistically different.

Are we to conclude that women are the more efficient business managers, since they seem to require far less investment than men to turn a profit? In fact, one underlying factor almost single-handedly explains this difference. Women, across the sample and perhaps across Central Malawian society, are more often the recipients of cash gifts than men. In this analysis, cash gifts are registered as income, just the same as profits earned in business. They are a highly efficient form of income, in the sense that they require neither investment nor multiple exchanges; they are pure profit. Hence the difference may be more a measure of women's relative reliance on cash gifts than a measure of business acumen.

Are Single-Female Heads of Households Different from Married Women?

Single-female headed households were a very significant part of the sample—nearly a third of all households. This allows us to look more closely at the extent to which gender and marital status interact to drive the differences between men and women.

A comparison of median statistics for household-related transactions reveals fairly minor differences between married women and those that are single heads of household. The median transaction amounts per week are close (\$28 and \$34), and median number of transactions per week for households is nearly identical (see Table 11).

Turning to the business transactions, the weekly number and amount of business transactions carried out by the median single woman head of household is greater than those of the median married woman, but the differences are not statistically significant.

In sum, at the transactional level, the differences between married women and single-female heads of households are marginal. The findings provide some degree of certainty that the gender differences highlighted in Table 9 are not driven by spousal divisions of labor. In other words, there are gendered features of the Malawian economy evident in this sample that cut across all types of households.

Note on Polygamous Households

Our study encompasses a number of women in polygamous marriages, which are fairly common, though a minority, in Central Malawi. However, we are not in a position to conduct detailed analysis of the transaction patterns of these households, for comparison with the single and other married households.

The reason is that women in polygamous marriages each reside in their own dwelling; there is no co-residence among co-wives. The husband in the marriages moves between the different residences (sharing resources and himself with his co-wives). We recruited

TABLE 11
COMPARISON OF TRANSACTION AVERAGES FOR MARRIED WOMEN TO
SINGLE WOMEN WHO ARE HEADS OF HOUSEHOLDS

Status	Transaction Purpose	Median Number of Transactions (per Week)	Median Amount of Transactions (per Week)	Mean Amount of Transactions (per Week)
Married Women	All	10.5	\$34	\$70
	Business	0.08	\$1.33	\$36
	Household	10.0	\$28	\$36
Single Women Heads of Household	All	11.4	\$51	\$84
	Business	0.22	\$7	\$39
	Household	10.3	\$34	\$43

these husbands into the study whenever possible and asked them to recount only the transactions that pertained to the wife who was our participant. However, with the pooling of resources that occurs among these families, this was an imperfect measure of inflows into the households of our female participants.

Our protocol did not allow us to recruit complete polygamous families into the study—meaning the husband and all co-wives. This topic must wait for a future study.

OUR STORY, PART II

The financial lives of our sample begin to emerge. Money flows in from trading,

some salaried employment, and some cash-cropping. Most money flows out on basic needs (food, clothing) and subsistence/livelihood activities (farm inputs, business stock, etc.). Men dominate business transactions and the big-money household transactions in our sample. Women play a role in both but at lower levels. Our single female subpopulation suggests that there are gendered features of the Malawian economy that cut across all types of households. Next we will focus the usage lens to capture interactions with the financial sector, beginning with the informal, and drill down into the issue of cash gifts and transfers, which are particularly important to the livelihood of women.



Section 3: Financial Transactions

Microfinance institutions (MFIs) typically enter communities that already have a wide variety of mechanisms delivering financial services of some kind. These mechanisms can range from informal businesses such as moneylenders, to self-formed groups such as rotating savings and credit associations, to informal loans and cash gifts between friends and within extended families. For an MFI to compete in this context it must provide a useful service that adds value in ways that the existing, informal mechanisms cannot. The chapters in this section examine the role of formal financial services in the lives of the households in our sample. We begin with a description of the informal financial transactions that the individuals and households reported to us, then examine use of formal financial services, and finally focus on the particular role that the OIBM van played in providing formal financial services.

VI. Transactions Outside the Formal Financial System

CASH TRANSFERS BETWEEN INDIVIDUALS

Overview

Cash transfers between individuals were a highly significant area of transactions within our sample. The total flows of cash in this category amount to nearly two-thirds of the flows at the commercial banks (to be discussed in next chapter). In total, there were 9,280 such transactions—this is more than seven times the number of transactions at all of the commercial banks. This amounts to 34 per individual over the 73-week period, or a transaction roughly every other week for every participant in the study.

We coded these transactions into three categories based on the exchange partner. The first category is the least personal: exchanges with “associates.” These are individuals with whom there is no professed social relationship. The second category is “family,” when the cash exchanges come with a familial link. The third is “friend,” where some manner of non-familial social tie is indicated. All three categories of transaction are robust contributions to the financial lives of our participants, with cash gifts, loans, loan repayments, and remittances composing the flows.¹

Several key takeaways emerge:

- Cash gifts are not reciprocal across the sample. There are more inflows than outflows. The discrepancy suggests

¹ Remittances were defined in the study in the manner understood by Malawians; that is, the transfer of cash over distance, through whatever formal or informal channel is available.

dependency relationships, reflective of the fact that our sample skews female. This issue is described in more detail below. It may also be reflective of the largely rural and peri-urban orientation of the sample (i.e., Malawians away from the cities tend to receive more cash than they give or send).

- In the “friend” category, we see many loans but almost no loan repayments. This suggests that these are reciprocal relationships in which people pay back loans by issuing additional loans.
- Most remittances occur between family members; this is much less true in the other two categories. This suggests that family members support each other remotely while friends and associates rely on face-to-face interactions to mediate the flow of cash.
- Person-to-person cash exchanges did not include the use of informal savings collectors (cf. Aryeetey, 1994, for well-known Ghanaian case). No such transactions were captured. Malawian key informants have indicated that some villages in the Central Region feature a practice whereby trusted elders hold savings for individuals who ask. However, the practice did not occur within our sample.

Moneylending

There is a conspicuous absence of one form of individual financial transaction: professional moneylending. In fact, moneylending as such is nearly absent from our database. Moneylenders are reported to operate commonly in Central Malawi, known by the

PARTICIPANT PROFILE: THE DUTIFUL GRANDSON

BASIC INFORMATION:

Unmarried household; 45-year-old man who is separated from wife; the household consists of son, grandparent, and other adult relative.

LIVELIHOOD:

He operates a carpentry business and collects money from a barbershop that he owns.

INCOME:

- Mean Weekly Income: \$64.40
- Per Capita Weekly Income: \$16.10
- Per Capita Daily Income: \$2.30

The participant's house suggests moderate means for Central Malawi: he lives in a grass-thatched house with a mud floor and uses piped water from his neighbor for drinking water.

PERSONAL INFORMATION/ EVENTS:

He became sick in October 2009 and went to the hospital. He stated that he likes to buy medicine from shops when he is sick. Sometimes he buys medicine that are not fit for his disease and this causes him to become sicker.

FINANCIAL TRANSACTIONS:

He has a savings account with OIBM, into which he made nine deposits totalling \$186. He made only one withdrawal (for \$100). The transaction record does not suggest a clear, targeted use for those funds. He also had a loan through OIBM before the study started, perhaps taken out in his wife's name, on which he completed payment during the study. He recorded three payments of \$138 each. This case stands out in the area of cash gifts, which seem to be driven by a dependent grandmother. He gave a total of 70 different cash gifts or remittances. His cash gifts alone covered 65 out of 73 weeks. The majority of the cash gifts went to his grandmother (62 different cash gifts). On average the participant gave his grandmother \$10 per transaction. He gave a number of cash gifts about the same size to his son and mother, plus a larger gift (\$60) to his estranged wife. His only cash gift inflow over the study was the incentive provided by the project.

TABLE 12
FLows OF CASH BETWEEN INDIVIDUALS

Relationship to Respondent	Transaction Type	Total Amount of Inflows	Total Amount of Outflows	Number of All Inflows and Outflows
Associate	Cash Gift	\$31,024	\$9,727	1,170
	Loan	\$11,590	\$1,845	110
	Loan Repayment	\$7,874	\$9,355	254
	Private*	\$4,167	\$145	50
	Remittance	\$3,367	\$2,466	204
Associate Total		\$58,023	\$23,540	1,788
Family	Cash Gift	\$60,843	\$20,130	2,967
	Loan	\$1,011	\$1,717	47
	Loan Repayment	\$1,009	\$635	28
	Private*	\$82	\$7	4
	Remittance	\$23,629	\$17,392	1,551
Family Total		\$86,574	\$39,881	4,597
Friend	Cash Gift	\$14,045	\$4,224	1,195
	Loan	\$18,365	\$20,307	972
	Loan Repayment		\$15	1
	Private*	\$2,004	\$118	32
	Remittance	\$5,782	\$2,939	695
Friend Total		\$40,196	\$27,604	2,895
Grand Total		\$184,793	\$91,025	9,280

*Private" is a category of cash transaction in which the participant declined to identify the precise nature of it.

local name *katapila*. We feel certain that, in actuality, participants used moneylenders and that these transactions appear in the database under the headings of “associate” and “friend.” This likely occurred for two reasons. First, people are reluctant to admit they borrow from moneylenders because professional moneylending is illegal in Malawi. Second, the category of moneylender itself becomes hazy in some circumstances.

Malawian key informants explained that professional moneylenders might be renamed “associates” or “friends” in the transaction record either to hide their true profession, or to reflect some manner of genuine social tie that has developed over time with the lender. Alternatively, the lender may be a genuine associate or friend who assumes the role of the professional moneylender (charging full

interest, etc.) under certain conditions. This would be, for example, when a loan is issued between friends with the purpose of making a profit, as opposed to a more altruistic purpose, such as making a funeral contribution.

Cash transfers, dependency and gender

Cash transfer patterns between men and women can be indicators of dependency for women, including cash-for-sex relationships (cf. Luke, 2005). However, we recognize that the nature of “dependency” itself and the appropriateness of that label, varies by context and can be open to debate.

One expert on Malawian culture (Pauline Peters, personal communication, 2010) makes the following points on the topic. In Malawi, men are culturally trained to provide cash support to women with whom they have

TABLE 13
GENDER-BASED FLOW OF CASH GIFTS AND REMITTANCES

Gender of Sender	Type	Men		Women		Total Number	Total Amount
		Number	Amount	Number	Amount		
Men	Inflow	626	\$22,346	1,553	\$38,952	2,179	\$61,298
	Outflow	590	\$8,358	492	\$10,734	1,082	\$19,092
Women	Inflow	166	\$5,031	961	\$18,090	1,127	\$23,121
	Outflow	406	\$6,138	646	\$7,098	1,052	\$13,236
Not Known	Inflow	65	\$4,591	192	\$13,762	257	\$18,352
	Outflow	163	\$7,715	123	\$3,971	286	\$11,687
Grand Total		2,016	\$54,178	3,967	\$92,608	5,983	\$146,786

TABLE 14
GENDER-BASED FLOW OF LOANS AND LOAN REPAYMENTS

Gender of Sender	Type	Men		Women		Total Number	Total Amount
		Number	Amount	Number	Amount		
Men	Inflow	260	\$18,870	74	\$4,575	334	\$23,445
	Outflow	293	\$17,092	84	\$3,748	377	\$20,840
Women	Inflow	60	\$1,649	180	\$5,616	340	\$7,266
	Outflow	45	\$1,245	303	\$8,755	348	\$10,001
Not Known	Inflow	23	\$6,070	24	\$1,089	47	\$7,159
	Outflow	9	\$1,210	12	\$829	21	\$2,039
Grand Total		690	\$46,136	677	\$24,614	1,367	\$70,750

romantic relationships. The gifts are seen as a mark of appreciation and/or commitment (cf. Poulin, 2007), and withholding them brings stigmatization within the culture. To see transfers as “dependence” only is to ignore this mutual responsibility. Moreover, women may have considerably more agency in these situations because they can accept or reject the support, along with the man. Women also exercise some choice in whether or not to allow sex to become part of the exchange. It is true that the woman may become “dependent” in the sense that the cash gifts may supplant their other forms of income, and cases of unwelcome dependence certainly occur. But the Malawian context often lacks the coercive dimensions that some researchers assume, and the storyline of “poor women selling sex” may not apply at all.

What we can say for certain is that in our sample, the largest chunk of transfers and cash therein occur from men to women (see Table 13). It is well over twice what men transferred to other men and what women transferred to each other, and more than four times what women transferred to men. Cash transfers from men are, in fact, the primary source of income for a significant number of female participants in the study and an important secondary source of income for many more.

Interestingly, we see a rather different picture in the flow of informal loans and loan repayments. Here the vast majority of activity occurs between men and between women (Table 14). Hence our finding: cash gifts flow between the genders, while loans flow within them.

TABLE 15
NON-BANK FINANCIAL INSTITUTION TRANSACTIONAL FLOWS

Transaction Type	Value of Household Inflow	Value of Household Outflow	Total Number of Transactions
Cash Deposit		\$753	22
Cash Withdrawal	\$2,105		13
Dividend	\$159		2
Loan	\$5,790		23
Loan Repayment		\$10,618	196

TABLE 16
COMMUNITY-BASED ORGANIZATION (CBO) TRANSACTIONAL FLOWS

Transaction Type	Value of Inflows	Value of Outflows	Total Number of Transactions
Association Shares	\$15		1
Borehole Contribution		\$1	1
Miscellaneous Cash Deposit		\$52	4
Club Contribution		\$5	1
Commission	\$45		2
Group Contribution		\$32	5
Group Withdrawal	\$60		1
Kitchen Top Up		\$56	8
Miscellaneous Loan	\$756		7
Miscellaneous Loan Repayment		\$1,742	27
ROSCA Contribution		\$489	30
ROSCA Withdrawal	\$1,478		14
Teachers Bank Fund Contribution		\$726	9
Teachers Bank Fund Withdrawal	\$202		2
Women's Group Contribution		\$892	13
Women's Group Withdrawal	\$780		98
Total	\$3,337	\$3,995	223

SEMI-FORMAL AND INFORMAL INSTITUTIONS

There are a number of non-bank financial institutions (NBFIs) that appeared as organizations with which our sample households conducted transactions. This category of institutions is a diverse one, ranging from non-governmental organizations (NGOs) such as FINCA and CUMO, to parastatals such as Malawi

Rural Finance Corporation and Mardef, to consumer lenders such as South Africa-based Izwe and Greenwing.

Despite their diversity and the diversity of their product offerings, the contribution of these NBFIs to the financial landscape, as observed through our participants, is quite small. The total flows through the NBFIs was four percent of the flows at the commercial banks

(see Table 15, with bank data supplied in the next chapter), and 23 percent of households transacted with an NBFI over the 18-month study period.

Some NBFIs made significant individual contributions to the lives of particular participants, most often through loans. However, the net effect on the sample is not a major one and hence will not be considered in the broader arguments about financial services in this study.

Likewise, the sample saw a wide range of informal community-based financial service organizations (CBOs), but the ultimate impact on the participant was limited. The total flows of these organizations amounted to just 1.5 percent of the flows of the banks (see Table 16). The relatively low incidence

of community-based financial practices like ROSCAs represents a marked departure from other African contexts (cf. Anderson & Baland, 2000, on Kenya). As such, they will be largely omitted from subsequent analysis.

OUR STORY, PART III

Use of the financial sector unfolds first at the informal level. Individual cash exchanges are hugely important to this sample, suggesting a pervasive informal safety net among family and friends. Women receive more of these inflows, and most of those are from men, suggesting gender-based dependency relationships. Very likely these individual exchanges are helping mediate day-to-day needs for many in our sample. The semi-formal non-bank institutions are playing a much less significant role. Both will be compared to banks next.

VII: Bank Transactions

OVERVIEW OF THE BANKS²

Just under 1,300 bank transactions took place during the course of the 73 weeks of our study, roughly 20 per week across the 172 households and 257 individuals for whom we have data. A vast majority of these transactions involved a savings account, with cash withdrawals 20 times more common than loans and involving six times the funds (see Table 17). Clearly, the banks in our study area are operating in a savings-led environment.

Loans are present here—33 total made over the 18 month period—but the frequency and dollar amount involved are fairly low. Moreover, as we will see in the next section, OIBM is very nearly the only commercial bank serving this market with loans.

One question that arises from these data is why we have nearly twice as many outflows as inflows—meaning more deposits than

TABLE 17
BANK TRANSACTIONAL FLOWS

Transaction Type	Value of Household Inflow	Value of Household Outflow	Total Number of Transactions
Cash Deposit		\$170,145	396
Cash Withdrawal	\$133,558		606
Direct Deposit		\$97,395	73
Loan	\$26,500		33
Loan Repayment		\$36,270	182
Other	\$30	\$26	2
Total	\$160,088	\$303,837	1,292

² The “inflow” and “outflow” designations employed in this chapter are consistent with the rest of the study, in that they are directional based on the participant. It can be a bit counterintuitive because an outflow for the participant is in fact an inflow for the bank. Specifically, a cash deposit made into an account is an outflow from the household; a cash withdrawal is an inflow; a loan repayment is an outflow if paid by the participant and an inflow if paid to the participant; and a loan is an outflow if the participant is the lender, and an inflow if the participant is the borrower.

withdrawals, in the case of bank transactions. There are several reasons:

- Over our data collection period, we captured a second harvest (i.e., heavy earning season) but not a second holiday/Christmas season (i.e., heavy spending season), as the data collection closed at the beginning of December 2009.
- A second reason relates to the segment of tobacco farmers in the sample. Their pattern of financial management consists of very large annual deposits in the harvest season (June to August) followed by gradual spending down of those deposits over the course of the next year. We captured a second round of those large deposits but did not capture a full cycle of spending that followed.
- Some people in the study genuinely appear to be saving and building their bank balances over time.

TABLE 18*
GENERAL SAVINGS STATISTICS

	Transaction Type		Transaction Grand Total	Net Value of Transactions
	Deposit	Withdrawal		
Number of Transactions	441	581	1,022	
Total Value	\$222,827	\$106,287	\$329,114	\$116,540
Mean Value	\$505	\$183	\$322	
Median Value	\$150	\$75	\$90	

* The reader will note some minor differences in the totals for savings activity between Table 17 and Table 18. The reason is that Table 17 covers all the transactions in the database, while Table 18 focuses only on participants who had over 45 weeks of data (our “complete” records). Table 18 also includes direct deposits in the deposit number, while Table 17 separates them out.

PARTICIPANT PROFILE: THE PROLIFIC SAVER

BASIC INFORMATION:

Married household (monogamous); husband is 47 years old; the wife is 39 years old; the household includes husband, wife, four younger relatives and one son (age 18).

LIVELIHOOD:

The husband and wife both work in petty trading, selling farm produce and other commodities. The scale of their trading puts them near the top of our sample in terms of volume, with individual transactions worth thousands of PPP dollars in some cases. They also grow and sell tobacco for substantial sums, and sold a parcel of land for over \$7,000 during the study. The land sale proceeds were invested directly into the trading enterprise.

INCOME:

- Mean Weekly Income: \$576.10
- Per Capita Weekly Income: \$82.30
- Per Capita Daily Income: \$11.75

The household is considered rich by other Malawians.

PERSONAL INFORMATION/EVENTS:

The wife is HIV positive and receiving treatment. She had about \$7,400 stolen from her after receiving the cash from rice sales on a trip to South Africa.

FINANCIAL TRANSACTIONS:

The couple has a joint savings account with OIBM into which they deposited 29 times for a total of \$25,316. They withdrew 12 times for a total of \$15,565. The mean amount per savings transaction was about \$1,000. The wife also has an individual loan from OIBM for \$7,483 over one year; it required a substantial amount on deposit at OIBM as well as property put forth as collateral. She had other loans with OIBM before the study. The household's relative affluence is reflected in their informal cash exchange patterns. They gave out 56 cash gifts and remittances worth nearly \$1,000 to children, other relatives, and friends, while receiving less than \$400 of the same. They also lent about \$400 to various family and friends.

SAVINGS ACTIVITY

Overview

Savings dominated the bank activity in our sample. There were 115 participants in the study who made at least one deposit into or withdrawal from a bank savings account over the 18-month study period. Overall, they were net savers, in the amount of \$116,000. They did this through 441 deposits with a median amount of \$150 and 581 withdrawals with a median amount of \$75 (see Table 18).

Top-quartile activity

The savings account activity was dominated by 27 individuals, who make up less than a quarter of the total savings users. They conducted 719 of the 1,022 savings account transactions (70 percent) and accounted for \$281,000 of the \$329,000 total volume of transactions (85 percent). These 27 individuals conducted at least 12 transactions during the period of our study (see Table 19).

The top-quartile savers, by and large, were the highest-income households across the sample, though the correspondence was not exact. The sources of income for the top-quartile savers included tobacco, with tobacco cultivation as the region's most markedly lucrative economic activity. (Tobacco farming is also an enterprise in which compensation occurs in a lump sum, once or twice a year; this punctuated cash flow likely facilitates saving to some extent.) The other savers were a mix of successful traders, like the household profiled at the start of this chapter, a scattering of other

microentrepreneurs, and certain salaried individuals.

Within the top-quartile group, the propensity for net savings is split. There were 15 individuals whose transactions resulted in a net saving over the period of the study (savers), and there were 12 individuals whose transactions resulted in a net withdrawal of money from their savings (dis-savers).

The net savers had larger and more frequent deposits than the dis-savers, and larger but less frequent withdrawals. In other words, the net savers were running more money through their accounts, both in terms of deposits and withdrawals. But the number of deposits heavily outweighed the number of withdrawals, 239 to 162. For their part, the dis-savers were dealing in smaller amounts of money overall, but their withdrawals heavily outweighed their deposits in terms of number of transactions (see Table 20).

Looking at this small group of savers with many transactions, there is no one discernible pattern of activity that generated the net savings. In five cases, the number of withdrawals and deposits was roughly even (within three of each other). In three cases, there were more withdrawals than deposits. In seven cases, there were more deposits than withdrawals.

Examining these cases more closely, we can discuss the two biggest savers. The first ran a successful business, but also grew tobacco and maize. His net savings of about \$35,000 can be attributed to his tobacco and maize sales, which he deposited into his bank account. The second biggest saver ran a successful transportation business from which he received regular income. But he also worked as a building contractor on projects funded by the government, which paid him by direct deposit. These projects are

TABLE 19
TOP QUARTILE SAVINGS ACTIVITY

Savings Transactions	Transaction Type		Transaction Grand Total	Net Value of Transactions
	Deposit	Withdrawal		
Number	302	417	719	
Total Value	\$195,643	\$85,384	\$281,027	\$110,259
Mean Value	\$648	\$205	\$391	
Median Value	\$225	\$90	\$120	

TABLE 20
TOP QUARTILE NET SAVER AND DIS-SAVER ACTIVITY

Top Quartile—Net Savers, 15 Individuals				
	Transaction Type		Transaction Grand Total	Net Value of Transactions
Savings Transactions	Deposit	Withdrawal		
Number	239	162	401	
Total Value	\$182,888	\$54,449	\$237,337	\$128,438
Mean Value	\$765	\$336	\$592	
Median Value	\$255	\$150	\$165	
Top Quartile—Net Dis-Savers, 12 Individuals				
	Transaction Type		Transaction Grand Total	Net Value of Transactions
Savings	Deposit	Withdrawal		
Number	63	255	318	
Total Value	\$12,755	\$30,036	\$42,791	-\$17,280
Mean Value	\$202	\$118	\$135	
Median Value	\$82	\$75	\$75	

what enabled this respondent to build up such savings. In terms of income over the study period, this second individual was by far the most affluent participant in the sample.

The most prolific user of the banking system in terms of transactions was a young man who worked at the pumps of a filling station near Mchinji. He made 30 deposits and 30 withdrawals from his bank account. In his job, he was paid in cash and also received many cash “gifts” from customers of the filling station. The latter was part of a scheme whereby employees of the station filled out false receipts so that customers could claim a greater expense to their employers. The customers and station employees then split the extra money the customers anticipated making. In the case of the dis-savers, the pattern is clear: far fewer deposits than withdrawals in all but two of the 12 cases. The most prolific user of banks in this group was a school teacher who received his income through a monthly direct deposit and then withdrew cash from the bank when he needed it.

PLACE OF OIBM IN MARKET

Looking more closely at OIBM’s place in the market vis-à-vis its bank competitors, we see that OIBM is very nearly the only bank serving the market with loans, even though the loan numbers are relatively low. OIBM issued 29 loans to participants in the study, which included just over 80 OIBM client households spread over the study’s 18-month period (see Table 21).

For their part, all the other banks combined disbursed just four loans to the sample over the study period. Here the reader must bear in mind that a very significant portion of the sample—nearly 30 percent—had active accounts (nearly all savings accounts) with non-OIBM banks, consisting of five other commercial banks across 18 different branch locations. Again, the conclusion: OIBM dominates this low-income credit market. The data also show that inasmuch as this sample provides representation of the market, OIBM continues to lag behind its competitors on direct deposits. Within this market, this piece of business encompasses the large annual direct deposits made into farmers’ accounts,

TABLE 21
OIBM TRANSACTIONAL FLOWS VS. OTHER BANKS

Institution	Transaction Type	Number	Amount of Inflows	Amount of Outflows
Other Banks	Cash Deposit	163		\$83,260
	Cash Deposit (Cheque)	1		\$4,858
	Cash Withdrawal	388	\$88,938	
	Direct Deposit	72		\$93,629
	Loan	4	\$3,370	
	Loan Repayment	17		\$1,375
	NBM Divided Share	1	\$30	
	Remittance	1		\$26
Other Banks Total		647	\$92,339	\$183,148
OIBM	Cash Deposit	232		\$82,026
	Cash Withdrawal	218	\$43,721	
	Direct Deposit	1		\$3,767
	Loan	29	\$23,130	
	Loan Repayment	165		\$34,896
OIBM Total		645	\$66,851	\$120,689

especially from the tobacco auction floor, as well as direct deposits of salaries for teachers, healthcare workers, and other professionals. Historically, other banks, particularly NBS, have had deep and sometimes monopolistic penetration into the direct-deposit market. According to OIBM management, the bank has made a concerted effort to compete for this business, with considerable success. That assertion is not reflected in the data from this sample, though it is certainly possible that the penetration is seen elsewhere in the market (e.g., among urban consumers in Lilongwe).

USE OF FORMAL FINANCIAL SERVICES: HOW AND WHERE THE MONEY WENT

We examined how participant households spent formal loans and cash withdrawals from savings accounts by looking at the coincidence of those inflows with expenditures made by the household in the same week or the following

week.³ In other words, what was spent around the same time funds came in from loans or withdrawals? The data suggest that, about two-thirds of the time, participant households followed a financial inflow from a bank (cash withdrawal from a savings account or loan) with an expenditure greater than 50 percent of the amount of that inflow during the same week or the week following (see Table 22).

³ We coded uses based on two criteria that we applied in sequence. First we looked for an expenditure in the same week as the inflow in an amount that was over 50 percent of the amount of the financial inflow. For example, if a household withdrew \$100 from their savings account in the week of June 1st to June 7th 2009, we looked for an expenditure over \$50 in the same time period. In cases where we found two expenditures meeting this criterion, we included both in our coding. In cases where we found more than two expenditures meeting this criterion, we simply recorded the fact that there were multiple large expenditures that could be attributed to the financial inflow. In cases where no expenditures met the criterion in the same week, we looked in the following week for expenditures that exceeded 50 percent of the financial inflow, and followed the same procedure in coding two expenditures and recording more than two expenditures. We made an exception in the application of these criteria for two types of inflows – very small ones relative to the expenditures of the household, and the five largest financial inflows. In the case of the former we found instances where the financial inflow was very small relative to the expenditures of the household, and there does not seem to be any evidence that the inflow added a great deal to the cash flow of the household. In the case of the five largest transactions, we could not find expenditures exceeding the 50 percent mark in the same or following week. By their very nature these large transactions required very large expenditures to match them, making it less likely that such expenditures took place. So we looked further afield. Three of the inflows went to one household, and the other two to another. In the case of the household with three of the five largest financial inflows we found large expenditures in the second week following the week of the inflow, and coded the financial inflow based on these expenditures. In the case of the other two financial inflows belonging to the other household, we did not find any expenditures in subsequent weeks that met the 50 percent criterion. This household farmed tobacco and they sold the tobacco on the auction floor in Lilongwe, had the money directly deposited in a bank account and then withdrew a large part of it and spent it over course of the following weeks.

TABLE 22
PATTERNS OF SPENDING AFTER INFLOWS FROM FORMAL FINANCE

Financial Inflows Followed by...	Number	Percent Share	Amount	Percent Amount
At Least One Expenditure > 50% of Financial Inflow	408	65%	\$90,453	68%
No Expenditures > 50% of Financial Inflow	196	32%	\$42,613	32%
Inflow was a Small Amount Compared to Expenditures	17	3%	\$606	0.5%
Total	621	100%	\$133,673	100.00%

TABLE 23
SPENDING PATTERNS BROKEN DOWN BY FORMAL FINANCIAL INFLOW TYPE

Financial Inflow	Expenditure	Number	% Number	Amount
Cash Withdrawal	At Least One Expenditure > 50% of Financial Inflow	383	68%	\$73,342
	No Expenditures >50%	167	29%	\$31,520
	Trivial Amount	17	3%	\$606
	Total	567	100%	\$105,468
Loan	At Least One Expenditure > 50% of Financial Inflow	25	46%	\$17,112
	No Expenditures >50%	29	54%	\$11,092
	Total	54	100%	\$28,205
	Grand Total	621		\$133,673

Breaking the data down into cash withdrawals and loans, we see that most of the activity related to savings accounts and not to loans. Furthermore, the data suggest that households were much more likely to spend their cash withdrawals on large expenditures in the week or so after they withdrew the cash than they were to spend loan proceeds. If we include the “trivial” withdrawals, about one-third of withdrawals did not have a specific, large expenditure associated with it in the same or following week, whereas that was true for over half the loans households in our sample received (see Table 23).

This is not necessarily surprising in that households have much greater control over when they withdraw cash from an account than they do over when they receive loan

proceeds, which is more likely to be dictated by the operational procedures of the formal lender. It also suggests that savings accounts are the more responsive instrument for our population, in the sense that the cash is accessed more often right when a large need arises. (Multiple factors may work against the timeliness of loans here, including requirements by OIBM that savings be kept with the bank for a certain period before some kinds of loans can be accessed.)

Finally, looking at the nature of the expenditures that did meet the 50 percent criterion, the data suggest that a household was most likely to spend a cash withdrawal or loan on their business. This reflects the fact that many of the households in our sample had at least one microentrepreneur (see Table 24).

TABLE 24
USES OF FORMAL FINANCIAL INFLOWS

Expense	Number	Percent of Total
Business	114	27.14%
HH Food	48	11.43%
HH Asset	41	9.76%
Agriculture	31	7.38%
Redeposit	28	6.67%
Loan repayment	26	6.19%
Cash Gift/Remittance	23	5.48%
HH Service	22	5.24%
School Fees	17	4.05%
Rent	14	3.33%
Transportation	14	3.33%
Church contribution	12	2.86%
Clothes	9	2.14%
Contribution/Offering	5	1.19%
Hospital Bill	5	1.19%
Loan	4	0.95%
Personal asset	3	0.71%
Leisure	2	0.48%
House	2	0.48%
Grand Total	420	100.00%

Second to business expenditures were expenditures on food for the household, such as bulk purchases of maize. In addition, a number of the inflows were spent on agricultural inputs. These two expenditures reflect the importance of food security for the households in our sample, and when combined, are by far the most important set of expenditures that households made for themselves rather than their businesses. Table 24 raises another issue in that “Loan Repayment” is the sixth most common use of formal financial inflows. We examined this category to determine whether loans were ever used by our sample to pay off other loans on the scale captured in this analysis—which is to say, at least half of a new loan went to pay off an old loan. None of the 26 instances noted in Table 24 fit this description; all of the funds used to make loan payments came from savings accounts.

SUMMING UP ON THE FINANCIAL SERVICES MARKET

Taking this financial market broadly, it is clear that the hubs of activity are two areas and two areas alone: banks and individual cash transfers. The informal transactions of the latter dominate the market by number. The banks are the site of far fewer transactions by number, but the dollar amounts are much higher (see Table 25).

TABLE 25
SUMMING UP: BANKS AND INDIVIDUAL CASH TRANSFERS

	Total Cash Flows	Total Number of Transactions	Mean Amount of Transactions
Banks	\$463,026	1,292	\$358
Individuals	\$276,535	9,299	\$30

Hence one might speculate that the banks capture the big money, but individual exchanges mediate day-to-day needs. The central role of individual exchanges here, alongside bank activity, brings to mind Weerdt’s (2005) observations on the sharing of risk within personal networks via cash gifts and casual loans in Tanzania, as well as Fafchamps’ (2003) study of risk-sharing in the Philippines. This point will be elaborated in the upcoming chapters.

OUR STORY, PART IV

The usage overview of the financial sector is now complete. Banks are playing a significant role in terms of dollar volume. Most bank use occurs as savings transactions, either deposits or withdrawals, though the patterns are significantly affected by our top quartile of users. Formal loans are secondary, and OIBM is nearly the only credit provider in this market. Use of bank inflows focuses most often on business purchases, especially stock, with bulk household purchases also important. Next we will narrow our descriptives, drilling down on OIBM and its service.

VIII: The OIBM Van and Economic Context

METHODOLOGICAL NOTE: FIRST- AND FIFTH-QUARTER COMPARISONS

Our study ran from July 2008 to December 2009, covering five quarters and part of a sixth. Recognizing that seasonality plays a major role in determining transaction patterns, we sought to correct for the season variation by focusing on the same quarter, one year apart. The first and the fifth quarters were the only complete quarters fitting that description, so the analysis from this point will employ that comparison periodically.

TRENDS OVER TIME IN VAN USE

A central question entering the study is what pattern of van use could be discerned over time. Given that the innovation was relatively new at the start of the study, reaching out to a population perceived as under served by formal finance, did use take hold and grow over time? Or did it get off to an enthusiastic start and then diminish as the novelty factor wore off?

Savings activity over time

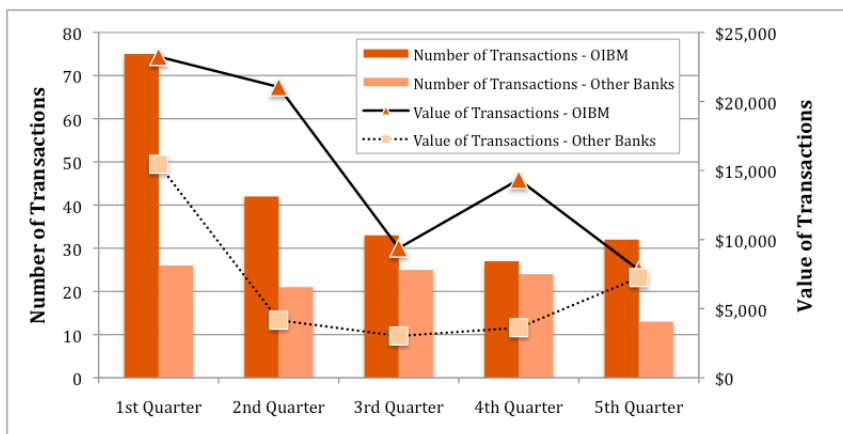
Beginning with cash deposits, we see a definite downward trend in use, both in terms of number and value of transaction, over the first year. Between the first and fifth quarter, correcting for seasonal variation, we reach the same finding: a drop for both OIBM in blue and the other banks in red (see Figure L).

The patterns for withdrawals are less clear-cut over the first year, with use rising in the second quarter. However, the first and fifth quarter comparison for OIBM yields the same result: a significant drop in the number and value of transactions (see Figure M). Other banks see a rise in number of transactions, but a drop in value between the first and fifth quarter.

Loans and total bank activity over time

The data on loans again show a drop in frequency of use between the first and fifth, with value much the same (albeit using fewer data points compared to savings activity) due to the relatively low level of loans (see Figure N).

FIGURE L - CASH DEPOSITS OVER TIME



In sum, the total number of transactions at OIBM drops by about 45 percent between the first and fifth quarter, while the value of the transactions drops by about 60 percent over the same period. The other banks show a more mixed picture.

FIGURE M - CASH WITHDRAWALS OVER TIME

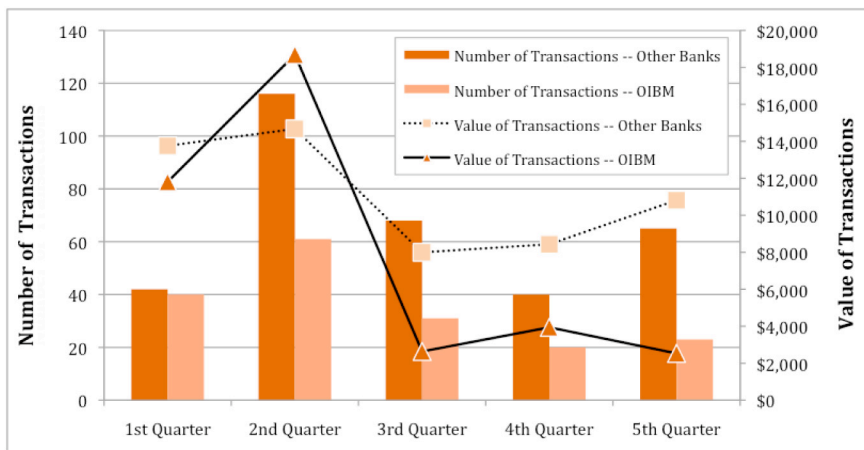
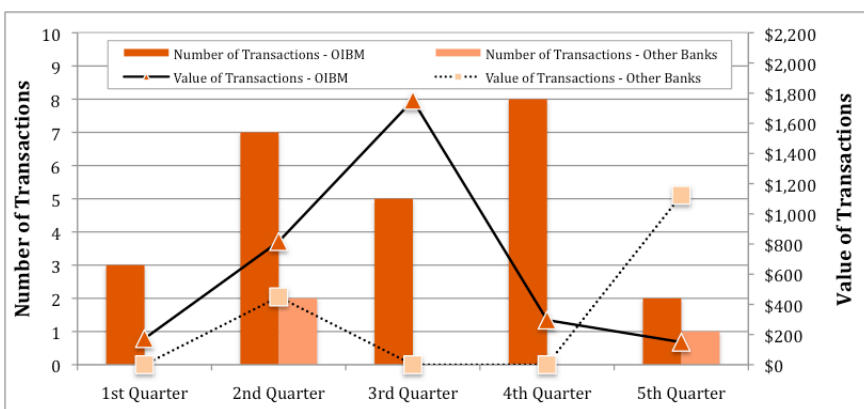


FIGURE N - LOANS OVER TIME



So how are we to interpret these findings? We suggest two potential routes of explanation. First, we suggest that we are observing an “enthusiasm effect” in the first quarter. The study began shortly after the van was rolled out, and at the time it was a complete novelty on the Central Malawian financial landscape. Villagers near the calling points had never seen a bank come to them, and the high-tech nature of the van surely drew interest and admiration. On this basis, OIBM garnered a multitude of new clients.

However, as the product settled, the use was not sustained. This trend is largely consistent with McGuinness (2008), who noted a history in Malawi of new providers appearing on the landscape and being embraced initially by clients, only to see use and viability of

the market drop off (with the providers often scaling back their operations in the end).

This pattern occurred here probably because some portion of those new clients did not need or were unsuited to long-term bank use. As the novelty of the van wore off, their use dropped off. What OIBM was left with by the end of the study was likely a fairly stable group of the more viable customers.

Second, as we will discuss later in this chapter, there are multiple indications that the economy in these areas of Central Malawi suffered some kind of localized depression, perhaps linked to tobacco prices. Use patterns at OIBM probably followed this trend, with less bank activity and less value attached to it. (That other banks show more of a mixed picture during this time complicates but does not undermine this theory.)

HOW DOES OIBM SAVINGS ACTIVITY COMPARE TO OTHER BANKS?

Comparing OIBM with its bank competitors on consistency of saving, OIBM’s clients appear to demonstrate a more consistent pattern, with net savings (deposits minus withdrawals) of between roughly \$4,500 and \$9,500 (see Figure O). Its competitors’ clients, on the other hand, range between a small net decrease in total savings (withdrawals exceeding deposits) in the second quarter, to relatively massive net gains of around \$27,000 in the first and fifth quarters. OIBM clients also show a small gain between the first and fifth quarters, whereas

other client savings levels were virtually identical between those quarters.

Can we conclude from this that the OIBM clients are demonstrating more disciplined savings habits compared to the competition? It is certainly possible, though several factors may be skewing the picture.

First, as discussed in the previous chapter, the savings records of both OIBM and its competition show outlier effects, in the sense of a relatively small number of individuals completing a relatively small number of high-value transactions that dominate overall value (see Table

26, focused on transactions above MKW 100,000 [PPP\$1,500]).

At the non-OIBM banks, the high-value transactions (100,000 MKW or above) of seven individuals constitute two-thirds of the total value of deposits. Using a similar cutoff, OIBM has four individuals transacting for roughly one-third of the total value of deposits.

The non-OIBM values are especially vulnerable to distortion based on the dominant activities by a small number of individuals. Compounding the situation is the virtual monopoly that the non-OIBM banks hold over the direct-deposit proceeds from tobacco

harvest sales—the most lucrative activity in this part of Malawi. The transactions of a small number of successful tobacco farmers largely explain the spikes in the non-OIBM first and fifth quarters (coincident with the harvest), and to some extent create a false impression of savings volatility in this segment of the sample.

FIGURE O -COMPARISON OF OIBM AND NON-OIBM NET SAVINGS ACTIVITY

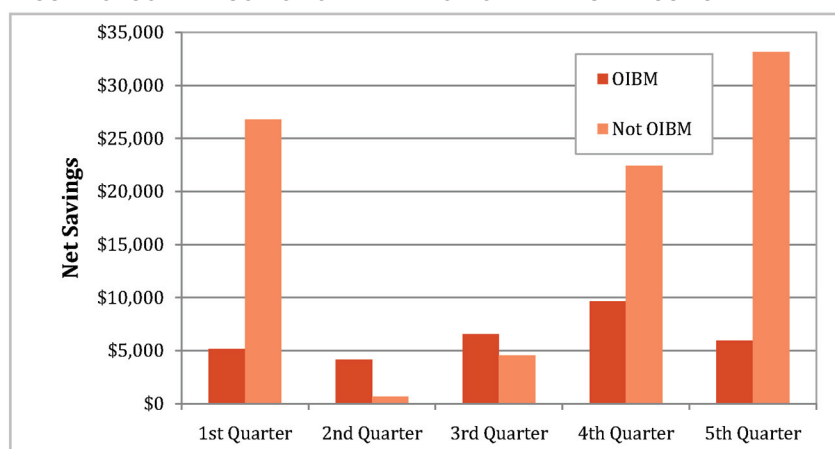


TABLE 26
OUTLIER EFFECTS IN SAVINGS ACTIVITY

Institution: Type and Size	Number of Outlier Transactions	Percent of Total Outlier Transactions	Value of Outlier Transactions	Percent of Total Outlier Transaction Amount	Number of Individuals Transacting
Not OIBM					
MKW 100,000+	27	12%	\$96,857	66%	7
Less than 100,000	194	88%	\$49,988	34%	42
Not OIBM Total	221	100%	\$146,846	100%	45*
OIBM					
MKW 100,000+	8	4%	\$27,654	36%	3
Less than 100,000	212	96%	\$48,327	64%	59
OIBM Total	220	100%	\$75,981	100%	59*
Grand Total	441		\$222,827		104

*Elements do not add to total because some individuals conducted transactions above and below MKW100,000 (about PPP\$1,500)

FIGURE P - OIBM VAN AND CUSTOMERS IN NSUNDWE

Photo by Michael Ferguson, 2010



DID THE VAN BRING IN THE UNBANKED?

This was an issue of high interest entering the study: whether, when, and why people transitioned from only using informal financial services to using formal services like OIBM, particularly via the van.

Using a variety of filters, we were able to isolate a certain number of cases that suggested this kind of movement, focusing on those who became OIBM clients. Essentially, we looked at participants from households who:

- Identified as non-OIBM clients at the start.
- Transacted with OIBM at least once during the study.
- Did not transact with any other banks (since the start date with the other banks may be unclear in the record).
- Came from households with complete data.

We found 10 individuals, or four percent of the sample, who fit this description. On the whole, this group was fairly indistinguishable from the sample in terms of socioeconomic indicators.

Perhaps the most notable characteristic of this group in the transition is infrequency of use. Eight of the 10 individuals conducted three or fewer transactions over the study period, even though all began transacting well before the end of the study. Moreover, their patterns of informal financial service use continued in ways more or less comparable to the period before they became OIBM clients.

This suggests that some clients making this transition require a ramp-up period, during which they attempt to integrate formal services into their lives. The transition from informal to formal does not emerge as a wholesale

A POSITIVE DEVIANT

Our sample of 172 households yielded just one case of a clear-cut robust transition from informal financial service use to regular use of the banking system. The participant was a 29-year-old spouse of a 36-year-old man. The husband was employed for a time by the Dedza Town Assembly but lost the job. She ran a grocery business, which was the couple's only source of income toward the latter part of the study. The couple was considered poor by Malawian standards; their per capita daily income calculated to \$1.52.

The wife became an OIBM client in early 2009, in the "food deficit" season, taking a group loan for about \$150 that she immediately used to pay for a "business order" of \$127 that same week. The loan was issued roughly four weeks after her husband lost his job. She received a second loan in August 2009 for about \$300. Both the husband and wife were very active in receiving informal loans from family and friends; the husband received 10 informal loans and the wife received five. The amounts of these loans individually were much smaller than the OIBM loan but collectively totaled about \$340. The couple were also very active recipients of cash gifts. They received a total of 79 gifts, with a combined value of nearly \$1,500.

The informal loan and gift patterns correlate strongly with the change in OIBM status. This is to say, of the 15 informal loans, only one came after receipt of the first OIBM loan. Of the 79 gifts, only 10 came after receipt of the first OIBM loan. Thus we seem to have a classic picture of transition emerging for the household. Loss of the husband's job seemed to trigger the transition to becoming users of formal financial services. The prominent role of informal loans and gifts then disappeared almost entirely, replaced by formal loans from OIBM (even though, interestingly, the amounts of the OIBM loans do not approach the previous informal totals). In effect, this household moved rather dramatically from informally pooled income-smoothing to reliance on the bank. But this is just one case. The data on the other respondents we tracked suggest that the transition is far from sudden and complete for most of those who try to undertake it.

replacement of informal services with formal ones. It also suggests that the early transition period may be characterized in many cases by limited formal service use paired with heavy (i.e., unchanged) informal service use.

TO WHAT EXTENT WERE ACCOUNTS LEFT DORMANT?

Another issue that emerges when focusing on use is why some clients may open accounts (creating the impression of growing outreach) but then fail to use them. Though this issue applied equally to OIBM's banking competitors, we focused the analysis here on OIBM users.

There are various ways to define account dormancy using a data set like ours. We used the following simple definition: households in which one or more members identified as OIBM clients at the start of the study, but

which failed to record a single transaction in the database. Across the sample of 172 households, our analysis showed that 19 households (11 percent) fit this description. Generally, this number may be considered low, in that dormancy rates on microsavings accounts have been reported as high as 60 percent in other contexts (cf. Goodwin-Groen, 2006, p. 3).

We attempted to isolate any characteristics that made this subpopulation stand out from the larger sample. In the end, we found little. Most (74 percent) were microentrepreneurs, which is on par with the sample as a whole. Their per capita income was slightly below the sample median but not far removed. Thirty-seven percent of them banked with another institution, which is lower than the figure for the sample as a whole (47 percent of all OIBM clients had accounts with other banks),

perhaps suggesting that this group had a below-average propensity to bank with any institution.

A final notable finding is that nearly half of the dormant accounts came from the Kamphata segment. As we will discuss in later sections, the Kamphata group was the one portion of the sample that did not have ready access to a nearby mobile bank stop; virtually all OIBM transactions involved a trip on public transportation to the main branch in Lilongwe. This may be an indicator of the distance effect vis-a-vis the impact of the van as a delivery system.

CONTEXT: DECLINING ECONOMIC INDICATORS AND THEIR INTERPRETATION

Overview of analysis and trends

As we explored the trends in bank use, noting their apparent decline in terms of frequency and value over time, we turned to the question of whether the state of Central Malawi's economy over that same period played a role. Could the drop-off in bank use across our sample be a by-product of a depressed and declining economy? In fact, there is strong evidence that indeed the economy may have been in decline.

We examined mean per capita income across the study period in some detail, which highlighted a number of complications. Households' net weekly incomes in our sample varied considerably from week to week. In the case of salaried households, they varied based on the frequency of salary payments, which were usually monthly. For day-laborers, they varied based on the work available that week. And for households with businesses, they varied due to weekly variations in sales and the fact that they replenished their inventory on an irregular basis, spending large amounts in a given week, resulting in a "loss" for that

particular week. This variation in week-to-week net incomes is on top of seasonal variations in incomes. Finally, there is a wide variation in incomes in our sample, with some high earners skewing the sample considerably.

To mitigate the problem created by the skewed sample, we looked at median incomes rather than mean incomes, and we used non-parametric tests to measure the statistical significance of changes we observed. We took into account seasonality when examining changes over time by comparing incomes in the same season—our data contain a full quarter of overlapping data a year apart. And to mitigate the noise created by the week-to-week fluctuations in income, we calculated net income by quarter (13 weeks).

In general, the data are consistent with the pattern of income we would expect based on our understanding of Malawi's seasons (see Figure Q). Income is lowest in the third and fourth quarters of the study, coinciding with the period from January to June, which includes the planting, growing, and harvesting seasons.

Most salient to the current analysis is the fact that though incomes recover in the fifth quarter of the study (covering the period from July to September 2009), they do not recover to the same level as the same period in 2008.

FIGURE Q - MEDIAN WEEKLY HOUSEHOLD INCOME BY QUARTER OVER STUDY PERIOD

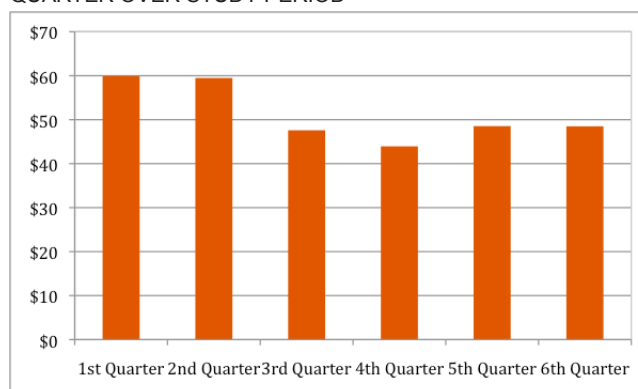
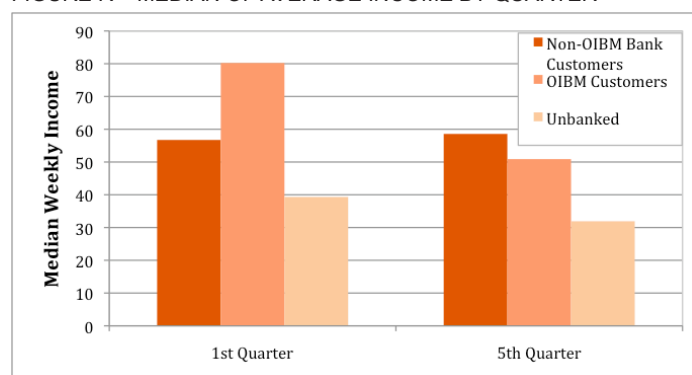


FIGURE R – MEDIAN OF AVERAGE INCOME BY QUARTER



In fact, the first- and fifth-quarter comparison shows a drop in median income of 19 percent between 2008 and 2009.

Trends by banked status: do the banks mediate?

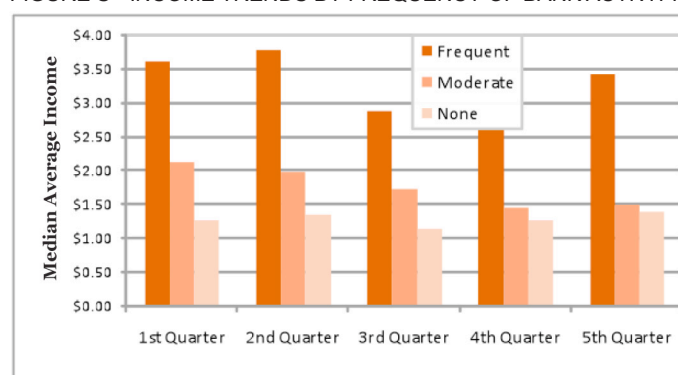
It is within this context that the OIBM van was operating. If we separate out users of the van from other formal financial service users and from the unbanked, we can see how bank users fared during the period of our study.

The data suggest that OIBM users' incomes went down during the study period, and they did so more than the other households in the study (see Figure R). The results are suggestive because despite the large differences in the changes across different groups, the differences are not statistically significant. The changes are summed up in Table 27.

These findings seem to call for a reconsideration of the mediating or protective role of Malawi's financial institutions in terms of coping with overall economic trends. We tested this further by disaggregating the sample by frequency of bank use and examining change over time (see Figure S).

The frequent users of the banks did in fact fare better between the first and fifth quarters in the sense that their mean per capita income dropped less (about \$0.15) than moderate

FIGURE S - INCOME TRENDS BY FREQUENCY OF BANK ACTIVITY



users of the banks (about \$0.60). However, any suggestion of mediating effect must be viewed in light of the fact that OIBM users still saw some substantial drop in income.

What non-income indicators are most meaningful?

In terms of alternative ways to examine an economic trend, beyond income, the Diaries dataset provides a wealth of possibilities. We looked at just a few of these in seeking corroboration or refutation of the downward economic trend.

Again focusing on first and fifth quarters, we found a 24 percent drop in food spending across the sample. Breaking it down further, we looked at staples such as cooking oil and compared relative luxury food items like meat. Here we found substantial variance—drops of four percent and 13 percent, respectively (see Table 28). The key point, however, was that virtually all of the indicators we examined in this area showed drops of one degree or another.

TABLE 27
CHANGE IN MEDIAN OF AVERAGE PER CAPITA INCOME BY BANKED STATUS

	Change in Income, 1 st to 5 th Quarter
OIBM	-37%
Non-OIBM Banked	+3%
Unbanked	-19%
Overall Change in Sample	-19%

Overall, we found that spending on non-essential items tended to drop more sharply, though most essentials saw some drop as well. This is consistent with the effects one might anticipate in a period of generalized economic decline. That is, the luxuries are the first item to go from the household budget. An illustrative example of a clear downward trend in non-essential spending can be seen in the data on beer spending (Figure T).

TABLE 28
TRENDS IN FOOD SPENDING OVER STUDY PERIOD

Food Type	Change in Expenditures (1st to 5th Quarter)
Total	-24%
Meat	-13%
Cooking Oil	-4%

The challenge of macro-interpretation

Our analysis probed this issue deeply and along every thread of relevant evidence. The findings were consistent with a clear trend: the sample experienced a significant economic decline over 2008-2009, one that seemed to impact banked individuals more than others, and also men more than women (see gender analysis in next chapter).

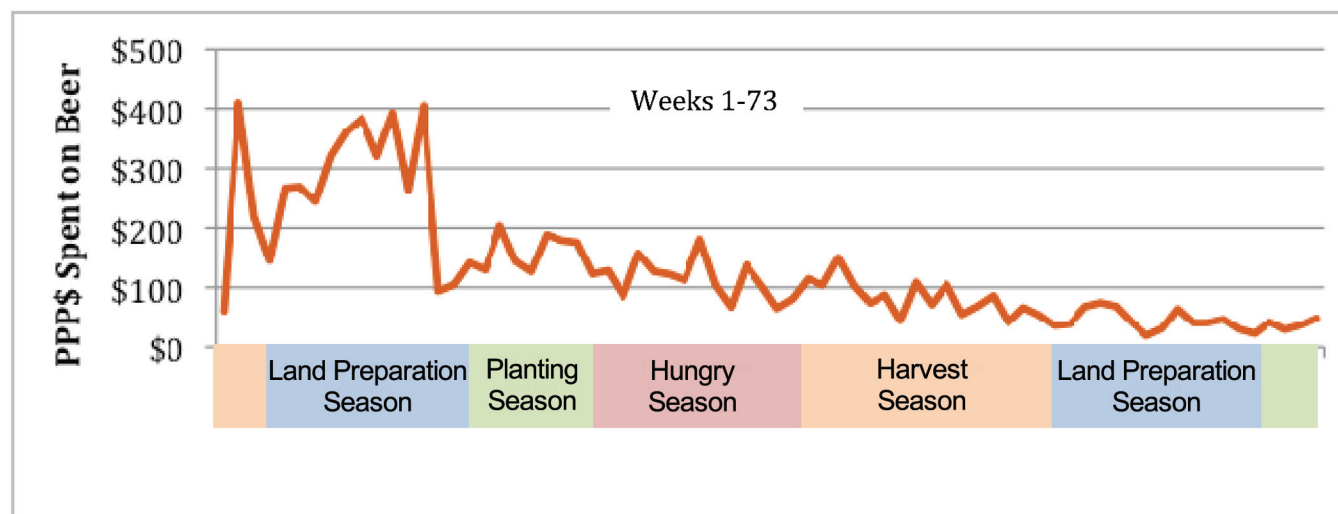
Much less clear are the full implications of the findings. These are strong exploratory findings that beg for further contextualization. The questions remain: are our findings an anomalous feature of our non-randomized subpopulation, or do they demonstrate a broader trend?

An obvious initial follow-up to such findings—and potential path to triangulation—is to review macro-economic indicators for these years to see whether the country as a whole experienced a downturn. That is to say, is our micro-evidence reflective of the macro-evidence on the economy?

On a national level, we find no easy answers. Our efforts are hindered by a relatively slow flow of economic data from Malawi; many 2009 measures such as agricultural production statistics are not complete at present.

Those that are available paint a mixed picture. Malawi's real GDP growth rate was estimated at 9.4 percent in 2008 and 7.6 percent in 2009; however, at the same time, per capita income held steady (CIA World Fact Book, 2010). The general consensus among experts is that the Malawian economy has been growing very steadily and strongly

FIGURE T- TREND IN BEER SPENDING OVER STUDY PERIOD



over the past five years, due in part to the introduction of a major government-sponsored fertilizer subsidy program (Karl Pauw, 2010, personal communication).

But a lack of alignment between macro-economic trends and micro-economic data from a sample like ours is not unexpected. A next logical step is to examine conditions on a more regional level. Here we have limited evidence to work with. There have been reports of a spike in maize prices around this time. One can project a possible effect whereby these households buy their maize first (as the staple), leaving less money to buy other non-necessities from traders such as those in our study (Ibid.). At the same time, other reports suggest a drop in maize prices locally as much as 30 percent in some of the areas of our study between 2008 and 2009 (USAID, 2009). Such a drop might jeopardize the income of the subpopulation of our sample that sold maize as a cash crop.

In our own work in the region, we have gathered anecdotal evidence simply by asking questions of our participants and others (e.g., were economic conditions worse in 2009 compared with 2008, and why?). To date, the results of such inquiries suggest a moderate consensus that conditions did indeed worsen in 2009, though the reasons why remain debatable.

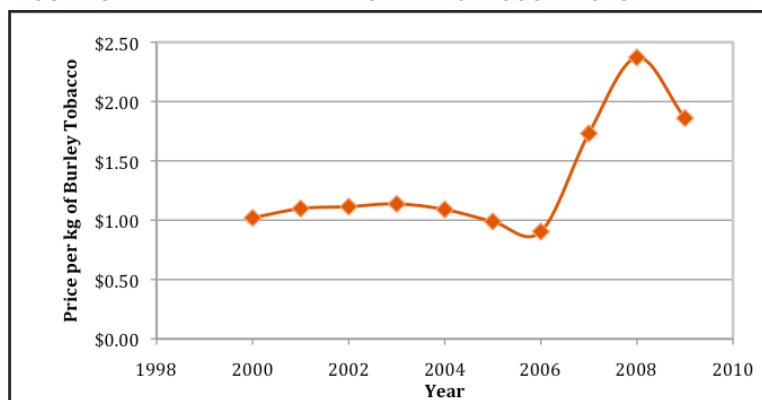
Drawing on the anecdotal testimony and all other available evidence, the most promising line of inquiry in terms of linking our data to regional developments relates to tobacco prices. Tobacco remains the top driver of the Central Malawian economy. It is by far the most lucrative enterprise in the area, and trends in tobacco tend to affect broad swaths of the regional economy, bringing a cascading multiplier effect to many non-tobacco businesses.

As discussed earlier, only a small fraction of our sample actually drew the majority of its income from tobacco (or any other cash-cropping), but most were microentrepreneurs whose businesses depended to a greater or lesser extent on the circulation of cash that begins with tobacco.

After remaining fairly flat through 2006, the local burley tobacco prices spiked in 2007, shortly after the Malawian government began mandating minimum prices for export sales. Prices peaked in 2008, and then dropped off by about 20 percent in 2009, seeming to settle around the 2007 figure (see Figure U).

The 2009 price was well above the average for the first half of the decade. However, its occurrence after the peak year of 2008 brings to mind scenarios that may have had adverse economic consequences for our microentrepreneurial segment. The peak of 2008, the results of which we captured in our first-quarter data, might have encouraged some business owners to expand, leaving them vulnerable to regional economic contraction in 2009. The vanguard of such aggressive (and risky) business tactics would likely be the subpopulation of our sample with more resources to apply to expansion, and we know from earlier analysis that banked males tended to be more affluent in our study.

FIGURE U: TREND IN MALAWIAN BURLEY TOBACCO PRICES



Source: Tobacco Control Commission of Malawi, www.teamw.com

They might have risked more and ultimately suffered more. Certainly we have no definitive answers to offer at this point and hope to probe further in future research. At the moment, it stands as an intriguing case in which the macro-economic and micro-economic evidence do not align in a straightforward way, with the Diaries providing some fairly unique streams of data at the micro-level.

OUR STORY, PART V

So is the van the intervention that provides convenience and transforms use? The picture

thus far is mixed. Use clearly drops off over time, though various explanations for that can be posed, including the “enthusiasm effect.” Account dormancy is relatively low, but so is the apparent movement of participants from informal to formal services. The wild-card in this picture is that usage took place in a context of apparent declining economic conditions. That economic trend may have been related to a drop in tobacco price, though the evidence is far from clear-cut. The descriptives relative to OIBM will carry on the story with a special focus on gender.

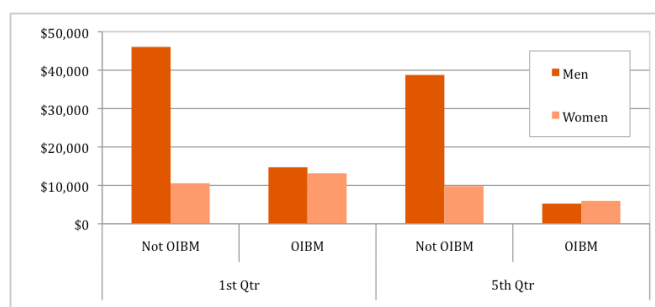
IX: The OIBM Van and Gender

GENDER AND SAVINGS ACTIVITY

Both gender and savings are core issues in this study, and as such we investigated their intersection—again making a first- and fifth-quarter comparison and disaggregating the sample into OIBM clients and those using other banks. The research explores whether savings activity expanded or contracted over time for these various subpopulations.

At OIBM, both men's and women's savings activity dropped between 2008 and 2009, a finding one would expect in the context of overall declining economic conditions for the sample. However, men's activity dropped more sharply, while women overtook men in terms of the value of savings activity by the fifth quarter. At the non-OIBM banks, a much deeper disparity was maintained between men and women (though as at OIBM, the men's activity drops more than women's in the fifth quarter, see Figure V). In sum, women fared better than men over time in terms of volatility of savings, though still at lower volumes than men, and we note that all OIBM client groups saw a drop over 2008-09.

FIGURE V - MEN'S AND WOMEN'S SAVINGS TRENDS, OIBM VS. NON-OIBM



CASH GIFTS AND ECONOMIC DEPENDENCE

As noted earlier, women were disproportionately on the receiving end of cash gift exchanges, and most of the givers were men. We interpret this as a gross indication of economic dependence across the female segment of the sample (recognizing that this is indeed a gross indicator and that not every cash gift made to a woman would be suggestive of economic dependence, and that dependence itself can be a variable concept as explained in Chapter VI).

Breaking this issue down chronologically and in terms of client status, two female segments—non-OIBM financial service users and unbanked participants—became more dependent on cash gifts between the first and fifth quarters. This finding is akin to the previous savings finding and consistent with the broad trend toward economic depression over the sample between 2008 and 2009. OIBM clients, on the other hand, fared better. The total value of cash gifts received declined between these quarters. This is perhaps indicative of some protective effect for women of banking with OIBM (see Figure W).

CONVENIENCE REDEFINED

One of the major values offered by the banking van is the elimination of distance and the associated opportunity cost of travel time—in a word, convenience (cf. Morduch & Rutherford, 2003).

PARTICIPANT PROFILE: THE DIVORCED MOTHER

BASIC INFORMATION:

Divorced woman who is 44 years old; the household includes the woman and a 14-year-old non-nuclear relative. She has two children (son and daughter) who are grown and living/working elsewhere.

LIVELIHOOD:

She runs a confections business, specializing in sales of sugar and *mandasi* (doughnuts). She also self-identifies as a farmer.

INCOME:

- Mean Weekly Income: \$27.93
- Per Capita Weekly Income: \$13.96
- Per Capita Daily Income: \$1.99

The confections business provides some steady income, but the bulk of her support comes from remittances and cash gifts from her boyfriend, children, friends, and relatives.

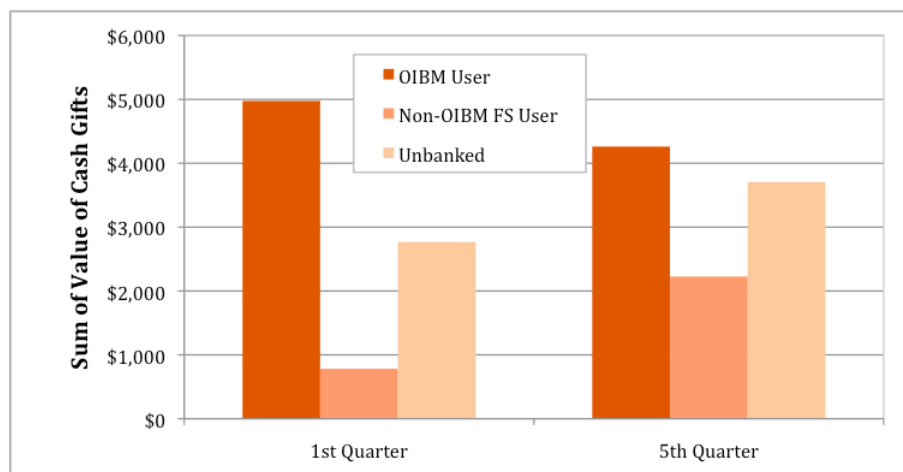
PERSONAL INFORMATION/EVENTS:

She is currently enrolled in adult literacy classes.

FINANCIAL TRANSACTIONS:

She has a savings account with OIBM that she used just twice during the course of the study, both for withdrawals of about \$15, in sequential weeks during the planting season. It appears that she used the withdrawals to pay rent both for her residence and for a plot of land to cultivate during the coming year. She is a past group loan recipient with OIBM; her last loan took place before the study began. That group broke up when some members defaulted. She expressed concern that she might not have a chance to get another loan from OIBM because of the default record. On the informal side, she relies on remittances and cash gifts from her boyfriend, children, and other relatives. She received a total of 45 remittances or cash gifts totaling \$1,191, mainly from her boyfriend. The 24 cash gifts from her boyfriend and other friends ranged from \$3 to \$165, and totaled \$692. Her reciprocal activity in terms of informal cash exchanges is small-scale and infrequent. She also makes regular contributions to a "Women's Group" in her village and received one inflow from the group for \$67.

FIGURE W - WOMEN'S CASH GIFT RECEIPT OVER TIME, BY TOTAL VALUE

**TABLE 29**

BANK TRANSACTION PATTERNS AT KAMPHATA VS. REST OF SAMPLE

Indicator	Kamphata	Rest of Sample
Number of OIBM Households	20	61
Average Distance Traveled to Conduct OIBM Transactions (Miles)	14.8	1.4
Average Number of OIBM Transactions	7.2	7.5
Average Size of OIBM Transactions	\$213	\$175
Average Amount of OIBM Transactions	\$2,471	\$2,002

OIBM uses the van to bring its bank to the people, serving places without OIBM brick-and-mortar branches, and without branches of the other commercial banks, excepting the larger towns of Mchinji and Dedza.

Theoretically, this should make banking easier and cheaper, enabling more intensive use of banking services. As such, we envisioned a distance-based analysis of our entire sample, comparing the banking patterns of those who reside closest to the bank stops against the more distant. In other words, do we see more bank use among those closest to the stops?

One segment of our sample provided some interesting insights into the importance of distance and convenience from a client's perspective. The group at the Kamphata trading center differed from the rest of our sample in that they did not utilize the bank van when transacting with OIBM. Instead,

they traveled to the main branch location in Lilongwe to conduct business. As a result, the average distance they traveled to bank was over 10 times the average for the rest of the sample (which we were able to calculate precisely using GIS readings for participant households and banking locations). From this came our natural experiment: given the distance disparity, do we see less intensive bank use within the Kamphata segment?¹

For the sample as a whole, the answer to the question was essentially no. Despite having to travel 10 times as far, the Kamphata segment conducted an almost identical number of average transactions. Both the average size and the sum of the value of those transactions was higher compared to the rest of the sample using the bank van (see Table 29).

¹ An important point: the differences reported here were not statistically significant due to the relatively small n associated with the Kamphata. For this reason, we label these findings "exploratory." Even without statistical validity, they are striking and interesting, warranting further attention in any study designed to take on issues distance, bank use, and gender.

TABLE 30
BANK TRANSACTIONS BY GENDER, KAMPHATA VS. REST OF SAMPLE

Indicator (by Household)	Kamphata		Rest of Sample	
	Male	Female	Male	Female
Distance Traveled to OIBM (miles)	15	15	3.2	0.82
Number of OIBM Transactions	10	4.9	7.4	5.8
Size of OIBM Transaction	\$257	\$176	\$185	\$185
Value of OIBM Transactions	\$3,951	\$1,370	\$1,661	\$1,819

TABLE 31
SUMMARY INTRA-HOUSEHOLD TRANSFER FINDINGS

Sender	Number of Transfers by Recipient		Value of Transfer by Recipient	
	Male	Female	Male	Female
Men	32	3,417	\$905	\$90,562
Women	106	23	\$8,678	\$1,352

We can also note, as established in our data, that the Kamphata participants paid a mean of \$7.49 (PPP) in bus fare to reach Lilongwe and conduct business, which amounts to a three percent transaction fee that the van users avoided.² This added cost seemed to matter little on the whole across the sample.

However, the analysis found a silver lining here for the OIBM van as it relates to gender. Women with access to the van stops completed significantly more transactions on average, compared with the Kamphata segment (see Table 30). Moreover, the gap between men and women on this issue was much wider at Kamphata compared with the rest of the sample.

Hence, when we disaggregate by gender, we find that proximity to a van stop made a distinct difference for women. In other words, distance to and convenience of financial services may be more important to women than to men in this context, and the van may be helping to serve women's interests in this regard.

These findings on convenience suggest a gender dimension to the convenience concept put forth by Morduch and Rutherford (2003). Insofar as the Kamphata results represent valid evidence, convenience seems highly valued by women.

INTRA-HOUSEHOLD TRANSFERS

In a final topic for this chapter, we discuss a special category of transactions: intra-household transactions (IHT). IHTs were recorded whenever participant household members (husband, wives, adult children, or others) exchanged cash with other members of the household.

The creation of this transaction category is based on the idea that it is different from the "cash gifts" described earlier, occurring between a participant household member and a non-member of the household. We felt IHTs should be analyzed separately as a measure of the gender dynamics within households, for another view inside the household "black box."

Gross analysis of the IHT data yields findings that parallel the cash gift findings, though the trend is narrower and more pronounced.

² Three percent is the average transaction amount for Kamphata clients

FIGURE X - OIBM VAN CALLING POINT



Photo by Michael Ferguson, 2010

Nearly all of the IHTs flowed from men to women, and, as one would expect, most of those flowed from husbands to wives (see Table 31). The adult children and other economically-active in the sample did not substantially alter the findings—meaning these dynamics seem to be reinscribed across and between generations.

Certainly the question of gender dependence arises here as it did regarding cash gifts. One can easily imagine scenarios in which a husband controls his wife by doling out cash only when he sees fit. Supplemental information about our participants suggested that such asymmetries did indeed exist in the sample, but the dynamic of many households was far less black-and-white.

Moreover, the data suggest an important corollary finding: that women who earned money (of which there were many in the sample) did not routinely hand their earnings over to their husbands. There may

well be a more complex picture of gender dynamics at work than these rather one-sided results initially suggest. We expect to take on the IHT data in more detail in future studies, with the intention of building on the small but well-conceived body of research conducted on intra-household economic dynamics (cf. Lazear & Michael, 1988; Anderson & Baland, 2000).

OUR STORY, PART VI

The van seemed to add more value for women than men as a service innovation, and OIBM may be affording its women clients a protective effect in our sample. Over time, women fared better than men in terms of savings patterns. Women's utilization of cash gifts was less over time compared with participants who did not use OIBM. The exploratory distance analysis suggested a new gendered dimension to convenience. Here our descriptives on usage ends. We proceed into analytics in Section IV.



Section 4: Managing Risk

In the words of one microfinance client, “Life for the poor is one long risk.” In this section, we drill down into the Diaries data to examine vulnerability from two different angles. The consumption-smoothing framework focuses on the strategies low-income households use to make either their income less erratic or to smooth consumption through various mechanisms such as borrowing or depleting savings (Morduch, 1995). The second angle, the “useful lump sums” framework, discusses the strategies low-income households employ to meet their surprisingly frequent need to spend large sums of money (Rutherford, 2000).

One of this section’s key findings is that lump-sum payments and income shortfalls both occur frequently in low-income households. This suggests that the vulnerability of the poor is not just about episodic “shocks” (illness, death of loved ones, poor harvests and weather events) but rather about chronic financial uncertainty. Both incomes and expenses arrive in widely varying sizes and at unpredictable moments, unsynchronized to each other. A financial services provider must understand the erratic cash flows of low-income households if that provider hopes to design and deliver products useful to such households.

X: Managing Shocks and Income Fluctuations

OVERVIEW

Exogenous shocks are unexpected events that have an impact on the economy of the household. They are of high interest in a study such as this, as microfinance interventions have long been considered for their protective effect against shocks (cf. Dercon, 2003; Dercon, 2005; Gertler & Morretti, 2003). The shocks can be positive or negative, in the sense that they can have either a positive or negative impact on the household economy. Negative shocks can lead to an increase in expenditures (expenditure shocks) or to a decrease in income (income shocks). In addition, low-income households face chronic fluctuations in their incomes, often not earning anything in a bad week.

The smoothing framework focuses on how people manage their finances in order to ensure that they are able to buy the necessities of life regularly despite exogenous shocks and income fluctuations. Morduch (1995) notes that this smoothing can happen in two ways. First, by smoothing income—choosing to earn money in ways that increase the likelihood that money comes in regularly—households can ensure that they can regularly buy the necessities of life. Second, they can use savings, borrowing, or some sort of insurance mechanism to pay for extra expenses that they may encounter, so that they can continue to buy the necessities of life. We examine the extent to which the households in our sample experienced exogenous shocks, and how they managed them. We then look at whether they

had income fluctuations and if so, how they managed in the face of those.

The data suggest that though most of the households in our sample experienced some sort of exogenous shock, their magnitude and frequency were overshadowed by the chronic variability of the incomes of the households. Our data suggest a major drop in food expenditures during weeks when households experienced low or no income. Furthermore, our data suggest that formal and informal financial services played an important role in helping households to maintain food consumption during weeks when they did not earn any income, and that formal financial services were particularly effective in doing so.

FUNERALS, HOSPITAL BILLS, AND MEDICINE

In our sample households, there were many expenditures in the familiar shock areas of funerals, hospital bills, and medicine. These were definitely the result of unexpected events, but most of these expenditures had little impact on the households involved, because they required relatively small cash outlays compared to other expenditures these same households were making.

In the case of funerals, about four out of five sample households incurred at least one funeral expense during the period of our study. The median expenditure was \$1.50, and the average expenditure was \$7. There were six coffin purchases, ranging in price from \$135

to \$330; and an additional four expenditures over \$100, ranging from \$135 to \$482, that were reported as “funeral contributions,” and may have paid for a coffin. There were 22 expenditures out of a total of 699 that were greater than the \$55 median weekly income. In total, the sample households spent \$4,851 on funeral-related items.

In the case of hospital bills, half of the sample households paid at least one hospital bill during the period of the study. The median expenditure was \$10, and the average expenditure was \$18. The largest expenditure reported was \$135, and there were a total of 11 expenditures out of a total of 166 that exceeded the weekly median income of \$55. In total, the sample households spent just under \$3,000 on hospital bills during the study period.¹

In the case of medicines, about four out of five sample households incurred at least one medicine expense, and there were a total of 845 medicine purchases reported by our respondents that we could verify based on their description of the product. As with the funeral and hospital expenditures, the amounts spent were small, with the median amount being \$0.52 and the average amount being \$1.78.

In addition to the direct funeral expenditures and hospital bills, many of the respondents incurred travel expenses (a bus ride) to attend a funeral or visit a hospital. To this end, we looked at the data in which respondents identified unusual events that occurred during the week and attempted to match them with bus fare expenditures. We were able to make 35 direct matches, but these matches revealed interesting findings that require further analysis. In total, the respondents incurred \$944 in bus fares related to these 35 events,

an average cost of \$27 per event. In one case, a household spent \$134 on six bus trips to visit a sick relative. The household was able to afford this expenditure because it averaged a weekly income of \$140, and three weeks before the trips the household had made a net income of \$429.

In sum, our data suggest that illnesses and funerals of relatives and friends who had lived some distance away may result in travel expenditures that dwarf any direct expenses due to the negative event itself, such as a hospital bill or funeral contribution.

INCOME SHOCKS AND UNANTICIPATED EVENTS

Low-income households are also prone to income shocks. The most severe income shock is a period in which the household earns no revenue due to some unanticipated event.

Looking at the weekly revenues of our sample households, it is clear that not all zero-revenue weeks are income shocks. In the case of salaried employees this is obvious—they are paid monthly and do not necessarily earn income from other sources in the interim. But the data suggest that even households with a microentrepreneur in a position to earn revenue every week nevertheless frequently experience zero-revenue weeks.

Of the 120 households in our sample that included at least one microentrepreneur, 85 percent experienced at least one zero-revenue week during the weeks in which we otherwise know about their activities. In those weeks, these households reported no income from their businesses, nor did they report any other earned income such as the income of a salaried spouse. The median number of zero-revenue weeks for these households was nine. In all, 25 percent of the weeks for which we have data were zero-revenue weeks (2,103 weeks out of 8,450 weeks).

¹ The relatively low significance of direct health expenses here provides interesting comparisons to the literature. Some researchers like Dercon (2005) have highlighted the importance of such shocks in microfinance contexts. At the same time, Gertler & Gruber (2002) found that medical expenditures averaged less than 1 percent of nonmedical consumption for participants in their study, and Collins (2009) reported that health expenses were just 1.6 percent of gross income on average.

TABLE 32
FINANCIAL INFLOWS RELEVANT TO ZERO-REVENUE WEEK

Institution Type	Transaction Type	Frequency of Transactions	Percentage of Transactions	Total Amount	Percentage of Total	Mean Transaction Size
OIBM	Cash Withdrawal	38	2%	\$10,777	13%	\$284
	Loan	8	1%	\$5,564	7%	\$696
Other Bank	Cash Withdrawal	82	5%	\$11,163	14%	\$136
Non-Bank Financial Institution	Cash Withdrawal	1	0%	\$165	0%	\$165
	Loan	3	0%	\$899	1%	\$300
Total Formal Institutions		132	8%	\$28,568	35%	\$216
	Gift	1,277	82%	\$41,566	51%	\$33
	Loan	63	4%	\$6,401	8%	\$102
Informal	Loan Repayment	80	5%	\$5,495	7%	\$69
	Other	2	0%	\$120	0%	\$60
Total Informal Transactions		1,422	92%	\$53,581	65%	\$38
Grand Total		1,554	100%	\$82,149	100%	\$53

When we link these zero-revenue weeks with our events data, we can say with some confidence that 53 percent of the microentrepreneur households experienced at least one zero-revenue week that was related to an unanticipated event such as an illness, a funeral, a crime, or an accident, and that these constituted about six percent of all the zero-revenue weeks. So out of all the weeks for which we have data, we can only identify with some confidence 1.6 percent that were the most severe type of income shock, in that the households earned no revenue in a week when they experienced an unanticipated event.

Support in Zero-Revenue Weeks

How did these households manage through the weeks when they had no revenue?

Looking at all the financial transactions that occurred during these zero-revenue weeks, we find that there was at least one financial inflow (meaning cash flowing into the house from a formal or informal financial source) in 57 percent (1,198 out of 2,103) of the zero-

revenue weeks. The total number of financial transactions involved was 1,554, with a median amount of \$15 and a mean amount of \$53. The transactions were predominantly informal cash gifts or remittances from friends, family, and associates, both in terms of numbers of transactions and the amounts involved (see Table 32). Over 90 percent of the financial inflows to the households during their non-earning weeks were from informal sources, though these constituted just 65 percent of the value of all financial inflows.

OIBM cash withdrawals played a role, representing 13 percent of all financial inflows going to households in their non-earning weeks. But other banks played a similar role. Though OIBM originated some loans to households in weeks when they did not earn income, it is unlikely that the households intended to use the loans for consumption-smoothing. The amounts were very large and OIBM's loan turnaround time is not one that would allow it to respond to a week's shortfall in revenue.

TABLE 33
BREAKDOWN OF WEEKS WITHOUT REVENUE

Expenditure Type	All Weeks (n = 8450)	Weeks with Revenue* (n = 6347)	Weeks without Revenue* (n = 2103)	Weeks without Revenue and with Financing (n = 1198)	Weeks without Revenue and without Financing (n = 905)
Household Total					
Median	\$70	\$101	\$22	\$26	\$17
Mean	\$215	\$272	\$42	\$46	\$35
Average Deviation from Each Household's Mean	0%	4% above	13% below		
Household Food Only					
Median	\$23	\$27	\$15	\$16	\$14
Mean	\$35	\$39	\$23	\$25	\$21
Average Deviation from Each Household's Mean	0%	3% above	10% below		

Differences across all independent categories are statistically significant at the 1% level

*Revenue includes all income earned from business and other sources such as salaries and commissions.

*Financing includes all cash inflows where there was no good or service exchanged, including cash gifts and remittances which are included as income in other parts of this report.

Taking a seasonal approach across the five full quarters of the study, we note several trends. We see that the use of formal financial services dropped considerably after the second quarter and never really recovered. In contrast, we see that informal transactions remained fairly steady throughout the year; although, in terms of number of transactions, there was a peak in the second quarter driven by cash gifts at Christmas and some pre-Christmas inflows that may be related to the planting season.²

Spending in Zero-Revenue Weeks

The lack of any earned income during a week profoundly impacted spending patterns of our sample households, though this was somewhat mitigated by the financial inflows they received. Focusing on the households with at least one microentrepreneur, there is a large difference in the amount people spent in weeks when they had revenues compared to weeks when they did not. The median household expenditure for all types of goods and services (but not expenditures that involved making loans, giving cash gifts, or sending remittances) was \$70, while the median expenditure in weeks with revenue was \$101 (see Table 33). This suggests that

consumption-smoothing failed to some extent during difficult weeks within this population.

In weeks when households had no revenue the median weekly expenditure was only \$22, but the median expenditure in non-earning weeks when the household received some sort of financial help was \$26, greater than those non-earning weeks when they did not have any financial help, when the median amount spent was \$16. All these differences are statistically significant.

Food security is an issue for many Malawi households and, not surprisingly, inconsistencies in earned income impacted household food expenditures. The median food expenditure for household purposes was \$23. In weeks when the household earned some income, the median expenditure was \$27, while in weeks when the household did not earn any income it was \$16, which is a statistically significant difference from the earning weeks. Looking within the non-earning weeks, there was also a difference in food expenditures in weeks when the household received some sort of external financing compared to when they did not. The median food expenditure in the weeks with financing was \$16, while the expenditure in unfinanced weeks was \$14 (see Table 34).

² For most households in our sample, Christmas fell in Week 25 of the study, right at the end of the second quarter. The third quarter ran from the end of December 2008 to the beginning of April 2009.

TABLE 34
EXPENDITURES IN WEEKS WITHOUT REVENUE,
BY FINANCING TYPE

Expenditure Type	Used Formal Finance (n = 127)	Used Informal Finance (n = 1,140)	No Finance (n = 905)
Household Total			
Median of All Households	\$54	\$25	\$16
Average Deviation from each Household's Mean	43% above	9% below	22% below
Household Food Only			
Median of All Households	\$27	\$15	\$14
Average Deviation from Each Household's Mean	16% above	6% below	17% below

^a Formal and Informal Financing weeks sum to greater than total financed weeks because of overlap in use of formal and informal sources in some no-revenue weeks. Differences in medians are all statistically significant at the 1% level

This \$2 difference is statistically and substantively significant. In Malawi, \$2 (PPP) can buy you a kilo of sugar, a loaf of bread, or a kilo of rice.

We drill down into the sources of financing and find that they made a difference for how the households managed the no-revenue weeks. Household expenditures in no-revenue weeks in which households withdrew cash from a formal bank account were more than twice as high as expenditures in weeks where they got informal financing—\$54 vs. \$25 (see Table 34). The same was true for food expenditures—the median weekly food expenditure of a household that withdrew cash from its bank account in no-revenue weeks was \$27, while it was only \$15 for households relying on informal sources.³ The average deviation figures in Table 34 add context in terms of the households' typical expenditure patterns.

³ Note that the way we have done the calculations means that these differences are based on the experience of households in particular weeks, so one week a household with no revenue might receive formal financing, while in another week the same household might receive informal financing. Further research is needed on whether, for the same household, the source of financing affects the amount spent in a no-revenue week.

In sum, the use of formal financial services, largely cash withdrawals from savings accounts, suggests correlations with higher general household spending and food spending during difficult times. But these uses of formal financial services usage were relatively rare (127 instances), and dwarfed by the use of informal finance (1,140 instances), such as cash gifts or informal loans, to cover expenses in non-revenue weeks.⁴

Seasonality of Income Variance

Finally, there is a pattern to the overall distribution of zero-income weeks, taking into account cash gifts and other non-business inflows as well as business revenues. The data suggest that it was during the hungry season that microentrepreneurial households were least likely to face a zero-income week (Figure Y).

While somewhat counterintuitive, this finding is not necessarily surprising because during the hungry season households are most likely to have exhausted their own food resources and to need cash to pay for food purchased in the market. Furthermore, given the overall suppression of economic activity during this time, households were less likely to experience a good week and thus less likely to have any money left over from previous weeks that they could use to buy food. There are several additional lines of data to support these conclusions. First, the likelihood that a household experienced an above-average week in terms of generated revenue is lower in the hungry season. Second, the coefficient of variance of revenues is lower in the hungry season, suggesting that households need, and to some extent attain, more cash consistency in the hungry season (see Table 35). As noted above, they can afford to go a week without revenue in the other seasons because they have food in storage and the prospects of earning revenue in other weeks is quite good.

⁴ Cash gifts are non-reciprocal payments of money and include remittances.

TABLE 35
ABOVE-AVERAGE WEEKS AND COEFFICIENT OF VARIANCE

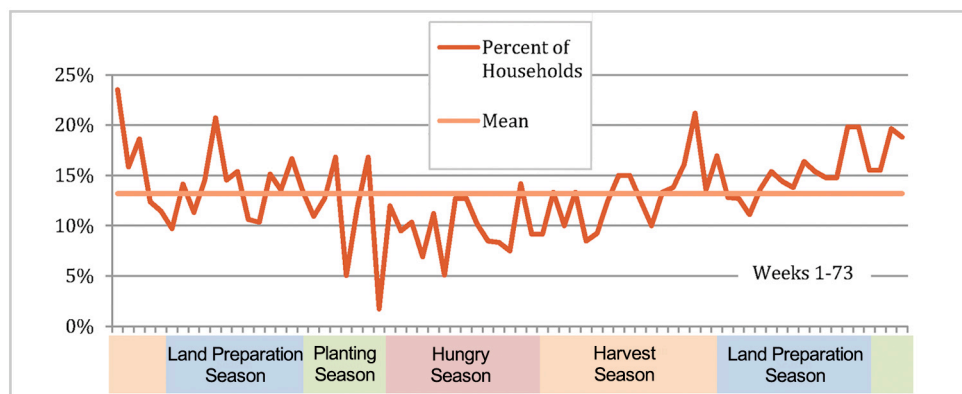
Quarter	Percent of All Household Weeks with Above Average Income	Coefficient of Variance*
1 st Quarter	38%	0.99
2 nd Quarter	37%	0.91
3 rd Quarter	30%	0.79
4 th Quarter	34%	0.85
5 th Quarter	38%	0.91

In sum, in Malawi's most difficult season, both household and business economies appear to flatten. There is less business activity, but there are also fewer risks taken (e.g., large stock purchases). Malawians have less food stores and must purchase more, so they need a certain level of income. Zero-income weeks and general income variance go down because Malawians consistently employ smoothing techniques to plug the holes in cash flow. Income may be low at this time, but it appears to be consistent, for the reason that people need to eat.

SUMMING UP ON SHOCKS

In sum, the households in our sample experienced a large number of small expenditure shocks related to illness and funerals. In addition to the direct expenditures associated with these events, households also incurred sizeable transportation expenses (although our data are not sufficiently accurate to enable us to identify all the transport expenses related to these unanticipated events). Our research to date on shocks focuses on the expenses themselves;

FIGURE Y - SHARE OF HOUSEHOLDS WITH NO INCOME DURING WEEK



additional research is needed to gain a full picture of the coping mechanisms used to offset them.

On the income side, households experienced a large number of weeks in which they earned no income. This was the case even when we focused on households with at least one microentrepreneur— they earned no business revenue in a quarter of the reported weeks. The data suggest that these non-revenue weeks are normal for the households in our sample, and only a small percent can be tied directly to unanticipated events. Despite their normality, the lack of earnings in a week had a profound effect on household expenditures, including food expenditures, that were somewhat more effectively mitigated by formal financial inflows than by informal ones. These findings suggest that the sample's households need a service to help smooth consumption across zero-income weeks, and that formal financial institutions are better placed to help households keep expenditures at levels they are used to when they do earn revenue.

OUR STORY, PART VII

The transactions record is rife with funerals and hospital visits, but their effect on household well-being is mitigated by the relatively low costs in most cases. Zero-revenue weeks, on the other hand, are strikingly common but challenging, causing dramatic declines in food expenditures in those weeks. Both OIBM and other banks play a significant role in helping to manage these

weeks, but the contribution applies to a minority of cases. Informal inflows (i.e., the social safety net) play a far greater role. We will follow this look at shocks and conclude our usage analysis with a more general look at cash flow and the “lumps” that come with it.

XI: Managing Lumpy Cash Flows

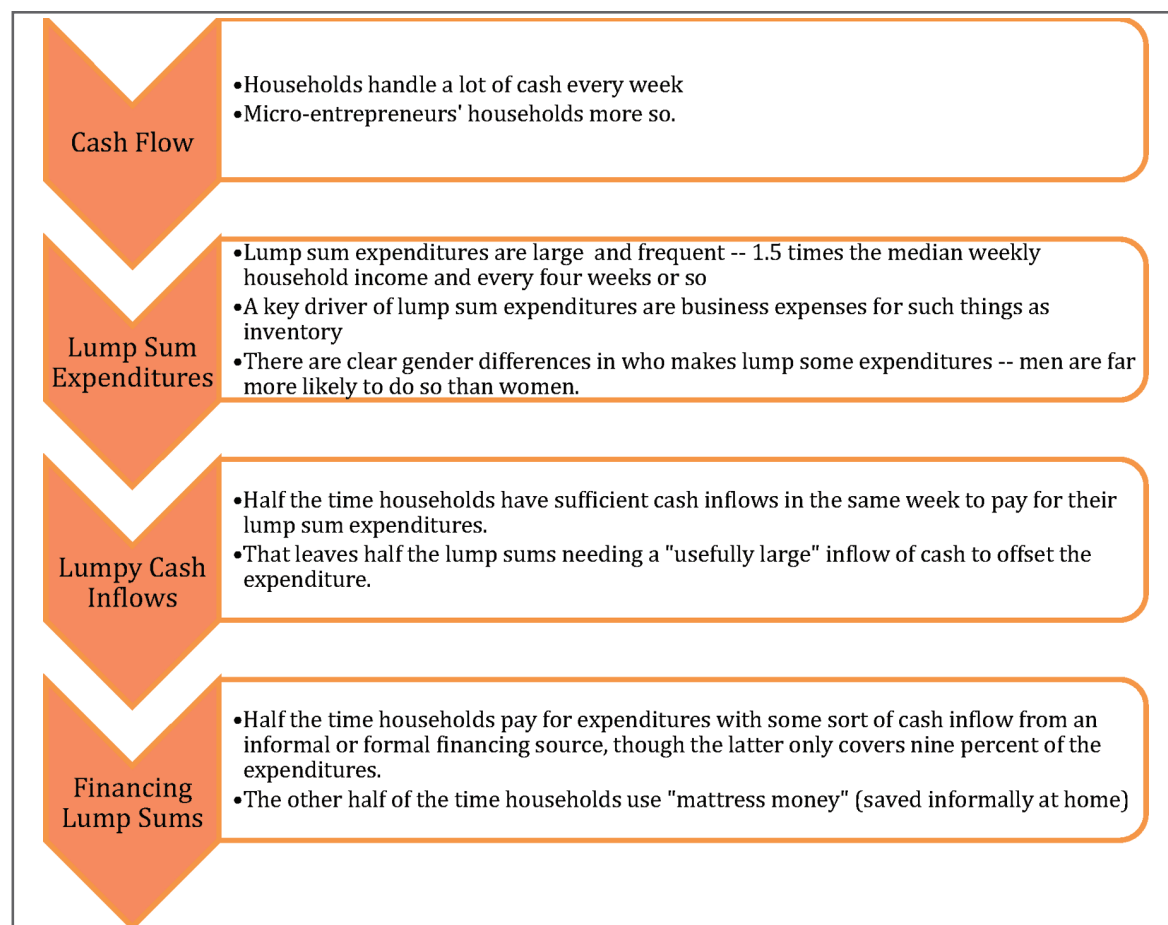
OVERVIEW

Households often need large lump sums to pay for a good or service. The lump-sum framework focuses our attention on the nature of those lump sums and the role of financial services in assisting customers to manage their cash flows to acquire useful large sums of money. In this chapter, we examine the cash flow and lump-sum landscape evident in our data and the role of financial services (as well as other instruments) in mediating those needs.

The analysis in the rest of this chapter follows a particular sequence that may not be familiar to the reader. To make this sequence easier to follow, this section provides a map and explanation of the sequence (see Figure Z).

The first section analyzes household and individual cash flows, focusing on gender differences. It shows that the households in our sample have high cash flows—almost twice of what they actually generate in income—and

FIGURE Z- MAP OF ARGUMENT ON LUMPY CASH FLOW



that our microentrepreneurial sub-sample has even higher cash flows—more than twice their income. We also show that men handle more cash than women both in absolute terms and relative to their incomes.

The high cash flows pose a challenge to the households in our study. This challenge is exacerbated by the fact that they are not handling a smooth flow of cash in and out, but a lumpy flow. We focus on lump-sum expenditures because they require the accumulation of “usefully large lump sums” (Rutherford, 2000) that constitute a market for financial service providers. But we acknowledge the fact that income also may be lumpy by investigating the extent to which lump-sum expenditures are paid for with cash flow. We start by identifying the number of lump-sum expenditures and find that they are large and frequent.

We then identify those covered by the cash inflows in the same week, by identifying lump-sum outflows that occurred in weeks when the household was in surplus, which, by definition, means that the cash inflows for that week covered all the cash outflows including the lump sums (about half the lump sum expenditures were thus covered). We then look at those that occurred in deficit weeks, when cash flow was not sufficient to cover all expenditures. We check to see whether the surplus from the immediately preceding week might have covered the lump sum, but find this

to be rare. So we are left with a group of lump-sum expenses that require the accumulation of a correspondingly large lump sum of cash. We focus particular attention to households with at least one microentrepreneur because the data tell us that a lot of the lump-sum expenditures are for business.

We then look to find where households get the money to pay for these lump sums. Do they use financial services from a bank? Do they rely on informal financial sources? Or do they use cash that they have accumulated at home known as “mattress money?”

As discussed at the end of the chapter, these findings from the Malawi Diaries suggest that there is a large, untapped market for microfinance services. They also provide such a service provider with some valuable insights on how to best serve this market.

HIGH-VALUE CASH FLOW

Households in this study handled a relatively large amount of cash. In addition, they often found themselves in situations in which they needed a lump sum of money to pay for something or transfer to someone else in a financial transaction.

Though the median household had a weekly mean income of \$55, the median household handled, on average, \$187 in cash per week (including all financial transactions). The median household’s business flows were, on average, \$108 (excluding loans, loan repayments, and savings account deposits and withdrawals) per week. The median microentrepreneur’s household handled \$210 in cash per week, while the median business flows were \$131, and the median net income was \$60 (see Table 36).

TABLE 36
HOUSEHOLD CASH FLOW STATISTICS

Indicator	All Households	Microentrepreneur Households
All Cash Flow*	\$187	\$210
Net Cash Income	\$55	\$60
Business Cash Flow*	\$108	\$131
Median Flow/Income^	1.77	2.31

* All cash inflows and outflows, including all financial transactions

^Median Flow/Income calculated separately from Median Net Cash Income and Median Cash Flow

In other words, more than 50 percent of the study households handled more than \$187 in cash, on average, every week. Furthermore, to generate \$1 of income, the median household had to handle \$1.77 related to their business, while households with at least one microentrepreneur had to handle \$2.31 of business-related cash to generate \$1 of income.

Breaking these data down by individuals, we find the median individual handled \$115; the median man handled \$183 per week, and the median woman handled \$93 per week. Men and women have a different ratio of business cash flow to net income generated: a man handled \$1.9 for every \$1 of net income he generated, while a woman handled \$1.25 for every \$1 she generated (see Table 37).

For male microentrepreneurs the ratio is \$2.32 to generate \$1, while for female entrepreneurs the ratio is \$1.87 to generate \$1 (see Table 38). As noted earlier, the male-female difference does not reflect that women are more efficient users of money, but rather that they are more likely to be the recipient of cash gifts, which we have counted as income in these calculations.

TABLE 37
INDIVIDUAL CASH FLOW STATISTICS

Indicator	Men (n = 93)	Women (n = 164)	Total (n = 257)
All Cash Flow	\$183	\$93	\$115
Net Cash Income	\$57	\$26	\$37
Cash Flow	\$98	\$46	\$63
Median Flow/ Income [^]	1.9	1.25	1.4

[^]Median Flow/Income calculated separately from Median Net Cash Income and Median Cash Flow

TABLE 38
MICROENTREPRENEUR CASH FLOW

Indicator	Men (n = 72)	Women (n = 114)	Total (n = 186)
Median Net Cash Income	\$57	\$26	\$37
Median Cash Flow	\$118	\$52	\$83
Median Flow/Income [^]	2.32	1.87	2.01

[^]Median Flow/Income calculated separately from Median Net Cash Income and Median Cash Flow

It is not surprising that in a cash economy where many people earn income by buying and selling goods, the amount of money handled each week is high. Nevertheless, given household income levels, the numbers might give one pause. Handling this amount of cash would not be an issue if it flowed in and out in matching amounts at points near in time to each other. But the data show that this is not how the flows occur.

A LANDSCAPE OF LUMP-SUM NEEDS

During the course of the study period of 73 weeks, the 157 households for which we have complete data made 5,110 lump-sum purchases of goods or services, approximately one every four weeks for the median household, with a median amount of \$75.¹

More than two-thirds (68 percent) of these payments were for business purposes, with the median household making a lump-sum purchase every nine weeks, in the median amount of \$120 (see Table 39).

Revisiting a Lump-Sum Typology

Low-income households spend lump sums on a variety of goods and services. Rutherford (2000) identifies three major categories: “life cycle” events, emergency needs, and investment opportunities. The first are events such as weddings, and, in our coding, the start of a new term at school for children. The second are needs such as the payment of a hospital bill or a funeral, or the repair of an asset required for its use. And, finally, an investment opportunity is an expenditure made in the expectation that it will yield some sort of return, monetary or non-monetary.²

¹ Our analysis calculated lump sums largely as statistical outliers. Working on an individual household basis, we took the average of non-financial, household expenditures per household and added three standard deviations. Financial transactions were excluded because this category includes transactions like bank deposits, which are technically outflows but do fit the profile of large expenses we want to focus on.

² It should be noted that the lump sum expenditures discussed here do not include loans or cash gifts, both of which could be expected to yield some sort of return.

TABLE 39
LUMP-SUM EXPENDITURES

Expenditure Purpose	Number of Lump-Sum Expenditures	Percent of Lump-Sum Expenditures	Amount of Expenditures		Weeks between Lump-Sum Expenditures	
			Median	Mean	Median	Mean
Business	3,457	68%	\$120	\$302	9.1	3.2
Household	1,544	30%	\$45	\$108	8.9	7.1
Other	109	2%	N/A	N/A	N/A	N/A
Total	5,110	100%	\$75	\$240	3.8	2.2

Our data are consistent with Rutherford’s typology, but suggest three adaptations. One is to distinguish between business lump sums and household lump sums. The respondents in our sample clearly differentiated between business and household expenditures, and this should be reflected in the typology of lump sums.

The second adaptation is to make important distinctions and sub-distinctions within the “investment opportunity” category Rutherford describes. In particular, our data suggest important sub-categories of household “opportunity” purchases—bulk food and agricultural input purchases. One way to think about the two sub-categories of household opportunity expenditures is to think of them as a reflection of the priorities and concerns of the households in our sample. We do not necessarily assume they are generalizable to other households in other places, but we do suggest that we

might find other sub-categories in other places that reflect the concerns of the households there. Our data also suggest that it is valuable to distinguish between working capital and fixed asset purchases by entrepreneurs for their businesses, if for no other reason than to highlight the dominance of working capital purchases.

Finally, in analyzing the expenditures reported to us by the households in our sample, we struggle to fit certain transactions into any of the three categories suggested by Rutherford. In particular, we point to lump sums spent on ordinary goods and services that were not prompted by a life cycle event, emergency, or an investment opportunity—seemingly everyday events, but of a scale that makes them unusual for the household in question. One example in our data were purchases of clothes for household use requiring relatively large sums of money. Table 40 provides a summary of our expanded and more detailed version Rutherford’s lump-sum categories.

TABLE 40
OUR REVISED TYPOLOGY OF LUMP-SUM NEEDS

Domain	Category	Sub-Category
Business	Opportunity	Working Capital
		Fixed Capital
	Emergency	
Household	Opportunity	Bulk Food
		Agricultural inputs
	Emergency	
	Life Cycle	
	Mundane	

Business Lump-Sum Expenditures

Microentrepreneurs spend lump sums on their business needs. Though such expenditures constitute investment opportunities, there is a wide variety of business needs that households meet with such expenditures. Microentrepreneurs have regular, but lumpy, expenditures to replenish their inventory. Related to this, they may spend money on transportation to enable them to travel to markets to buy or sell goods. An entrepreneur

may also buy goods on an opportunistic basis for re-sale, if they have the cash to do so.

The above examples are all instances where the lump sums are, essentially, working capital purchases. Some businesses also have fixed capital needs, and they make lump sum purchases either to buy new fixed assets for their business or to repair existing assets. We coded all the business purchases in our database according to whether they could be a fixed asset of some sort or whether the purchase was of something that was clearly working capital, such as food or secondhand clothes. Making this distinction between working and fixed capital was complicated and depended on the context of the business.

Our data suggest that almost all the business lump-sum expenditures were for working capital (see Table 41). Many of the microentrepreneurs in our sample bought and sold secondhand clothes or were tailors. Another large group was food vendors, of both prepared and unprepared foods. As a result, half the business lump-sum expenditures

in our sample were on clothing (either cloth or secondhand clothes) or food items such as produce, meat, or ingredients for prepared food.

Some of our respondents did not explicitly state the nature of their business purchases, but the pattern of records suggests that these expenditures were also regular inventory purchases. In addition, some of the microentrepreneurs bought and sold household items, a fourth sub-category of working capital purchases. It should be noted that the “agriculture” category of lump-sum business purchases was for the purposes of trading in agricultural inputs and outputs, rather than for use by the household (discussed below). Thus, most of the agricultural lump sum expenditures were purchases of tobacco for resale (81 out of 110), followed a distant second by the purchase of fertilizer and the illegal purchase of government-issued fertilizer coupons.

Our households reported two other categories of purchases that played an important supporting role in business activities: fuel and transportation. The purchases of fuel were dominated by expenditures on firewood and charcoal. There were six households in our sample who made 153 of the 170 lump-sum purchases of fuel reported to us. Five of these were also heavy purchasers of food and were using the fuel to cook food for sale, while one was buying charcoal and firewood for resale, part of a petty-trading business.

The transportation expenditures were dominated by bus fares (53 out of 125) and the activities of one entrepreneur who had an oxcart-construction business and made frequent, expensive purchases of oxcart parts (58 in total). For a bus fare to constitute a lump-sum purchase generally entailed long-distance travel. In many cases, our respondents reported the destination of these

TABLE 41
BUSINESS LUMP-SUM EXPENDITURES

Type of Expenditure	Number	Amount
Working Capital		
Agriculture	110	\$55,071
Business	681	\$338,864
Clothing	562	\$164,203
Other	84	\$40,064
Construction	43	\$3,834
Employment	59	\$16,976
Food	1,190	\$269,425
Fuel	170	\$4,913
Health	83	\$8,352
Household item	328	\$80,600
Transportation	125	\$48,004
Working Capital Total	3,435	\$1,030,307
Fixed Capital	10	\$10,732
Emergencies	12	\$4,175
Total Business Lump Sums	3,457	\$1,045,214

long trips, and though a majority of them were for journeys to and from Lilongwe, they also reported journeys to Chipata, the capital of the Eastern Province of Zambia, as well as Tanzania, Mozambique and South Africa. In total, our respondents reported over 1,500 other bus trips they took for business purposes.

There were strikingly few lump-sum expenditures on fixed assets. There were very few lump-sum investments in assets, 10 in total, reported by entrepreneurs in our sample. Of the \$10,732 spent on fixed asset purchases, almost \$9,000 was spent on a minibus, by one of the better-off households in our sample. The rest was spent on an assortment of small assets.

Finally, there was a small group of expenditures in our sample that were for repairs to equipment the entrepreneurs owned—12 in total. The entrepreneurs purchased spare parts for: a bicycle, cars, a minibus, an oxcart, a maize mill, and a computer. And, in the case of the minibus, the entrepreneur paid someone else to do the repairs. In our minds these constituted emergencies, in the sense that the entrepreneurs lost the use of their asset while it was in disrepair and so lost the ability to earn income from it.

TABLE 42
HOUSEHOLD LUMP-SUM EXPENDITURES BY CATEGORY

Type of Expenditure	Number	Amount
Opportunity	569	\$59,789
Emergency	27	\$2,247
Life Cycle	104	\$17,145
Ordinary	844	\$87,190
Household Lump Sums Total	1,544	\$166,372

Household Lump-Sum Expenditures

Households in our sample also made a large number of lump-sum purchases for household purposes (see Table 42 and Table 43).

As noted above, one significant category of such purchases was bulk food (e.g., maize, groundnuts, and chickens). To the extent that these purchases constituted an investment in the household's food security, one could argue that these bulk food expenditures were investment opportunities. But these purchases were qualitatively different from investments in maintaining the inventory of a business. Though there may have been financial returns in terms of cheaper prices, the returns were also non-financial insofar as they resulted in a reduction in the household's vulnerability to hunger.

Another important category of household purchases sharing some characteristics of investment opportunities were the expenditures on agricultural inputs, such as fertilizers and seed. These, again, offered sampled households a return, and, in many ways, they had a similar intent as the business working capital purchases (i.e., they were necessary investments to generate returns). Nevertheless, the agricultural nature of the activity and the fact that the activity was firmly within the household domain again makes these purchases qualitatively different from the business working capital purchases.

The other dominant category in our household lump-sum expenditures was the ordinary occasional purchases of goods on a scale that makes them outliers for the household in question. The category includes purchases of clothes, household items, bus fares, and rent payments. Median value of this group of expenditures was around \$40. At present, we do not have all of the answers in terms of explaining this category, but our thinking

TABLE 43
HOUSEHOLD LUMP-SUM EXPENDITURES IN DETAIL

Type of Expenditure	Subcategory	Number	Amount
Opportunity	Agricultural-seasonal	170	\$24,785
	Food in bulk	399	\$35,004
Opportunity Total		569	\$59,789
Emergency	Funeral	14	\$1,534
	Health	10	\$494
	Miscellaneous	1	\$15
	Transportation	2	\$204
Emergency Total		27	\$2,247
Life Cycle	Education	77	\$14,242
	Entertainment	1	\$569
	Food	4	\$261
	Marriage	11	\$1,415
	Miscellaneous	1	\$180
	Transportation	10	\$479
Life Cycle Total		104	\$17,145
Ordinary	Charity or Church	15	\$1,276
	Clothing	131	\$13,204
	Communication	40	\$2,681
	Construction	76	\$10,940
	Employment	95	\$10,451
	Entertainment	2	\$30
	Fuel	21	\$1,012
	Health	17	\$759
	Household Item	133	\$14,554
	Rent	76	\$7,175
	Leisure	54	\$3,326
	Miscellaneous	33	\$10,351
	Service	20	\$3,915
	Transportation	131	\$7,517
Ordinary Total		844	\$87,190
Household Lump Sums Total		1,544	\$166,372

tends to follow two possible trains. First, the households in our study, like Malawi as a whole, are very poor by international standards, but consumer goods in the country (nearly all imported) can be surprisingly expensive. Buying necessary items like clothes may simply entail “spikes” in spending that poor households expect and plan for. Second, though low-income households often struggle

to make ends meet, part of that struggle is to maintain a level of consumption that is consistent with the expectations of the culture in which they live, including the purchase of items that stretch the household’s budget. The cultural milieu of Malawi may compel Malawians to apply “spikes” in spending to certain areas of their lives, such as households items or clothes.

Second, households in our sample also made expenditures resulting from life cycle events, with school fee payments at the start of a school term being by far the most common (77 out of 104). There were few lump-sum expenditures resulting from emergencies, 27 in total. This suggests that households in our sample coped with emergencies through smaller expenditures or non-monetary means, as was noted in the previous chapter.

In sum, the households in our sample made lump-sum purchases for a variety of reasons. The most common were working capital purchases, reflecting the large number of microentrepreneurs in our sample. Following working capital purchases, were ordinary household purchases that were unusually large for the particular household in question.

Gender and Lump-Sum Needs

The expenditure of lump sums varies significantly by gender. The amount of men’s lump-sum expenditures exceeds those of women considerably. The median for married men was \$135, while the median for married women was \$75. The median for single women was \$40, though the difference in the amount spent reflects general male-female differences in amount spent (single men are excluded because of the small numbers involved).

Men’s dominance of the lump-sum markets especially shows itself in the number of large transactions they conducted. Married men made over half of the lump-sum transactions during the

TABLE 44
LUMP-SUM EXPENSES, BY GENDER

Non-Financial Lump-Sum Expenditures			
Gender and Marital Status	Number of Expenditures	Percent of Expenditures	Median Amount of Expenditures
Married			
Men	2,443	51%	\$135
Women	672	14%	\$75
Single Women Head of Household	1,393	29%	\$40
Missing	288	6%	N/A
Total	4,796	100%	\$75
All Non-Financial Expenditures			
Gender and Marital Status	Number of Expenditures	Percent of Expenditures	Median Amount of Expenditures
Married			
Men	42,965	26%	\$2.70
Women	64,094	39%	\$1.80
Single Women Head of Household	49,839	30%	\$1.80
Missing	8,060	5%	N/A
Total	164,958	100%	\$1.90

period of our study, although they only made a quarter of transactions generally (see Table 44).

Furthermore, these large transactions are more likely to involve men on both ends of the exchange than is the case for normal transactions (see Table 45).

This is to say, men dominated both ends of lump-sum transactions across our sample.

PAYING FOR LUMP-SUM NEEDS

In the abstract, to pay for these lump-sum outflows, a household has essentially four choices. First, earn sufficient income to be able to cover the amount out of its normal cash flow; second, accumulate cash within the home

over time in an amount sufficient to cover the lump sum; third, get a cash gift from a friend or relative to cover the cost; or fourth, use a formal or informal financial service that allows the household to either save for the lump sum or borrow it.

So how did the households in fact manage these expenses? The answer is “all of the above.” Our data suggest that about half the time households covered their lump-sum expenditures with their regular cash flow, and half the time they did not. When they did not, the data suggest that half the time they were able to use informal and formal financial inflows. Thus we estimate that households used “mattress money,” saved up over a period of more than a week preceding the

TABLE 45
GENDER AND LUMP-SUM EXPENSES BY TRANSACTING PARTNER

Non-Financial Lump Sum, by Gender of Exchange Partner			
Exchange Partner	Men	Women	Total
All Participants	88%	12%	100%
Non-Financial Overall, by Gender of Exchange Partner			
Exchange Partner	Men	Women	Total
All Participants	71%	29%	100%

TABLE 46
SURPLUS AND DEFICIT WEEKS ACROSS STUDY

Type of Week	Amount of Transactions	Percent
Deficit Weeks	6,639	60%
Surplus Weeks	4,396	40%
Total	11,035	100%

lump-sum purchase, to pay for a quarter of their lump-sum purchases.

Of the 11,035 household-weeks covered by the study, 40 percent of the weeks were ones in which the household ran a surplus, based on what they earned from their business and what they spent on their household and business, excluding all financial transactions such as loans, cash gifts, remittances and withdrawals from savings accounts (Table 46). In these weeks, the households were able to cover their lump sum purchases from the cash flow they generated in that same week.

Forty-six percent, or roughly half, of the lump-sum purchases occurred during these surplus weeks. And the median amount of those purchases was \$75 (see Table 47). In the other weeks, the households' income did not cover the cost of the lump-sum purchases. Our data show that 60 percent of the time that lump-sum needs came up, household cash flow was not sufficient to meet the need (this accounts for 54 percent of all lump-sum expenses).

Looking at this 60 percent in which household cash flow was not sufficient to meet the need,

nearly nine out of 10 instances show that households had no preceding surplus, or sufficient amount in the preceding week, to cover the cost of the purchases (see last line of Table 47).

This was a surprisingly common scenario across the sample. The median household faced this situation every six and a half (6.5) weeks, and the median amount of the purchases made was \$75 (see Table 47), more than the weekly median net income of the households in our study.

Microentrepreneurship as Driver of Lump-Sum Needs

As noted above, a lot of these lump sum purchases were driven by the business needs of the households. Most participants were replenishing inventory with more stock to sell or to produce the goods they ultimately sold.

Naturally, this is most apparent in the transactions by households that include at least one microentrepreneur. These households made over 90 percent of the purchases that occurred in weeks when the

TABLE 47
INTERSECTION OF LUMP SUMS AND DEFICIT/SURPLUS WEEKS

Type of Week	Number of Lump-Sum Expenditures	Share of Lump-Sum Expenditures	Amount		Weeks Between Expenditures	
			Median	Mean	Median	Mean
Surplus Week	2,360	46%	\$75	\$254	12.2	4.7
Deficit Week	2,750	54%	\$75	\$227	6.0	4.0
Deficit Week Without a Preceding Surplus	2,414	47%	\$82	\$240	6.5	4.6

TABLE 48
MICROENTREPRENEUR LUMP-SUM EXPENSES

Type of Week	Number of Lump-Sum Expenditures	Share of Lump-Sum Expenditures	Amount of Lump-Sum Expenditure		Weeks Between Expenditures	
			Median	Mean	Median	Mean
Business	1,483	29%	\$125	\$325	11.4	5.7
Household	685	13%	\$45	\$102	14.6	12.4
Other	41	1%	N/A	N/A	N/A	N/A
Total	2,209	43%	\$79	\$250	5.2	3.8

TABLE 49*SOURCES OF MONEY TO PAY FOR LUMP SUMS WHEN CASH FLOW IS NOT ENOUGH*

All Households	Number	Percent	Median
Formal Financial Services	196	9%	\$135
Informal Financial Services	981	44%	\$60
Mattress Money/Saving at Home	1,143	52%	\$120
Total*	2,414		\$82

household's regular cash flow could not cover the cost of the lump sum. The median microentrepreneur's household encountered this situation once about every five weeks for all types of purchases, and every 11 weeks for business purchases. The median amount of the business lump-sum purchases they made was \$125, more than twice their weekly median income (see Table 48).

Role of Financial Services in Managing Lump Sums with No Help From Cash Flow

We believe this to be the heart of the matter in terms of lump-sum analysis: households experience relatively large-sum needs that coincide with insufficient cash flow, on the heels of a week in which cash flow was low.

So again, how did our households manage?

Our data suggest that about half the time the households in such situations were using either formal or informal financial services to cover the costs of the lump-sum purchases they faced in these precarious situations.

Of the 2,414 lump-sum purchases fitting this description, 1,114 (46 percent) coincided with some sort of informal financial cash inflow, in the same or the preceding week. In other words, the individual cash exchanges, so prominent in the data discussed earlier, are playing a substantial role.

A total of 237 (10 percent) of these purchases coincided with some sort of formal financial cash inflow—a loan or a cash withdrawal. So

OIBM and its competitors are playing a role here, but a relatively small one. They help manage about one in 10 of these expenses, though in some cases they were doing so in conjunction with informal financial sources (see Table 49).

Given the dominance in our sample of households with at least one microentrepreneur, it is not surprising that the way they paid for these lump sums was no different from the sample as a whole.

The Role of “Mattress Money”

In all, about half of the purchases were either partly or fully financed by a financial inflow, formal or informal. That leaves about half of these purchases to be financed in other ways.

What other means of financing remain? For all the remaining lump-sum needs—nearly 1,000 individual purchases across our sample—participants appear to have employed a single option: financed with money that the household saved informally for a period of a week or more. That is to say, money stuffed under the mattress, or similarly stored around the house, or on the person of the participant. This was true for all the households in the sample, including microentrepreneurs (see Table 49).

IMPLICATIONS FOR OIBM AND THE FINANCIAL SERVICE INDUSTRY

These data suggest that there is an ample market for the services that banks provide. The households in our study handle a lot of cash,

FIGURE A2 - FIELD TEAM MEMBER (LEFT) AND RESEARCH PARTICIPANT



and they must regularly accumulate lump sums of cash that exceed their weekly incomes. These are relatively high-value lump-sum exchanges, amounts quite viable for a commercial institution like OIBM to intermediate.

Nearly half the time, the current solution for households facing a lump-sum expense is to use money that is stored away informally. Most of the rest of the time, participants used cash gifts from friends and family. Both of these instruments can be improved upon by substituting formal financial services. In sum, the situation presents real opportunity for a bank like OIBM.

The challenge for the formal financial service system is to design products and delivery systems that can add value for the customer. Based on the results of this study, we can point to a number of key features.

The service delivery system must enable the customer to easily access their money when and where they need it. The van certainly makes some inroads in this respect, but its schedule of once-a-week stops undercuts its ability to deliver timely interventions to its customers when they need it. We must bear in mind that the formal service will be competing with the convenience and immediacy of “mattress money” as well as associates, friends, and family.

The system must leverage all the advantages that formal systems bring to the financial

services market, especially security and fair-dealing. While not difficult for a properly managed commercial institution, security is critical as it may be the chief advantage of the financial-service industry enjoys over the practice of storing money informally at home.

Finally, the products must be ones that make sense for the customer; their terms and conditions must be determined with the cash flows of the customers in mind. In the case of Malawi, we have the advantage of a massive amount of cash-flow data to offer insights. For Malawian microentrepreneurs, for example, the product should be in an amount that is sufficient to cover expenditures that are twice their weekly income every three months or so, with a weekly payback schedule, and with the opportunity to access the money in multiple locations.

OUR STORY, FINAL PART

Our sample is a population with a strikingly high cash flow and a persistent need for large outlays of cash, especially among business owners. Sometimes the two match up, but often they do not. In the more dire weeks, formal financial services are playing a role, albeit a small one. As with shocks, informal inflows are far more significant, but so is money kept at home. All told, the findings suggest plenty of opportunity for an institution like OIBM to deepen its impact among this population. There is a large market for services that help accumulate the “usefully large lump sums” that informal sources strain to cover, but banks can manage quite easily.



Section 5: Conclusion

Where do we go from here—in particular, how can projects like ours aid the efforts of microfinance institutions like OIBM? In our final section, we provide some closing thoughts on Financial Diaries and the microfinance industry.

XII: Summing Up and Moving Forward

SERVING THE CLIENT WITH TRANSACTIONAL DATA

The microfinance sector owes its beginnings and subsequent successes to delivering credit to those excluded from the formal banking system. Attention then turned to building the infrastructure that would ensure profitability and scale and attract investors.

For nearly a decade, this process has sidelined the needs of the consumer. So long as the number of new accounts grew, despite frequently high rates of attrition, optimism about growth has prevailed. The basis for this confidence rested on the belief, still widely held, that demand for microfinance is unlimited and if an MFI opens its doors, the clients will come.

OIBM is serving the economically-active poor of Central Malawi in multiple ways, some of which link to the van as a delivery system and some of which do not.

The current mindset concerning clients is evolving. Experts are drawing a distinction between uptake and use of financial products. Further, MFIs are moving away from viewing clients as static consumers of financial services. Over the course of clients' economically-active lives, they age; they change economic activities; and their children grow up. In short, their financial needs evolve.

To date, most product innovation has been based on the identification of a purpose and the design of a product to meet that purpose. For example, health shocks are often the main reason that clients give for loan repayment lapses; in response, some service providers have turned to emergency loans and to a lesser extent health microinsurance as the answer.

The market research tools at the industry's disposal have not been systematically applied to understanding the financial management needs of consumers or changing demand. While traditional market research methods have proven adept at matching products to the use of financial services broadly defined, they do not provide the depth of information that comes from analysing transactions data.

We premised this study on the idea that aggregate transactions data provide a more accurate lens through which MFIs can view the financial preferences and behaviors of consumers, and, in turn, enable the MFIs to develop better products and delivery mechanisms. In essence, these data focus our attention on the terms and conditions of the financial products an MFI offers, as well as their delivery system. These are the key design variables of any financial product, rather than just the ultimate purpose of the product.

It is a new take on and extension of “client-led microfinance,” with insights drawn from use patterns long advocated by Cohen (2002), and enabled by a new and novel form of market

data. Now we can see use unfold in new subtle ways and in “real time,” as opposed to panel studies that might rely on months of recall.

IMPACT OF OIBM SERVICES AND INNOVATION

Successes

Clearly OIBM is serving the economically-active poor of Central Malawi in multiple ways, some of which link to the van as a delivery system and some of which do not.

OIBM clients appear to be relatively strong and consistent savers compared to clients of other banks. Though the volume is relatively low compared with savings activity, OIBM is also serving this market with loans. This fact makes OIBM virtually unique in the commercial bank market of Central Malawi.

There is strong and varied evidence that OIBM has developed a particular niche in serving women. As economic conditions declined across the sample during 2008-2009, OIBM appears to have more of a mediating effect for its female clients than its male clients. In short, OIBM women weathered the difficulties better, and the bank likely played a role in that. As a delivery system, the van also served women better than men. Distance and convenience, the chief advantages of the van, appeared to be more important to women.

Challenges

OIBM's primary innovation did not sustain its relevance in terms of use patterns within the sample. As the product settled, use declined. To a considerable extent, this is to be expected. A flashy innovation like the banking van inevitably will generate an “enthusiasm effect” whereby many early adopters come on board but only more serious and viable clients remain over time.

In the context of declining conditions, use of OIBM did not prevent decline in household

income. The OIBM clients were on par with or worse off than other bank clients in terms of income levels over time. The extent to which this reflects on OIBM's products and delivery is debatable and probably limited. One potential interpretation is that there were economic forces at work that had nothing to do with the banks.

The evidence suggests that OIBM is losing out on business because of lack of penetration into the direct-deposit market. The bank has concentrated efforts on capturing some of this market in recent years, but our study suggests that the impact has been nominal, compared with competitors like NBS, at least in terms of our subpopulation.

Finally, all banks, including OIBM, are leaving money “on the table” that could be banked. This issue will be picked up more below.

INSTITUTIONAL IMPLICATIONS OF CASH FLOW AND LUMP SUMS

Despite the low income, the amount of cash circulating among these Malawian consumers is striking, which is a clear affirmation of one of the major points of *Portfolios of the Poor*. It is also abundantly clear that cash flows and cash needs among these consumers are unsteady—a point made in *Portfolios* as well as other recent development literature (cf. Asfaw, 2004). There are periodic demands for and allotments of large lump sums, in amounts that seem rather staggering in light of the per capita and household income levels.

The lump-sum needs presented by this client base are highly appropriate for bank engagement. Minor sums required every week, for example, would be a much less bank-friendly finding. (The transaction costs required to serve minor lump-sum needs will quickly outweigh profitability for a bank.) All banks in this market might think strategically about capturing share of flow to help pay for

lump-sum expenses. These are operational issues that banks might address in any numbers of ways.

One clear point is that these rural consumers require wide, flexible access to any financial service set up to meet lump-sum needs.

Business-related bridge loans or flexible lines of credit are two possibilities that come to mind on the credit side. Alternatively, contractual savings products requiring small, regular contributions, perhaps collected via a mobile banking van, could help consumers save up to meet such needs. A savings-based strategy, with savings playing an insurance role vis-à-vis lump-sum needs, finds proponents among many leading microfinance researchers (e.g., Robinson, 2001; Robinson, 2006; Barrientos et al., 2009). A savings intervention would likely need to be packaged as part of a broader rural savings mobilization strategy, emphasizing incentives to save, in the manner advocated by various researchers both past and recent (Adams, 1978; Basu, 2006).

One clear point is that these rural consumers require wide, flexible access to any financial service set up to meet lump-sum needs (Ibid.). Some lump-sum needs are predictable, but many occur without warning or sporadically. Clients need wide, flexible access from their financial service providers to meet these needs.

INSTITUTIONAL IMPLICATIONS OF GENDER FINDINGS

In multiple ways, OIBM services appear to be a more effective intervention for women than for men—a finding consistent in many ways with the gendered dimensions of other recent Africa-based studies of savings-led

microfinance (cf. Dupas & Robinson, 2009). Certainly, convenience vis-à-vis the van seemed to be more important to women than men. A likely explanation for this is that women have more trouble leaving the home with regularity and traveling substantial distances to a bank as compared to men. It is an interesting gendered finding: women may value convenience over flexibility (cf. Morduch & Rutherford, 2003), given the van's once-a-week stops, while the evidence suggests the opposite is true for men.

Yet, our findings suggest that the economics of serving women are more challenging. Their lump-sum transactions were half the size of men's, meaning they are much less viable as bank customers. This may be a critical consideration for institutions in Malawi interested in bridging the gender gap.

Given their greater reliance on cash gifts, creating a cost-effective and convenient cash transfer system would likely serve women well. Moreover, there is space for bank intervention whereby the institution helps women receive those gifts cheaply and safely if senders are far away (i.e., an effective remittance service, like Kenya's M-Pesa). Banks might also help women to set aside their cash gifts for lump-sum accumulation in a secure place (i.e., a savings account) to meet the lump-sum needs that inevitably come.

NEXT STEPS IN DIARIES RESEARCH

The current study extended existing Diaries work by using the data to evaluate a specific intervention. We also innovated by analyzing transactions at three levels (unit, household, and individual) and by aggregating data from a relatively large sample. We also developed analytical frameworks around cash flow, lump sums, and gender, which we anticipate applying in future projects.

Replicating the research in more dynamic and diverse economies will provide us with a broader understanding of the lives of the poor and how they use the financial services available to them. We will then be able to say whether the findings discussed in this report, drawn from Central Malawi, are unique or common. We also hope to test other innovations including

cash transfers, savings, and gender-specific products. Finally, we aim to test and develop analytic frameworks further. The Financial Diaries methodology holds great promise for understanding elements of clients' financial preferences and behaviors. These applications are still in their infancy, and we will continue to develop the Diaries as a practitioner's tool.

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