THE SILC FINANCIAL DIARIES

Expanding Financial Inclusion in Africa Research Program

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Executive Summary

PROJECT BACKGROUND AND RESEARCH QUESTIONS

In 2014, Catholic Relief Services (CRS) launched a two-year Financial Diaries project in Kasama, the capital of Zambia's Northern Province, to understand the experience of low-income households that participated in the organization's Savings and Internal Lending Communities (SILCs or SILC groups). The project included 270 households—135 SILC households and 135 comparison households—that lived in peri-urban and rural areas around Kasama. The households were very poor—roughly 96 percent of SILC households and 92 percent of comparison households lived below the International Poverty Line of $1.90 per person per day.

CRS asked Microfinance Opportunities (MFO) to analyze the Financial Diaries data to answer a series of research questions about the SILC program. Broadly, CRS had four categories of research questions:

Category	Research Questions
Income, Expenditures, and Financial Tool Use	How do SILC households earn and spend money?
	Do they earn and spend money differently than non-SILC households?
	What financial tools do SILC households use?
	Do they use different services than comparison households?
	Do they use the same services in different ways?
SILC Use and Poverty	How frequently do they use the savings and loans facilities that the groups offer?
	How does the use of these services change over time?
	What do SILC households do with the funds they receive from SILC groups?
	Is there a difference in how relatively poorer households within villages use SILC services compared to relatively better-off households?
Managing Cash Flow	How do SILC households manage their cash flow?
	How does their cash flow management change in response to major cash flow events in their lives?
	How are SILC and comparison households' cash flow management strategies different?
Gender and Economic Activity	Are there differences between the cash flows of men and women living in the same households?
	Are these differences the same between SILC and comparison households?

SUMMARY OF FINDINGS[1]

Income, Expenditures, and Financial Tool Use

SILC households were more likely to engage in input intensive activities like farming or running a micro-business than comparison household were. These input intensive activities meant that SILC households had much larger *gross* cash flows than comparison households, earning large gross incomes and spending more on business inputs.

However, SILC and comparison households had the same average net incomes and the similarity was consistent *throughout* the course of the study, which implies that there was no significant growth in the net incomes of SILC households due to the program during the 24-month study.

SILC and comparison households spent roughly the same amount on similar sets of goods for the home each week. Households spent most of their money on food and household items.

The two groups also used similar types of non-SILC financial tools, although SILC households used them more frequently and with larger sums of cash, likely because of their need to manage larger gross cash flows.[2] Households used home savings most frequently, and SILC households used home savings more often than comparison households did. Informal cash transfers were the second most common financial tools used, although this was concentrated in peri-urban areas. Small numbers of households were responsible for most of the reported informal borrowing activity and the limited use of formal financial services.

SILC Use

SILC households made a deposit into their groups about three times a month on average and they received a loan from the group once every four months on average. The use of the SILC savings device allowed households to store money in a more secure location—the group lockbox—than at an unsafe location in their home. The data also show that the frequency of SILC savings deposits oscillated over the study period, and the average size of those deposits trended upward before declining during the last months of the study. The frequency with which SILC households took loans remained relatively steady throughout most of the study before declining slightly at the end of the project while the average size of the loans they received increased.[3]

There was no association between a household's level of wealth and the frequency and size of its SILC savings deposits. Similarly, there was no relationship between household wealth and the frequency of SILC loan use. This may be a consequence of individual groups having different group rules or different cultures.[4]

SILC households used the money they saved to double the frequency with which they made lump sum purchases for household use. Most of these purchases were on goods or services one would expect to improve households' quality of life, such as agricultural inputs, construction materials to improve homes, and

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[1] The findings from this report contribute to the extensive research on savings groups. That research has found generally positive impacts from savings group but there is much variation in results from project to project. Gash and Odell (2013) provide a useful overview the results from seven randomized control trials. More recently, Karlan, et al., (2017) shared their results of a large, three country randomized control trial of savings groups.

[2] There are four types of financial tools: savings, loans, cash transfers, and insurance. Individuals and households use these tools in formal and informal networks. The more combinations of tools and networks an individual or household uses, the more diverse their cash flow management toolkit.

[3] Some groups performed very well during the study while others did not, but group failures were rare (only one occurred very late in the project). Consequently, these trends are representative of the experience of the seven groups and outliers do not bias the results upward or downward. We discuss group performance and their experiences in-depth in Chapter 4.

[4] Groups set a variety of rules in their group constitutions. The groups in the study typically had a deposit minimum of 2 or 5 kwacha and a deposit maximum of 100 to 500 kwacha (one group had a limit of only 30 kwacha). However, households typically deposited amounts closer to the lower-bound, and households in the same group deposited similarly, suggesting a potential social-effect on deposits.

children's education expenses. Additionally, the households increased the frequency of lump sum purchases for business use, suggesting that they were using SILC tools to invest in their businesses. Non-lump sum spending also increased after receiving a share-out. On average, households used the total value of the SILC share-out within a month. SILC households also used loans to increase their frequency of lump sum purchases, but the effect was not as large as the effect of share-outs.

Poorer households increased the frequency with which they made lump sum purchases by a larger proportion than better-off households did after receiving a share-out. The most significant increases were in the payment of school fees and household asset purchases. Since poorer households were very asset-poor, this finding suggests an outsized positive effect of share-outs on poorer households.

Managing Cash Flow
On a day-to-day basis, SILC and comparison households relied on their income and home savings to fund household and business purchases.

When they received a windfall of income, SILC households and comparison households increased their expenditures. SILC households also drew more money in from financial tools in these weeks, but comparison households did not. When earning no income, households relied primarily on home savings and their informal networks. SILC households increased their reliance on SILC financial tools slightly, indicating that SILC assists with consumption smoothing.

SILC households used a mix of income, home savings, informal financial services, and their SILC groups to fund lump sum purchases. Comparison households used a similar set of non-SILC funding sources to make lump sum purchases.

Even when not spending any money, SILC households engaged with their financial networks, primarily so they could make SILC deposits and SILC loan repayments.

Gender and Economic Activity
Patriarchs—the male economic leaders in a household— earned more gross and net income than matriarchs—the female economic leader in a household—did. Patriarchs spent more money than matriarchs did on average, and there were gender-based differences in how they spent their money. Matriarchs spent more on food for the household while patriarchs spent more on other categories like agriculture, construction, education, and transportation.

One of the ways matriarchs managed cash shortfalls was by receiving intra-household transfers, typically from patriarchs, but they used other financial tools as well. Patriarchs in comparison households were able to cover these intra-household transfers from their net income. SILC household patriarchs could not cover the transfers with their income. They had to use financial tools instead, and one of the ways SILC patriarchs did that was by moderating the amount of money they deposited into SILC groups. Relative to patriarchs, matriarchs deposited more money into their SILC groups and received larger share-outs. They also accessed larger loans from their groups. However, since matriarchs relied on transfers from patriarchs, patriarchs financed a portion of this SILC activity.

INSIGHTS AND IMPLICATIONS

The analysis of the Financial Diaries data shows that the SILC program enabled SILC households in Kasama to accumulate large sums of cash through savings or through accessing loans. It also showed that households used these lump sums of cash to make purchases that should improve a household's quality of life. For instance, the poorest SILC households invested in their children's education and purchased household assets. Better-off households purchased assets too as well as construction materials to repair and improve their homes and plots.

Furthermore, the speed with which households used the share-out on these items underscored both how cash poor these households were and how important share-outs were—they spent most of their share-out in

the week they received it and spent the remainder within a month. Additional data show that SILC services figured prominently when households did not earn any income, which suggests that households used SILC services to increase resilience to the fluctuations in their cash flow.[5] This, along with qualitative data about the value of SILC groups, suggests that SILCs were making meaningful contributions to the well-being of households.

However, the data also show that SILC households did not experience growth in their net incomes over time that could be attributable to participation in the SILC program. This was not necessarily for a lack of trying. In addition to increasing the frequency with which they made household-related lump sum expenditures, SILC households also increased the frequency with which they made business investments. Together, these data suggest that households were either unsuccessful in increasing the margins of their business endeavors after increasing their investment *or* that SILC services did not have an additive effect on investment. Instead, lump sums from SILC share-outs and loans allowed households greater flexibility as to *when* they chose to invest. [6]

The finding that SILC services allowed for marginal improvements in household well-being is positive, but the data also raise important considerations for CRS as they continue to promote these groups. For instance, households' behavior was clustered in their groups, and the data showed that the frequency with which households interacted with their groups trended downward over time. These patterns raise important questions for CRS to address with future research: What are the characteristics of the high-performing groups? What can CRS do to foster those characteristics in low-performing groups? Furthermore, to the degree CRS is interested in influencing the use of the financial tools, how can CRS use SILC groups to deliver interventions that *could* increase net incomes over time?

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[5] It is also possible that households purposefully earned less money in anticipation of receiving a large sum of cash.

[6] Since the study did not follow SILC households before they began participating in the group, we cannot check to see if the timing of investments shifted in a meaningful way.

CHAPTER 1: PROJECT BACKGROUND

In 2013, Catholic Relief Services (CRS)—with support from the Mastercard Foundation—launched the Expanding Financial Inclusion (EFI) program. Using its iteration of savings group, called Savings and Internal Lending Communities (SILCs), CRS aimed to expand financial access to vulnerable households in Burkina Faso, Senegal, Uganda, and Zambia.

As part of this expansion, CRS launched a two-year Financial Diaries project in Kasama, the capital of Zambia's Northern Province, to understand the effect of SILC membership on a household's ability to manage its cash flows and generate wealth. To examine those issues, a team of field researchers visited 135 SILC households and 135 comparison households each week to collect data on their earnings, expenditures, SILC use, other financial tool use, and major household events beginning in August 2014.

SILC METHODOLOGY

CRS' SILC methodology is a savings-led microfinance approach that provides a safe place for low-income households to save and borrow. The SILC methodology has its roots in traditional community-based rotating savings and credit associations, but it has been adapted and improved upon. SILC groups consist of 15 to 30 self-selected members that generate, own, and manage all of the funds.

The model asks group members to meet once a week and deposit cash into a savings fund and a social fund. As the group increases their cumulative savings, members can access loans from the savings fund for investment or consumption and pay back the principal and interest into the loan fund. Members also have access to interest-free loans and grants from the social fund in case of an emergency in the household. The group records all of these transactions in a group ledger book that ensures accountability, security, and transparency. After a pre-determined time (normally between 8 and 12 months) members share-out their savings and the profits they have earned from the pooled interest generated from the loans.

At the end of June 2017, EFI Africa had reached more than 545,000 households in the program countries.

FINANCIAL DIARIES RESEARCH DESIGN

Financial Diaries Methodology

The Financial Diaries is a panel survey that collects data on households' financial lives. In its most common iteration, a Financial Diaries study involves a team of enumerators visiting the same group of respondents or households every week for a year.

During each interview, an enumerator will capture data on:

- All purchases of goods and services for household use or for use in a business;

- All inflows from the sales of goods and services or from employment;

- Use of formal financial services such as banks, mobile money providers, or non-governmental organizations;

- Use of informal financial services like village moneylenders;

- Transfers of cash between associates, family, and friends;

- Home-based savings, like keeping money in a wallet or stored under the mattress;

- In-kind transactions such as the bartering of goods or the purchase of items on credit; and

- Events that occurred during the week, such a birth, funeral, or medical event

For each transaction type, the survey collects four types of details:

- Temporal: when the transaction occurred, including recording the week and day of the week;

- Descriptive: the type of transactions that were performed including whether it was an inflow or outflow; a description of the good or service purchased or sold or a description of the financial tool used; and whether the item was intended for household use or for use with a business;

- Spatial: where the transaction occurred; and

- Network: which household member performed the transaction and who that transaction was performed with, including the gender of those parties if applicable

This approach to studying financial behavior has multiple benefits. The panel nature of the survey allows for more accurate measurement of the frequency and magnitude of different transaction types because of the number of interviews conducted. The longitudinal nature of the study allows for the analysis of trends and coincidences of events in time, such as analyzing how the use of financial tools changes when a household member becomes ill. Additionally, the detailed nature of the data allows for in-depth case studies of individual households.

Research Questions

CRS formulated several research questions at the outset of the study to guide the development of the research design. The research questions included:

- How do SILC households earn and spend money? Do they earn and spend money differently than non-SILC households?

- What financial tools do SILC households use? Do they use different services than comparison households? Do they use the same services in different ways?

- How do SILC households use SILC services?

  - How frequently do they use the savings and loans facilities that the groups offer?

  - How does the use of these services change over time?

  - What do SILC households do with the funds they receive from SILC groups?

  - Is there a difference in how relatively poorer households within villages use SILC services compared to relatively better-off households?

- How do SILC households manage their cash flow? How does their cash flow management change in response to major cash flow events in their lives? How are SILC and comparison households' cash flow management strategies different?

- Are there difference between the cash flows of men and women living in the same households? Are these differences the same between SILC and comparison households?

Research Design

CRS's research questions necessitated that the project include data collection over a long enough period to be able to capture the effects of SILC participation on member-households. Since group cycles last eight to 12 months, CRS targeted a data collection period of 24 months, which would allow researchers to observe two to three group cycles. Additionally, the research questions necessitated the inclusion of a comparison group to confirm that changes observed in SILC households' behavior were likely the result of the SILC methodology and not related to an event or intervention that affected the community generally.

CRS located the project in Kasama, the capital of Northern Province in Zambia. CRS randomly chose seven villages from 48 villages in the region that contained newly formed SILC groups. If all group members agreed to participate in the study, enumerators enrolled those members and all economically active adult members of those members' households. If participation from group members was not unanimous, CRS selected an alternate village.[7]

CRS selected the comparison group from within the same communities that contained the SILC groups using a modified matched pairs approach. Enumerators asked enrolled SILC members for households that were "like them" with regard to:

- Age of household members

- Family structure (single with children, single and no children, married with children, and married with no children)

- Primary livelihood

- Food security level

Enumerators visited the comparison households to verify this match and enroll the household members into the study, if they agreed to participate. Like the SILC households, enumerators enrolled all economically active adult members.

The target sample size was 280 households, evenly divided between SILC groups and comparison groups and between villages. In practice, this meant a target of 20 SILC households and 20 comparison households in each of the seven villages.

Additional Data Sources

In addition to the Financial Diaries, CRS conducted the Progress Out of Poverty (PPI) survey for each household at the start and end of the project. At the end of the project, CRS and MFO performed an adapted participatory wealth-ranking (PWR) exercise, with the aim of triangulating results from the PPI. Additionally, CRS and MFO conducted 42 in-depth interviews to understand households' experiences better.

IMPLEMENTATION

CRS contracted a local implementing partner based in Kasama to administer the sampling procedure and collect data for the duration of the study. A team of consultants based in Malawi trained the enumerators in the Financial Diaries methodology, including the data collection protocol and data entry procedure. The data collection process at the start of the project relied on paper data-entry sheets that a team of data clerks entered in to an Access database. Approximately one-third of the way through the study, the enumerators began transitioning to a mobile-handset data collection platform designed exclusively for CRS's Financial Diaries project. This transition was complete by Week 40.

About nine months into data collection, CRS contracted Microfinance Opportunities (MFO) to launch an audit of the Financial Diaries project with the goals of confirming the completeness and accuracy of data collection and implementing process improvements for the second year of the project. That audit identified a series of data collection and entry challenges that affected both the paper data entry and electronic data entry processes.

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[7] CRS chose this approach because their experience with other projects suggested that participation by some, but not all, households could eventually lead to strife within the group, negatively affecting the study, the SILC group, and the community.

Paper Data Entry Period: Weeks 1 to 40

During the audit, MFO identified an error in the data entry system employed by CRS. The error meant that the database was not properly identifying which transactions belonged to which households or when the transactions occurred. By the time MFO identified this issue, data clerks had entered 34 of 40 weeks of data into the database, but none of the digital records were usable.

Re-entering almost nine months of data would have been too costly and time-consuming for CRS, but including this data in some way was important as it showed economic trends during the start of the project. To balance these competing priorities, CRS—based on advice from MFO—chose to re-enter a random set of 2,000 household interviews. This sample would allow for the identification of trends during the first 40 weeks with a high level of confidence. In other words, the data presented from this entire period should be representative of the data that enumerators collected, with estimates having a margin of error of +/- 2 percent. However, the accuracy of estimates of sub-groups (like analysis of village-level differences) would have higher margins of error. Consequently, readers should treat with care any analysis that includes trends of activity before Week 40 that are disaggregated into sub-groups.[8]

The audit also uncovered that enumerators were systematically excluding home savings transactions—instances in which a household put money into or removed money from a safe space at home—during interviews. This was problematic. Home savings is an important financial tool for low-income households, and it is often the most commonly used financial tool, so its inclusion in the data was critical to understanding economic behavior generally.[9]

Additionally, the audit revealed that enumerators had not been completing balance checks to ensure that they had captured all inflows and all outflows in a week. A balance check ensures that the value of cash outflows is equal to the value of cash inflows—the nature of the Financial Diaries methodology CRS employed necessitates that this is the case. Enumerators did ask appropriate questions about income earned and expenditures made. However, the audit revealed that without the balance check, enumerators were missing transactions; frequently those transactions were home-based savings transactions.

With support from MFO, CRS held a training session immediately after learning that enumerators were not properly collecting savings transactions and not completing balance checks. This training session was successful in improving these aspects of data collection—within a month of the training, enumerators were consistently collecting savings transactions and performing balance checks. However, the data collection challenges introduced a downward bias to estimates of households' economic activity by undercounting the frequency and total value of cash transactions, especially savings transactions. Thus, while estimates may be representative of the original, collected data, the data itself may underreport households' true levels of economic activity.

Electronic Data Entry Period: Week 41 Onward

Following Week 40, CRS's field team transitioned from using the Access database to a proprietary mobile-based data entry platform. In many ways, this change was beneficial. The switch to an electronic system allowed CRS to incorporate data quality checks into the daily data collection process, improving quality. However, it also presented a new set of challenges.

First, enumerators faced several technical challenges including the reliability of the mobile devices and cellular network. Second, enumerators' work increased because CRS asked them to enter data onto paper sheets in addition to the electronic system, a measure to protect against failures of the mobile-based system.

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[8] The average number of households represented in each week of data from Week 1 to 40 is 51. This breaks down to approximately 25 SILC households and 25 comparison households per week. Estimates of SILC and comparison groups based on data from this group have a margin of error equivalent to +/- 20 percent. Within each village, the data includes 3 to 4 treatment households and 3 to 4 comparison households on average.

[9] Multiple Financial Diaries studies including the Zambia Financial Diaries, completed by MFO, have described low-income households' reliance on home-based savings options.

However, facing longer hours, not all enumerators consistently complied with this directive during the first months of the transition.

CRS experienced further data loss from Week 41 to Week 61 because of these two circumstances, and most of that data loss affected the comparison group in the villages of Lwawbe and Ngulula. Consequently, data from this period are less representative of the comparison group generally. Specifically, since households in Lwabwe had average economic activity and households in Ngulula had above average activity, their absence biases estimates of comparison economic activity downward. However, data loss was not as widespread as during the first 40 weeks. Enumerators successfully captured 67 percent of possible household interviews during this period.

CRS responded to the challenges presented by electronic data by instituting a series of quality assurance processes to ensure that electronic data entry was complete for all enumerators on a weekly basis. This substantially improved data collection during the second year of the project. After Week 61, enumerators completed 94 percent of possible household interviews.

CHAPTER 2: SAMPLE DESCRIPTION

SUMMARY OF FINDINGS:
- The final sample included 270 households evenly divided between SILC households and comparison households. These households were located in seven villages—three in peri-urban areas and four in rural areas.
- There were more women in the study than there were men, and there were proportionally more women in the SILC households than in the comparison households. The women had less formal education than the men did.
- The households in the survey were very poor. Ninety-three (93) percent of households in the survey lived below the International Poverty Line of $1.90 per person per day. Of the SILC households, almost 96 percent lived below the International Poverty Line
- CRS used an adapted PWR exercise to evaluate whether SILC households were relatively poorer than comparison households *within* villages. In four of the seven villages, more households in the SILC groups were considered relatively better-off than they were relative poor. In five of the seven villages, there were more better-off comparison households than there were poor comparison households.

RESEARCH SITES

The final sample included 270 households. There were 135 SILC households and 135 comparison households that were located in one of seven villages. While there were an equal number of SILC and comparison households at the sample level, there were minor differences within the villages.

Figure 1: Distribution of SILC and Comparison by Village
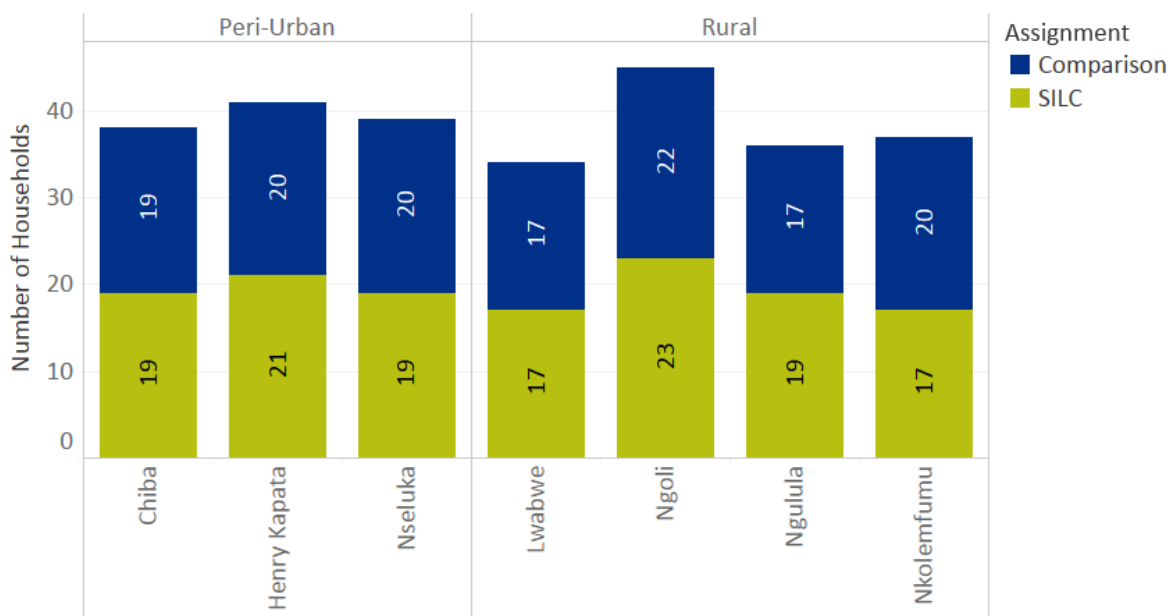
The closest major town to the villages is Kasama, the capital of Northern Province. While provincial, Kasama is an established urban center with several banks, mobile money operators, formal grocery stores, and public services. All the villages in the sample are within 50 kilometers from Kasama, but these villages are diverse, affording different opportunities to their residents. For instance, households that live in the peri-urban villages of Chiba, Henry Kapta, and Nseluka have better access to the resources provided by a town including better market access, livelihood opportunities, and public services. Households in the rural villages of Lwabwe, Ngoli, Ngulula, and Nkolemfumu have more limited access to these benefits.

DEMOGRAPHICS

There were 444 economically active adults living in the 270 households under observation. One hundred and sixty one (161) households included two economically active adults while an additional 103 households had one economically active adult. There were five households with three such adults and one household with four economically active adults. There were six more economically active adults in comparison households than in SILC households. Most of the adults were women, and there was a higher proportion of women participating in the study as members of a SILC household than as members of a comparison household.

Table 1: SILC and Comparison by Gender

	Male	Female	Grand Total
Comparison Household	92	133	225
SILC Household	75	144	219
Grand Total	167	277	444

The average age of the sample was 42 years old, and men were typically older than women were. The men in the sample also received more formal education than women did in SILC and comparison households.

Table 2: Years of Education by Gender

|	5 Yrs or Less	6 to 8 Yrs	9 to 12 Yrs
Male	14%	37%	49%
Female	37%	42%	21%

The households in the sample had an average of about six people per home.

REACHING THE POOR

Researchers can identify whether households are poor by comparing indicators from a sample to established benchmarks. The most cited benchmark for poverty is the World Bank's International Poverty Line, which classifies an individual living on less than $1.90 per day as living in extreme poverty. The World Bank describes an individual as living in moderate poverty if their income is between $1.90 and $3.10 per day.[10]

The Financial Diaries data show that about 95.6 percent of the SILC households in the study were below the extreme poverty benchmark, 3.7 percent of SILC households were between the extreme and moderate poverty benchmarks, and just less than one percent of SILC households were above the moderate poverty benchmark.[11]

Figure 2: Cumulative Distribution of Households, Net Income
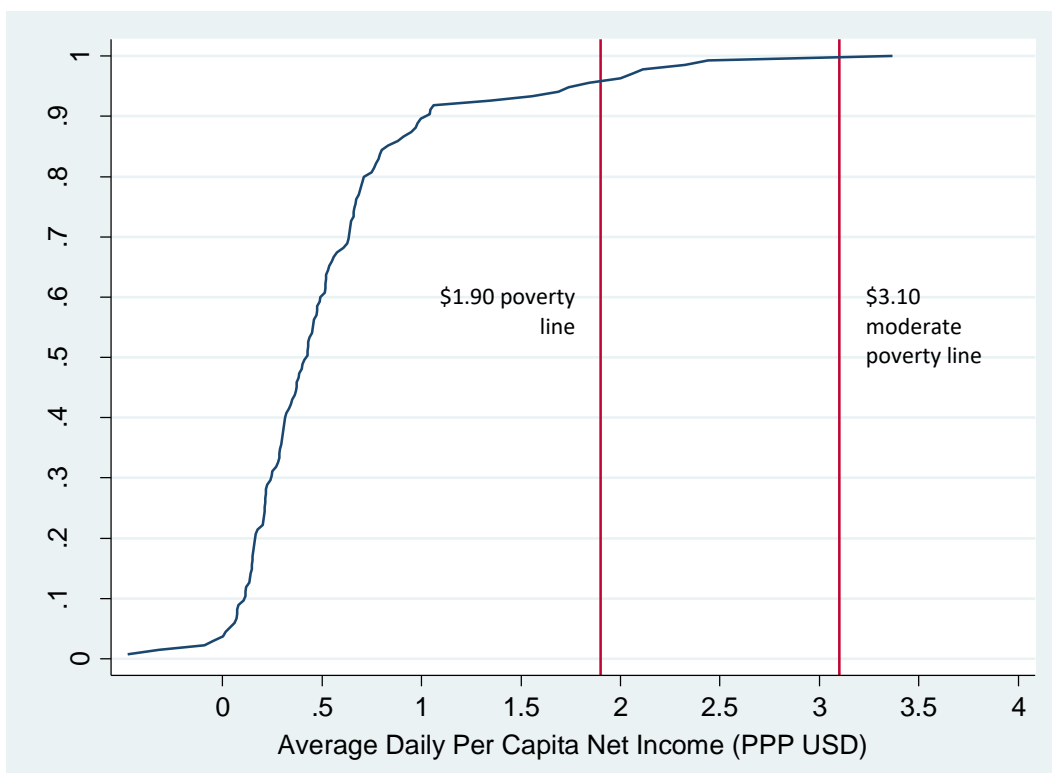
In addition to understanding the poverty levels of SILC households, CRS was interested in understanding how poor SILC households were relative to other households within the same communities.

To gain a sense of how the SILC households related to their communities, CRS employed an adapted PWR exercise. PWR exercises use people with local knowledge like community leaders or a sample of residents to rank households within a community from wealthiest to poorest. CRS had an excellent resource for this activity in the study's enumerators. The enumerators lived in the villages in which they collected data and they had performed two years of data collection. This gave them a good understanding of their village's wealth and the relative position of SILC households. Thus, for the exercise, CRS asked enumerators to rank households from wealthiest to the poorest and then to break households into four buckets: well-off, managing, poor, and very poor. Based on analysis of the net income data from the Financial Diaries and of the

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[10] The World Bank adjusted the International Poverty Line to $1.90 from $1.25 as of October 2015. The poverty line reflects net income—the money available to pay for living expenses like housing and food.

[11] MFO based this figure on the average daily per capita net income of households. MFO used the average weekly net income during the study to determine daily amounts and used all household members, including children, to determine per capita income. MFO adjusted the data from kwacha to United States dollars using the official 2015 World Bank exchange rate and purchasing power parity conversion factor as of April 26, 2017.

results of PWR exercise, CRS combined the four categories of households into two: better-off (including well-off and managing) and poor (including poor and very poor).

The results from the exercise suggest that in most communities, SILC households were wealthier than other households in their village were. In four of the seven villages, more households in the SILC groups were considered better-off than they were poor.

Figure 3: Distribution of SILC Households across Income Categories within Villages
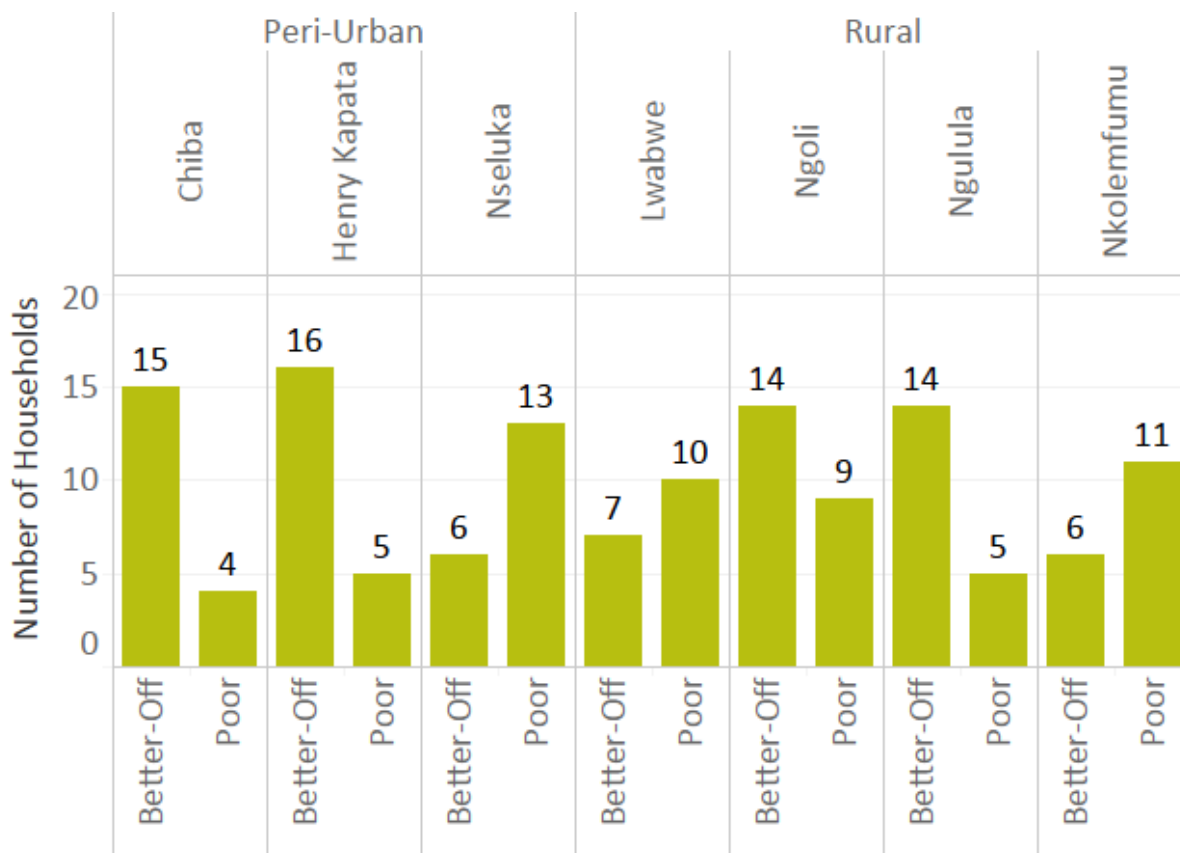
Poverty within the Comparison Group

As described in Chapter 1, CRS matched comparison households to SILC households using a variety of criteria based on suggestions from enrolled SILC households, whom the enumerators asked to identify households that were similar to them.

The Financial Diaries data show that like the SILC households, most comparison households lived in extreme poverty according to the International Poverty Line. [12]

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[12] CRS set-up SILC groups first and then used a matched pairs design to find comparison households that were similar to the SILC households. Consequently, it is little surprise that the distributions between the two groups are similar. Furthermore, extreme poverty is common in the Northern Province, especially in peri-urban and rural areas, which is part of the reason why CRS selected it as research site in the first place.

Figure 4: Cumulative Distribution of SILC and Comparison Households, Net Income
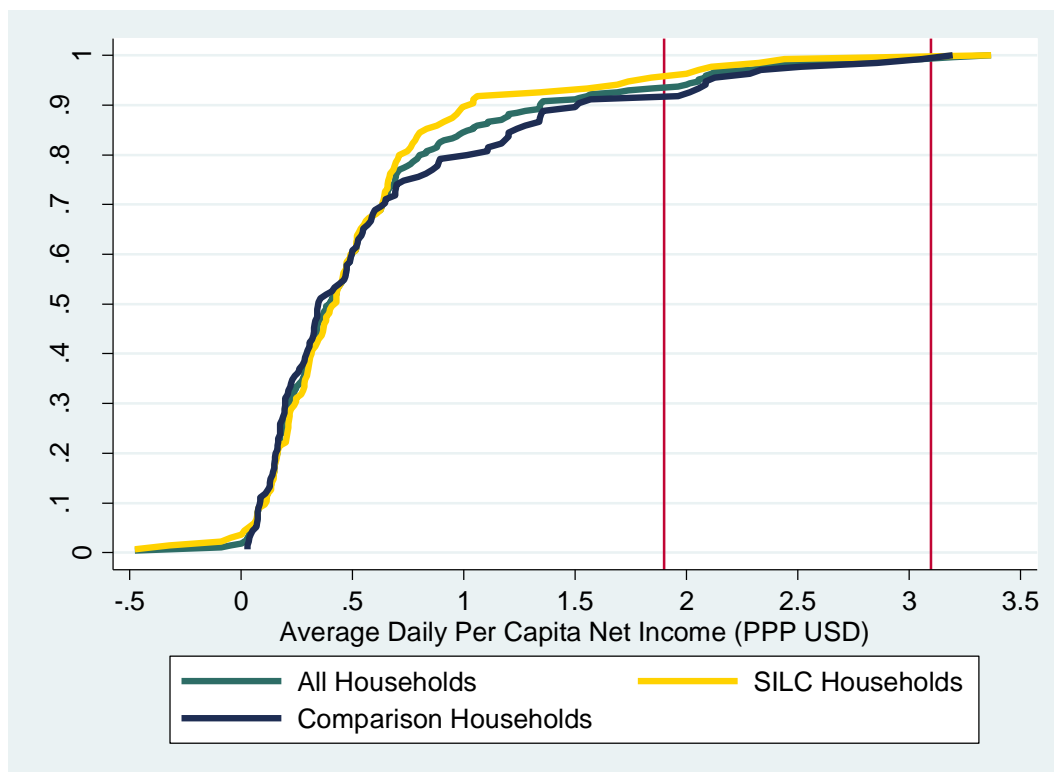
The graph of the distribution of net daily income suggests that there may have been more better-off households in the comparison group than in the SILC group, and data from the PWR exercise bolsters this assertion: in five of the seven villages, there were more better-off households than there were poor households.

Figure 5: Distribution of Comparison Households across Income Categories within Villages
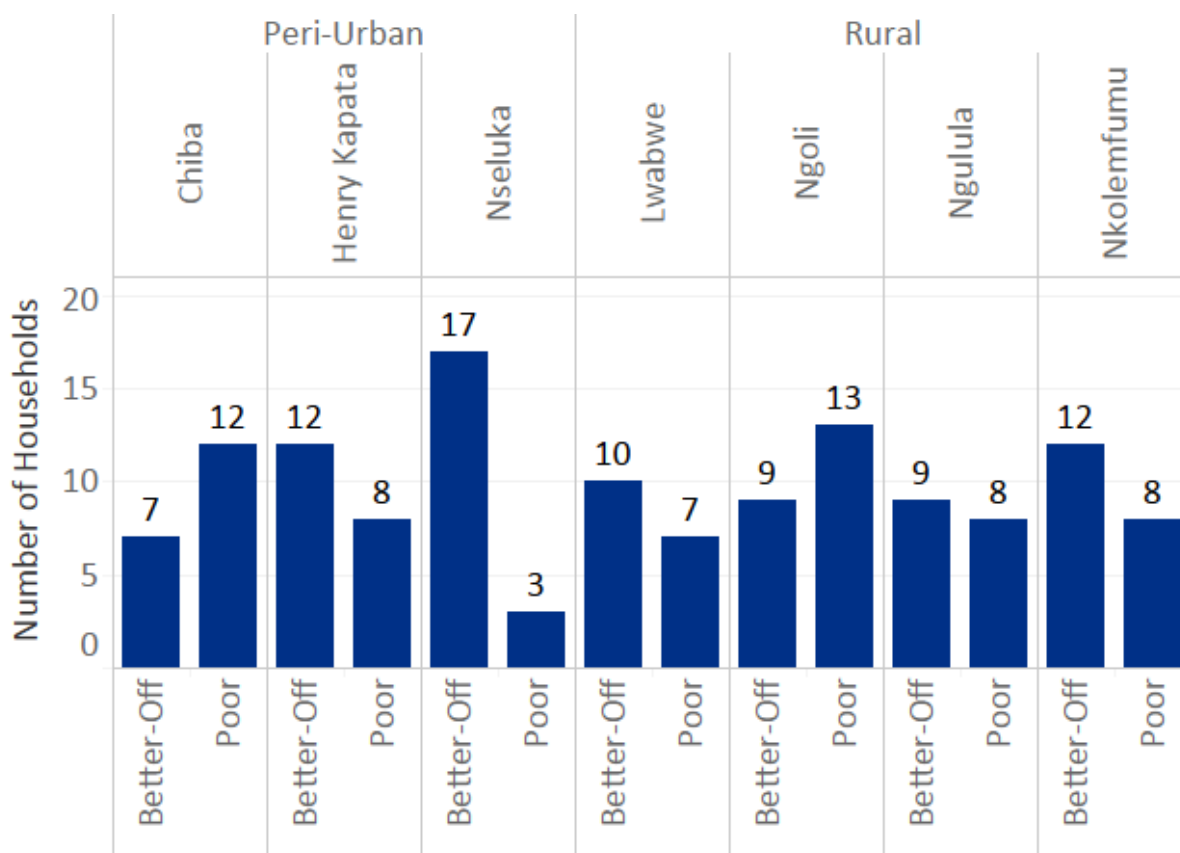
While more villages in the comparison group had a majority of better-off households, the proportion of households in each group within and across the villages was distributed in such a way that, on aggregate, the number of better-off and poor households was nearly identical.

CHAPTER 3: INCOME, EXPENDITURES, AND FINANCIAL TOOLS

RESEARCH QUESTIONS ADDRESSED IN THIS CHAPTER:
- How do SILC households earn and spend money? Do they earn and spend money differently than non-SILC households?
- What financial tools do SILC households use? Do they use different services than comparison households? Do they use the same services in different ways?

SUMMARY OF FINDINGS:
- SILC and comparison households had the same average net incomes *throughout* the course of the study—there was no statistically significant difference in the net incomes of SILC households due to their participation in the program.
- However, the two groups earned their income in very different ways. SILC households were more likely to be engaged in input intensive activities like farming or running a micro-business than comparison households were.
  - As a result, SILC households' *gross* income was greater than comparison households' gross income, but the SILC households also had higher business spending, resulting in the same *net* income as comparison households. This was the case throughout the study.
- Households' gross income was very volatile from week-to-week and across seasons. Average weekly income in the two years under observation was the lowest immediately before the harvest season (about Week 40 and Week 92, which correspond to April 2015 and 2016 respectively).
- SILC and comparison households spent roughly the same amount on goods on similar items for the home each week. Households spent most of their money on food and household items.
- SILC and comparison households utilized similar types of non-SILC financial tools. SILC households used them more frequently and with larger sums of cash.
  - Households used home savings most frequently. SILC households used home savings more often than comparison households did.
  - Informal cash transfers were the second most common financial tools used, although this was concentrated in peri-urban areas.
  - Small numbers of households were responsible for most informal borrowing activity and the limited use of formal financial services.

INCOME AND BUSINESS EXPENDITURES

Households' average gross weekly income during the study was 117 kwacha, and SILC households had higher gross incomes than comparison households did by about 50 kwacha.[1314] SILC households earned a gross weekly income of about 141 kwacha while comparison households earned a gross weekly income of only 91 kwacha. If we remove statistical outliers, SILC households earned a gross weekly income of about 104 kwacha compared to the 80 kwacha earned by comparison households, which is still a statistically significant difference.

Understanding the Role of Outliers

Since the Financial Diaries capture data over a long period, they sometimes collect data on extremely unusual events like weeks in which a household earns an unusually large sum of cash. These unusually large sums inflate averages. Often, researchers will remove these outliers in order represent "typical" behavior better. However, these large inflows of cash are critical for understanding households' economic flows, so we often leave them in the data set for analysis. To ensure that outliers do not spuriously drive patterns, we perform the analysis with outliers included and excluded. Presuming the patterns are consistent, we report figures that include outliers, although we make notes when their effect is especially large.

There were also meaningful differences across villages. For instance, there was more than a 100-kwacha gap between Nseluka and Chiba, the two villages with the highest and lowest average gross weekly earnings respectively.

Figure 6: Average Gross Weekly Income by Village

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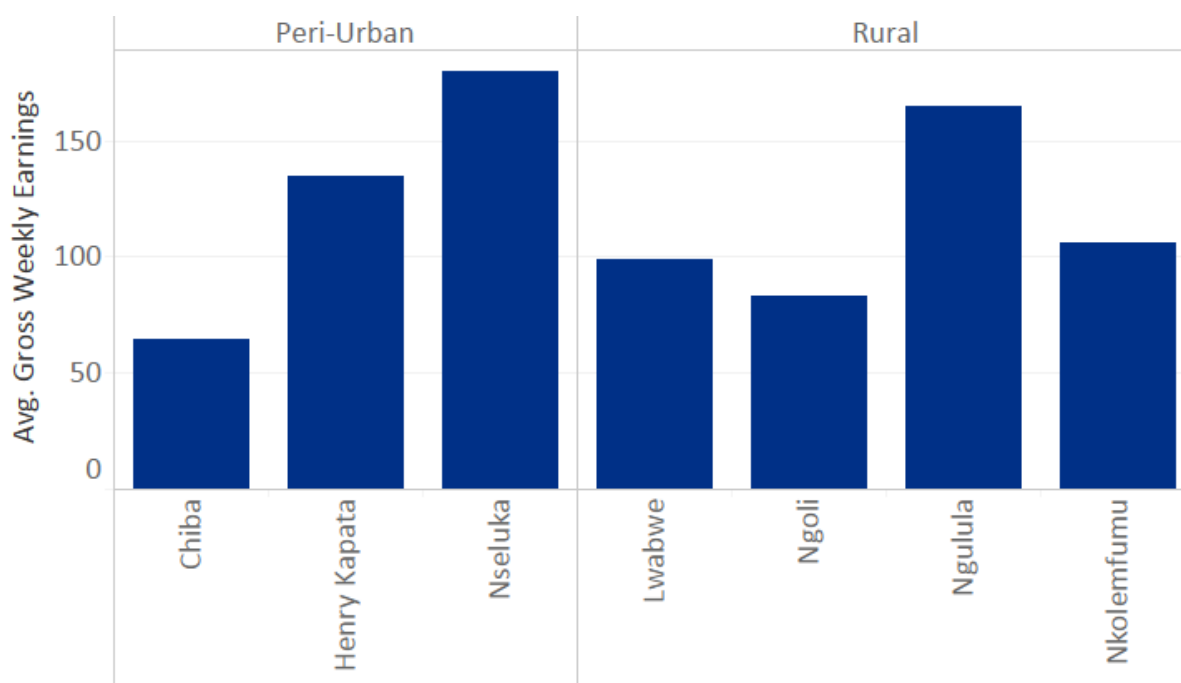
[13] In the previous chapter, we presented per capita spending in PPP U.S. dollars to allow for comparison to the International Poverty Line. Throughout the remainder of the report, we present data in Zambian kwacha. The Zambian kwacha experienced significant depreciation from 2014 to 2016. The official World Bank exchange rates (kwacha to dollars) for the study years were as follows: 2014 – 6.153; 2015 – 8.632; 2016 – 10.313. PPP conversion factors for 2014 and 2015 respectively are 2.759 and 2.949. A conversion factor for 2016 was not available at the time we wrote this report.

[14] The households in the better-off and poor groups had different gross incomes too, as would be expected. The better-off households had gross incomes of 165 kwacha per week while the relatively poorer households had an income of 51 kwacha per week.

Household's gross earnings were also extremely variable over time. The data suggest that there was both meaningful week-to-week variation and meaningful seasonal variation. In other words, households' income fluctuated up and down each week while also trending up and down during different periods of the year. SILC and comparison households had similarly volatile incomes. There is minimal evidence that better-off households had less volatile incomes after controlling for other factors.

Figure 7: Average Gross Weekly Income Over Time
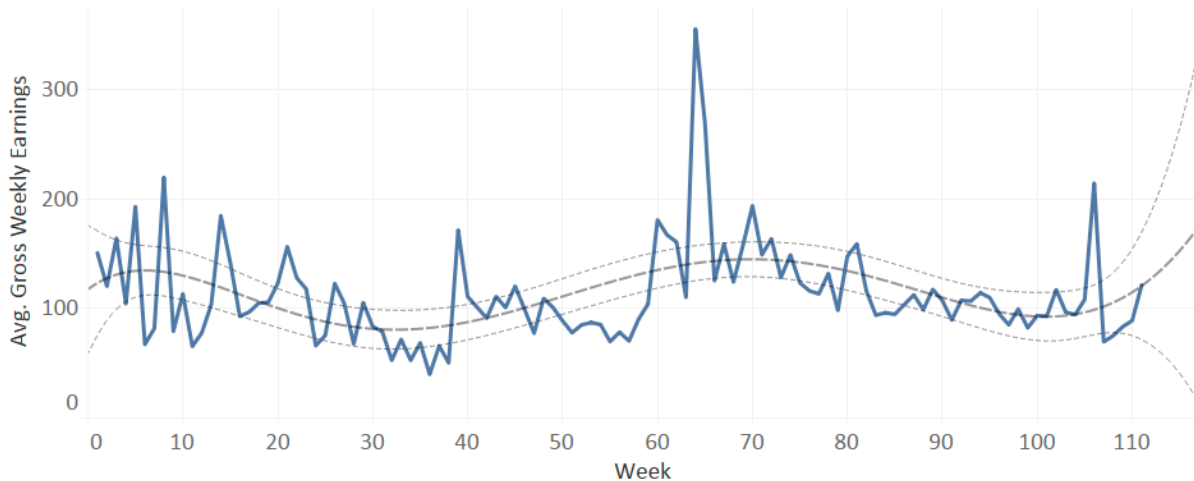
This graph shows average gross weekly income for the sample over time. The smoothed line is a polynomial trend line. The graph includes 95 percent confidence intervals for the trend line.

Sources of Earnings

Households earned money in many ways during the study. Households farmed, brewed beer, engaged in casual labor, repaired bicycles, tailored clothes, and ran small shops in addition to other endeavors. Generally, these earnings fell into one of three types:

- Agriculture and Livestock—income generated through sale of agricultural produce or livestock grown/raised by the household.

- Trade—income generated through the sale of goods or services through self-employment or a business; services can range from bicycle repair to tailoring.

- Employment—income generated when an individual is employed by another individual and paid a wage or salary; this includes payment for casual labor as well as regular wage work for an informal or formal organization.

It was common for households to engage in multiple activities to earn money, but typically, they earned most of their money in one category—an average of 75 percent of a household's earnings came from one of the three categories.

Most respondents in the study earned the majority of their money from agriculture or skilled trades. SILC households were more likely to earn the majority of their money from these two sources while comparison households were more likely to earn money from informal wage labor.

Table 3: Livelihoods of SILC and Comparison Households

	Comparison Households	SILC Households	Grand Total
Agriculture	37%	51%	44%
Employment	30%	12%	21%
Trade	33%	37%	35%
Grand Total	100%	100%	100%

The data show that the different income streams were not stable, but of the three streams, households involved in trading had the most reliable incomes. Households that earned most of their money from agriculture earned income in this way in only 48 percent of weeks while those who earned money via employment and trading earned money in those ways in 39 percent and 57 percent of weeks respectively.

The infrequency with which the households earned income from these sources contributed to the high levels of variation for each income stream. The coefficients of variation suggest that households that earned most of their money from trade earned consistent amounts of money when compared to those who earned most of their money from employment and agriculture. While households that earned most of their money from agriculture earned money in this way more often than households that earned money from employment, the sporadic large payments from the sale of harvests means that the value of agricultural income from week-to-week was more volatile than employment income from week-to-week.

Table 4: Level and Volatility of Gross Income by Livelihood

Household Group	Proportion of Weeks Earning from Main Source	Coefficient of Variance of Income Stream	Average Inflow (When Earning Income) from Income Stream
Agriculture	48%	2.66	176
Employment	39%	2.38	127
Trade	57%	1.59	223

Business Expenditures

Understanding gross incomes is important because the amount of liquidity a household has can influence its behaviors, including the types of investments it makes and the financial tools it chooses to use. However, households that operate in informal economies are very likely to have to spend money to make money—households have to invest their gross income in business inventory, inputs for prepared foods, agricultural supplies, and other items to allow them to make money in the future. The money households have left after making business purchases is their net income, the money that households have available for living expenses or for accumulating wealth.

On average, households spent 47 kwacha per week on items intended for a business use, but there were major differences between SILC and comparison households. SILC households spent an average of 72 kwacha per week while comparison households only spent 22 kwacha. This major difference in weekly business spending explains why SILC household's net weekly income was equal to that of comparison households despite having much larger gross weekly income—the SILC households were putting more money into their business operations.

Household Group	Avg. Gross Weekly Income	Avg. Weekly Business Expenditures	Avg. Weekly Net Income[15]
Comparison Households	91	22	72
SILC Households	141	72	69

The expenditures on items for business reflect the fact that SILC households were more likely to earn money from agriculture or from trade, including running shops. These types of operations require more business inputs and the data reflected that. SILC households spent more on food for business purposes (stock for shops and prepared food ingredients), agriculture, mixed items for inventory, and transportation to shift goods between locations than comparison households did.

Households' business spending varied during the study period, but not as much as gross income did. SILC households' business spending increased slightly over the course of the study, suggesting that they may have been able to make larger business investments after becoming SILC members.

Figure 8: Average Weekly Business Spending by Group
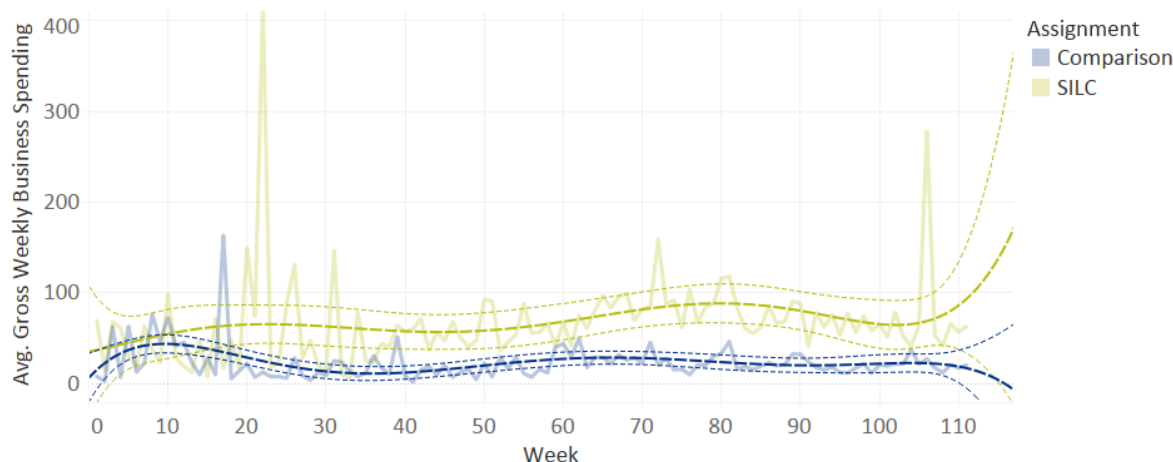
This graph shows average weekly business spending over time for comparison and SILC households. The data is shown with fitted trendlines, and each trendline is shown with a 95 percent confidence interval.

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[15] MFO calculated these figures using transaction data. Sometimes, there are imbalances in the data—in other words, households may not report all income and business spending (because they could not remember a value of a transaction for instance). This can create imbalances in the data like the difference seen here.

Changes in Net Income Over Time

Business spending was not as variable as gross income, and SILC households increased their business spending over time. However, the trend in net income over time shows that this slow increase in business spending did not yield meaningful increases in profits over time—net income oscillated but did not trend upward or downward over the two-year period.

Figure 9: Average Weekly Net Income by Group
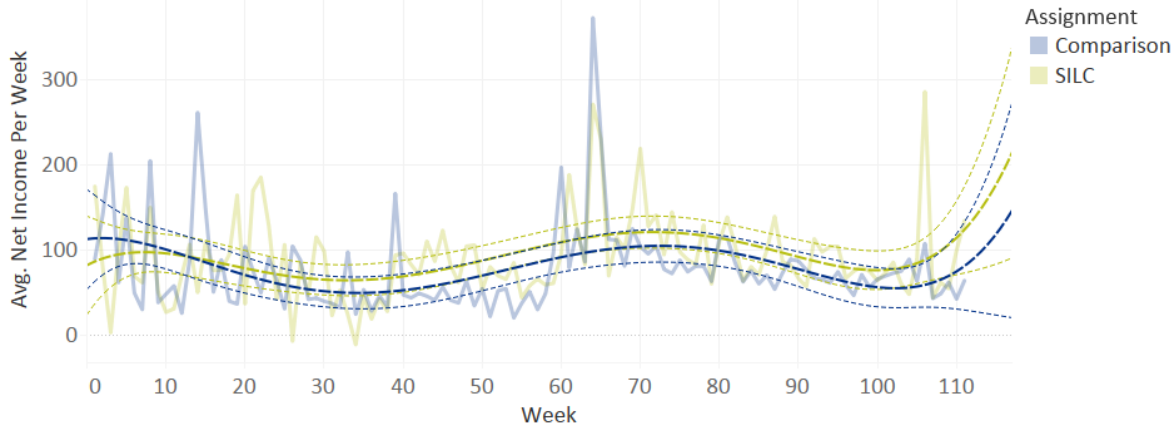
This graph shows average weekly net income over time for comparison and SILC households. The data is shown with fitted trendlines, and each trendline is shown with a 95 percent confidence interval.

HOUSEHOLD EXPENDITURES

The most common transactions in the data were devoted to spending on goods and services for household use. Households spent an average of 77 kwacha per week, although SILC households spent more per week than comparison households did. Most of that spending was for the purchase of food and basic items for the household each week. Households also spent small amounts per week on agriculture, construction, and transportation on a regular basis.[16]

Figure 10: Average Weekly Expenditures by Category of Expenditure

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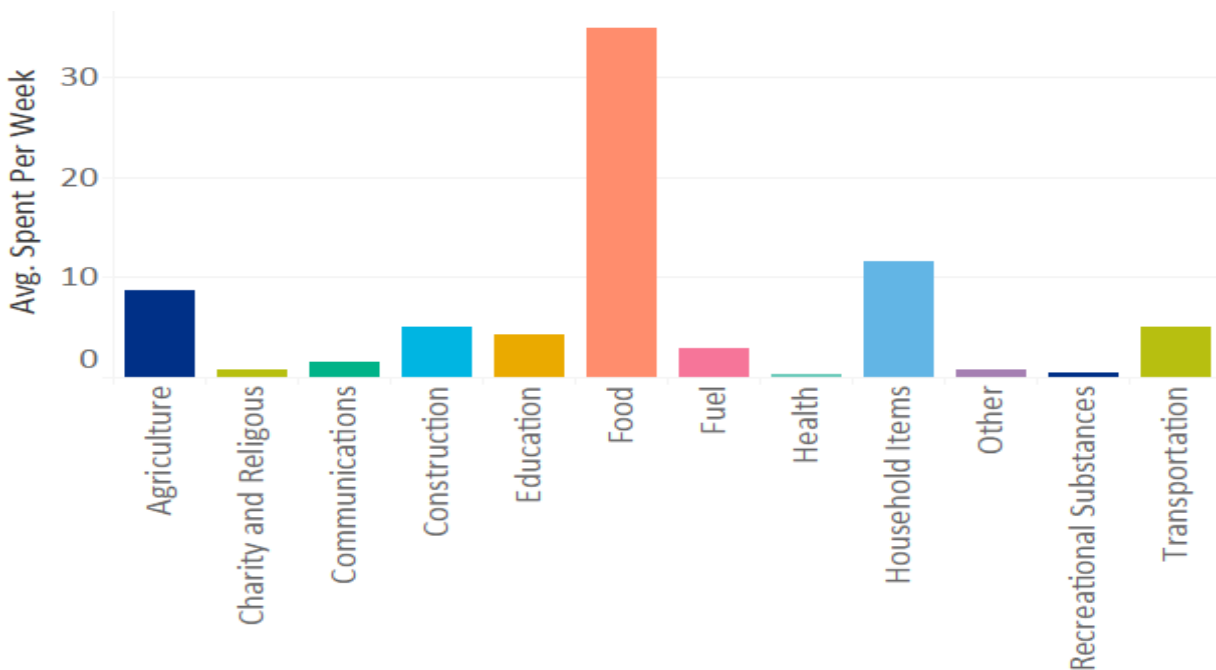
16 Households made agricultural purchases for household and for business use. "Household use" means that a household reported purchasing the input to help grow food that they would eventually use for home consumption rather than for income generation.

Insights from the In-Depth Interviews: Education and Health Spending

Development professionals are often concerned with households' investments in children's education as such investments are an important mechanism for the development of human capital and improved long-term economic outcomes. Health services and expenditures are of interest for similar reasons—individuals that can remain healthy have a better quality of life and presumably have a better opportunity to improve their well-being. During the study, household spending on education and health were relatively minor. There were some large expenditures related to each, but they were infrequent.

The in-depth interviews suggest that there may be a dearth of major education expenses because many households in the study had primary school-aged children and there are no fees for primary school in Zambia. However, households are responsible for uniforms, school supplies, and parent-teacher association (PTA) fees. Those expenses, while not rising to the level of lump sum expenditures, can still demand large amounts of households' income. For instance, the median cost of a school uniform was 50 kwacha while the median cost of a book bag and pair of shoes was about 30 kwacha and 40 kwacha respectively. In other words, just outfitting a child for a school year can demand two weeks' worth of income. Thus, even these basic, non-lump sum purchases can demand large portions of households' weekly income, and those demands can become barriers to educating children in poor households. For households with secondary-aged children, school fees can be an important expense—day schools are often 450 kwacha per term, plus examination fees at the end of the year as well as the cost of uniforms, school supplies, and PTA fees. The median school fee reported in the data was 100 kwacha, but households may have been paying their term fees incrementally. As data in the following chapter will show, households often used their SILC share-outs to pay school fees, and households reported that money for school fees was often one of their savings goals. It is important to be able to pay the fees—some households reported that schools removed their children from class if they were late on their payment.

Similarly, one of the reasons households reported little health spending is because they had access to local, government clinics, which were typically five kilometers away or less (although one village's closest clinic was 15 kilometers away). These clinics are rural health posts and do not offer a full range of services each day. Instead, the clinic engages in specific activities each day of the week like HIV/AIDS testing and counseling, family planning, pre- and post-natal care, and nutritional testing. The services these clinics offer are free, aside from the one-time purchase of a 1-kwacha record book that the clinic keeps, but medications are often scarce. Households seeking advanced medical care could go to the hospital in Kasama but such a trip could be time consuming and expensive—transportation to town could cost as much 50-kwacha round-trip.

As part of this spending, households made lump sum purchases. They completed one lump sum purchase about once every four weeks, although the type of purchase varied.[17] Bulk purchases of food were the most common expenditure, but agricultural and construction purchases featured prominently too.

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[17] Lump sum purchases are purchases that are especially large for a household. Households can make lump sum purchases for a variety of reasons: they can make a productive investment in a business, purchase an asset, respond to a life-cycle event like wedding or a birth, respond to an emergency, or achieve cost savings by buying in bulk.

Figure 11: Number of Lump Sum Expenditures per Week by Expenditure Category[18]
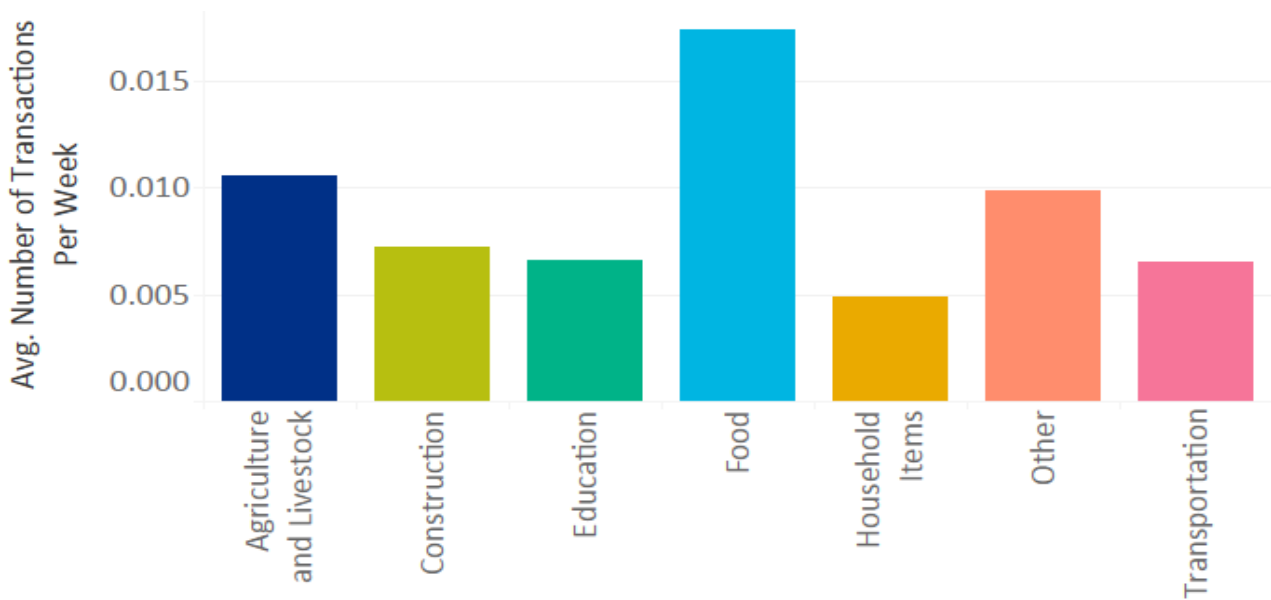
This graph shows the average number of household-related lump sum purchases households made each week on average. For reference, a frequency of .005 transactions per week is equivalent to one transaction every 200 weeks. A frequency of .01 transactions per week is equivalent to one transaction every one hundred weeks.

While households made expenditures in each category relatively in frequently, they made some type of household related lump sum purchase about once every 16 weeks on average.

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[18] Some lump purchases happen seasonally. For instance, agriculture and livestock purchases—for household and business use—were concentrated during the sowing season (between Weeks 13 and 24 and Weeks 65 and 75) while education lump sum purchases were concentrated during the start of term (between Weeks 22 and 26 and Weeks 77 and 81).

Lump Sum Spending – Same Number of Purchases but Different Priorities

SILC and comparison households made lump sum purchases with the same frequency—about one every 10 weeks. However, the data show that the composition of their spending was different. SILC households made more frequent lump sum purchases of business inputs while comparison households made more frequent lump sum purchases of goods for household use.

Figure 12: Number of Lumps Sum Expenditures per Week by Purpose
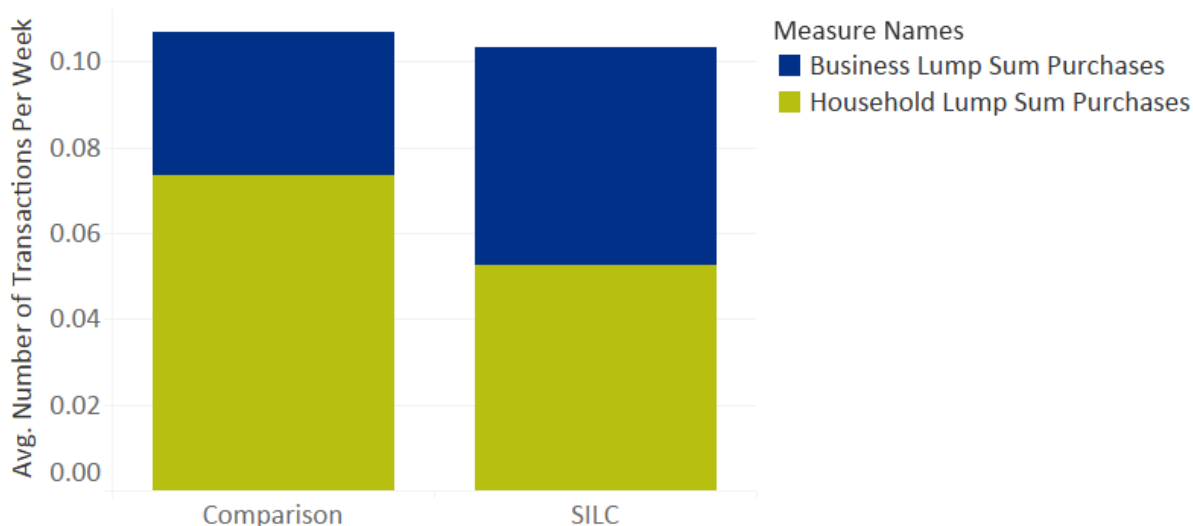
This graph shows the avg. number of lump sum transactions households completed each week. Since these transactions did not happen frequently, the averages are below one. For guidance, a frequency of .05 transactions per week is equivalent to 1 transaction being completed every 20 weeks. A frequency of .10 transactions per week is equivalent to 1 transanction being completed every 10 weeks.

FINANCIAL NETWORKS AND TOOLS

People use four financial tools to manage their cash flows: savings, loans, insurance, and cash payments or transfers. We define these as financial services when they are provided by a formal or informal financial service provider (FSP), though tools can be provided by other network connections as well. Individuals can give or receive savings, cash transfers, and loans to or from family and friends, or they can save at home. In other words, people use financial tools in the context of different types of relationships, which may or may not involve an FSP. We refer to these relationships as the financial network of a respondent. [19]

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[19] This description of financial tools and networks can found in the Zambia Financial Diaries Report, Chapter 2.

Financial Tools and Networks

Table 6: Financial Tools and Networks

Network / Tool	Self	Friends and Family	Informal financial service providers	Non-financial organization	Formal financial service providers
Savings	Home savings	One family member holds money for another	SILC Group and/or chilimba[20]	Church-based savings club	Bank account or mobile money wallet
Loans	N/A	No-interest loan from a friend or family member	Loan from a SILC group or moneylender	Emergency loan from a disaster-response organization	Installment loan
Insurance	Self-insurance through savings	Cash gift from a family member to cover an emergency	Burial fund or SILC Group Social Fund	Emergency grant from a disaster-response organization	Life insurance or Health Insurance
Transfers (remittances or payments)	N/A	Cash gift	Money courier service through a local bus company	Grant from an non-governmental organization	Mobile money remittance; direct deposit into a bank account

Note: Collectively we refer to any financial tool provided by either an informal or formal financial service provider as a **financial service.**

Households in the CRS Financial Diaries used home savings more than any other financial tool and, external to the home, they relied almost exclusively on informal financial services. Households did use formal financial services, but they did so very infrequently.

Figure 13: Average Number of Financial Transactions per Week by Type
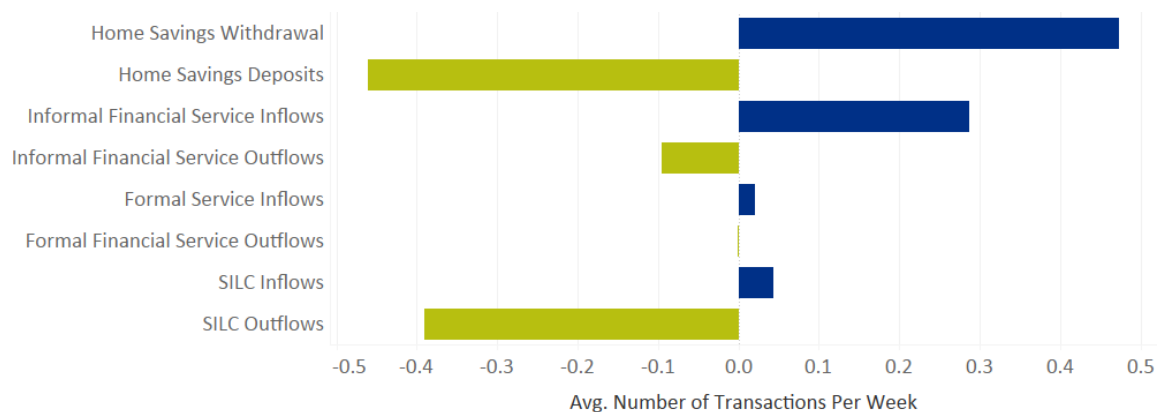
This graph shows the frequency with which households used home savings, formal and informal financial services, and SILC services. SILC services are presented for context. Detailed information on SILC services is presented in the next chapter. The data here is based on data from Week 40 onward, when data collection was more consistent. As a guide, a transaction frequency of .20 is equivalent to performing one transaction every five weeks. Negative frequencies represent outflows while positive frequencies represent inflows.

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[20] A chilimba is a type of rotating savings group indigenous to Zambia.

Home Savings[21]

The most common financial tool households used they provided to themselves by saving at home. On average, households engaged in some type of home savings transaction— either a deposit or withdrawal— about once a week.

How frequently households deposited and withdrew money was heavily influenced by how they earned it. For instance, households with higher incomes and/or incomes that were more consistent made deposits into home savings more frequently than households with lower and/or less consistent incomes did. However, households' average weekly net income was not associated with households withdrawing money from their home savings more frequently, but households with less consistent income typically withdrew money more frequently than households with more consistent income did. [22]

In other words, households that made more money and/or had earnings that were more consistent were able to deposit money more often while households with more volatile incomes relied on withdrawals from home savings more frequently.

Income levels and variation in income from week-to-week were important explanatory factors in how frequently households saved money at home. The data show, though, that SILC and comparison households saved at much different rates even when controlling for other factors. SILC households conducted home savings transactions 63 percent more often than comparison households did.

Figure 14: Average Number of Home Savings Deposits and Withdrawals per Week by Group

	Comparison	SILC	Grand Total
Home Savings Deposit	0.38	0.54	0.46
Home Savings Withdrawal	0.33	0.61	0.47
Home Savings (Combined)	0.71	1.16	0.93

The data show that there were also significant differences between regions, with the households in the peri-urban areas engaging in home savings less frequently than households in the rural areas did.

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[21] The analysis of home savings transactions includes data after Week 40, at which point enumerators were reliably collecting home savings transaction data.

[22] These patterns held true regardless of whether incomes were gross or net.

The average amounts households deposited and withdrew were large in comparison to their weekly net income, but median values show that outliers inflated these averages. Deposits were larger than withdrawals on average. This makes sense given how households used home savings: households deposited large sums of cash when they had it and then withdrew both small and large amounts based on need.

Table 7: Average Home Savings Deposit and Withdrawal Amounts by Group

Household Group	Avg. Deposit Size	Median Deposit Size	Avg. Withdrawal Size	Median Withdrawal Size
Comparison	130	50	63	28.5
SILC	189	60	133	41

Informal Financial Services

Informal financial services were the second most common financial service that households used. As Figure 13 at the start of this section showed, households used informal financial services, excluding SILC, about once every three weeks in total, but drew cash in from informal providers about three times as often as they pushed cash out to them.

Cash Transfers

Households give and receive informal cash transfers hand-to-hand while formal cash transfers are intermediated by a financial service provider like a bank or mobile money operator. On average, households received an informal cash transfer from someone outside the home once every five weeks and only gave cash transfers about once every 20 weeks. SILC and comparison households received cash transfers with equal frequency when controlling for other variables while households that had higher net incomes received cash transfers less often, although the marginal effect of additional income was small. Furthermore, where households lived was strongly associated with how frequently they received cash transfers. Peri-urban households received cash transfers much more frequently than rural ones and there appears to be a relationship between the distance to an urban area and how frequently households received cash transfers, although the sample is too small to test this statistically.
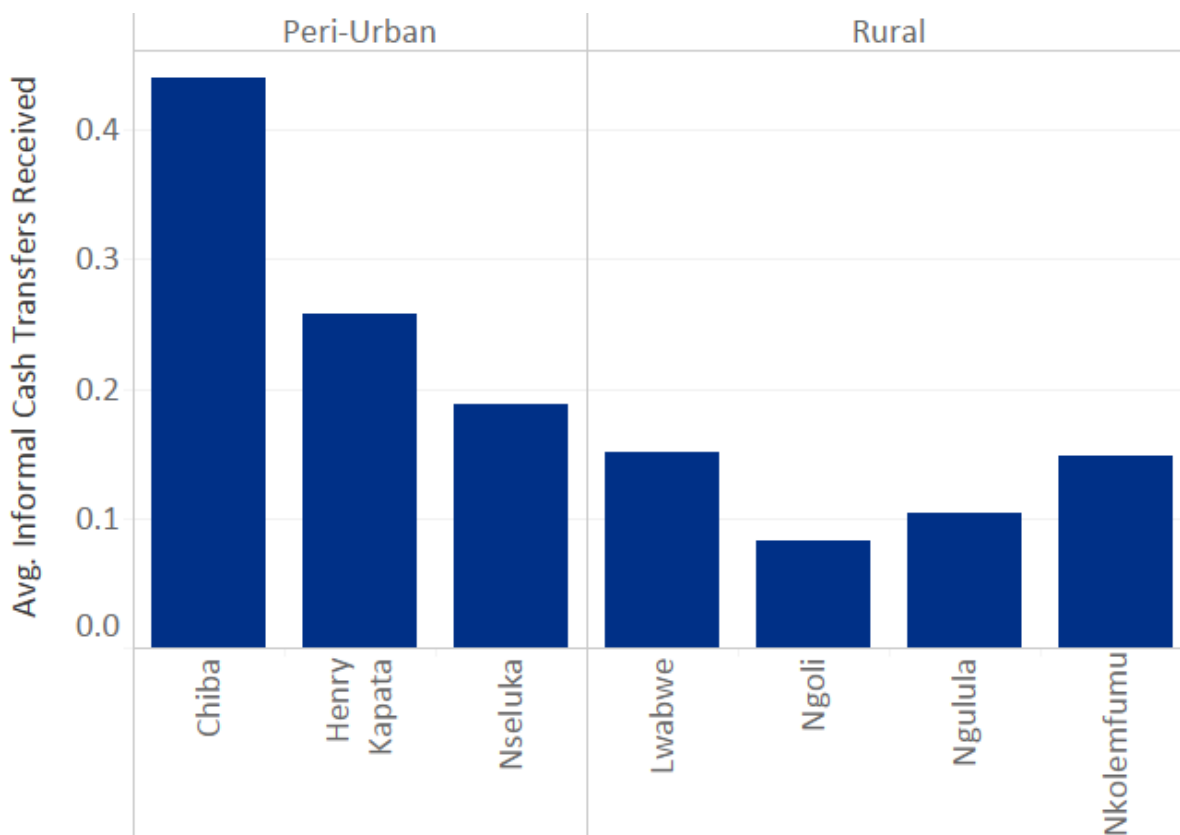
In the weeks households received cash transfers, they received meaningful sums of cash—59 kwacha on average, about 10 kwacha less than their average weekly income. SILC groups received more per transfer than comparison household did as did households in the peri-urban areas. A household's level of wealth was not associated with receiving larger cash inflows but the consistency of their income was—households with less consistent incomes received more money.

There was no statistical difference in how frequently SILC and comparison households or households in different villages gave cash transfers to others, although households that were better-off tended to give them slightly more frequently. In weeks when households did give cash transfers, they gave 33 kwacha on average.

Informal Loans

Households could use loans in one of two ways—as a lender or as a borrower. The data show that households performed both roles, but that their use of loans—as either lender or borrower—was not frequent. Households made one loan-related transaction—either taking out a loan, repaying a loan, giving a loan, or receiving repayment—once every 10 weeks. About 60 percent of this activity occurred with households as borrowers, either taking or repaying loans.

The data suggest that there were no major differences between households based on their level or consistency of their income, SILC membership, or village of residence. One explanation for this lack of difference is that loan activity was concentrated among a few households. Sixty-three (63) of the 270 households engaged in no informal loan activity, and five of the remaining 207 households accounted for 26 percent of all activity.

Most of this lending activity occurred between friends and family members, although households did turn to moneylenders too. When households received a loan, they received about 100 kwacha on average. They typically did not repay these loans all at once: households paid back an average of 63 kwacha per payment. When households lent money, they lent about 92 kwacha and received about 80 kwacha per repayment.

Formal Financial Services

Only 1.3 percent of all financial service transactions occurred with a formal provider. That figure is equivalent to each household performing one formal financial transaction every 315 days on average.

Most of these transactions involved a household receiving money via a mobile money provider (either MTN or Zoona) or withdrawing money from a direct deposit or bank transfer. Instances in which an individual went to a bank to make a deposit and/or send money were very rare.

Table 8: Number of Formal Financial Transactions

Type of Formal Transaction	Number of Transactions
Deposit	21
Withdrawal	123
Loan Received	4
Government Transfer Received	33
Cash Transfer Received (via Formal Service)	201
Cash Transfer Sent (via Formal Service)	3

While 94 households used a formal financial service at least once, only 15 respondents (mostly better-off households that belonged to SILC groups in the peri-urban villages) accounted for 54 percent of all formal financial transactions while 43 households only performed one transaction.

There were instances when these formal transactions were extremely large. Households deposited and withdrew up to 10,000 kwacha; the largest of the four formal loans was 6,000 kwacha; and households received up to 1,000-kwacha cash transfers. The median values of these transactions, while still large, tell a more modest story, with values ranging between 100 and 500 kwacha.

Table 9: Median Value of Formal Financial Transactions

Type of Formal Transaction	Median Value
Deposit	100
Withdrawal	500
Loan Received	1,750
Government Transfer Received	140
Cash Transfer Received (via Formal Service)	195
Cash Transfer Sent (via Formal Service)	200

CHAPTER 4: SILC USE

RESEARCH QUESTIONS ADDRESSED IN THIS CHAPTER:

- How do SILC households use SILC services?
    - How frequently do they use the savings and loans facilities that the groups offer?
    - How does the use of these services change over time?
    - What do SILC households do with the funds they receive from SILC groups?
    - Is there a difference in how relatively poorer households within villages use SILC services compared to relatively better-off households?

SUMMARY OF FINDINGS:

- SILC households made a deposit into their groups about three times a month, on average. They received a loan from the group once every four months on average.
    - SILC households' use of the group savings device allowed households to store money in a more secure location—the group lockbox—than at an unsafe location in their home.
- The data show that the frequency of SILC deposits oscillated, while the average size of each deposit increased for much of the study before declining during the last several months. The frequency with which households took SILC loans declined over time, but the average size of loans households received increased.
- SILC households used the money they saved to double the frequency with which they made lump sum purchases and most lump sum purchases were aimed at improving households' quality of life. Non-lump sum spending also increased after receiving a share-out.
    - SILC households increased the frequency with which they made lump sum purchases for both household and business use, suggesting they were accumulating assets and investing in their farms and businesses at a faster rate following a share-out.
- SILC households used loans to increase their frequency of lump sum purchases.
    - Household and business purchases increased when households received a loan but the difference was not as large as when households received a share-out.
- There was no association between a household's level of wealth and the frequency and size of its savings deposits. Similarly, there was no relationship between household wealth and the frequency of SILC loan use.
    - This may be a consequence of individual groups having different group rules or different cultures
- Poorer households increased the frequency with which they made lump sum purchases by a larger proportion than better-off households did after receiving a share-out, suggesting an outsized effect of share-outs on poorer households.
    - The most significant increases were in the payment of school fees and household asset purchases.

USING SILC SERVICES

SILC groups offer three services to their members: savings, loans, and a social fund. The Financial Diaries captured data primarily on the savings and loans.[23]

SILC Savings

The SILC methodology asks all participating members to make a deposit into their accounts each week. However, not all members attend all meetings and members do not always save at every meeting which can reduce the average weekly frequency of deposits. If all 219 SILC members in the 135 SILC households at the outset of the study deposited money into the group every week, SILC households would average 1.62 deposits per household per week.[24] However, the data show that households only made .69 deposits per week, which is equivalent to about three deposits per month.

The frequency with which households made deposits varied over time. The data show that deposit rates were highest at the start and middle of the study, times that correspond roughly to the beginning of savings cycles. However, the data also show that there was a steady decline in the frequency (but not overall amount) of deposits toward the end of the study.[25]

Figure 17: Average Number of Deposits per Week
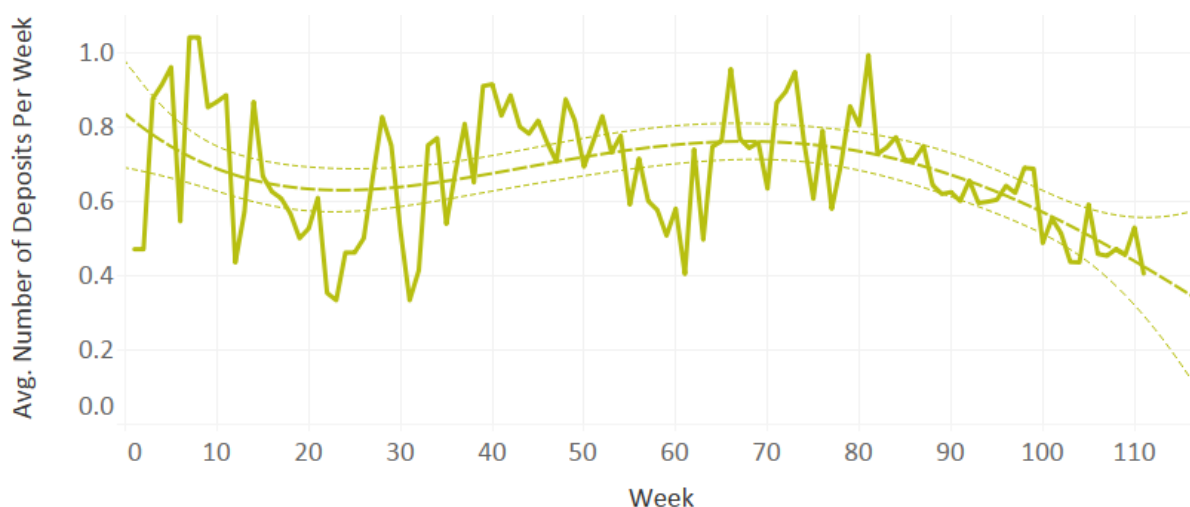
This graph shows the average number of SILC deposits per household per week during the study period. A fitted trendline is overlaid, along with the trendline's 95 percent confidence interval. Data prior to Week 40 is based on a random sample of data collected during that period, as described in Chapter 1.

Although the frequency of deposits declined over time, the average size of deposits grew. Households deposited approximately three times a month and the amounts of money they deposited grew over time. Between Week 1 and about Week 75, households almost tripled the average size of their deposit from about 10 kwacha to about 30 kwacha. For the entire study, households deposited 26 kwacha per week on average.

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[23] The Financial Diaries recorded very limited use of the social fund. It is unclear whether this was because groups did not use that social fund or whether this was a data collection error.

[24] CRS trained enumerators to disaggregate transactions between household members. That means that if a household had two active SILC members, the enumerator was supposed to record one deposit for each member. It is possible that enumerators did not consistently follow this direction, recording one "household" deposit that was inclusive of the two individuals' deposits instead. If all enumerators had recorded aggregate weekly household deposits, the largest potential average number of deposits per household would be one. Consequently, readers should be aware that the largest potential average for SILC deposits per household per week is between 1 and 1.62 deposits.

[25] Groups have a tendency of suspending deposits in the weeks leading up to a share-out as group members work to repay loans, although this is not an official part of the SILC methodology. This can reduce deposit frequency. At the end of the study, three groups were preparing for their final share-out and this tendency to suspend deposits may explain the decline in the deposit rate during this time.

Figure 18: Average Amount Deposited Across Weeks
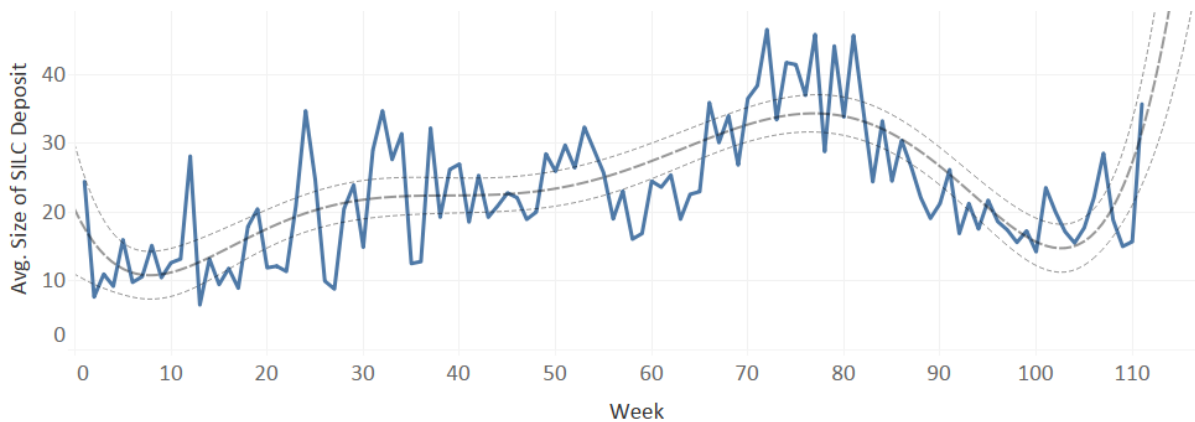
This graph shows the average value of deposits made each week during the study period. A fitted trendline is overlaid, along with the trendline's 95 percent confidence itnerval. Data prior to Week 40 is based on a random sample of data collected during that period, as described in Chapter 1.

The trend from about Week 75 is downward until about Week 100. The rebound over the final 12 weeks of the study was driven by eight households that made large deposits relative to the rest of the SILC households. With these households removed, the downward trend continues until the end of the study.

The Same Methodology, Different Contexts, and Different Results

CRS randomly selected the seven groups that participated in the study and, although the sample size was small, these groups represented a range of experiences. As the data throughout this chapter show, the SILC methodology was generally successful—through small savings deposits, households were able to build large sums of cash. However, some groups, like those in Lwabwe or Ngoli, performed very well while others, like the groups in Henry Kapata and Nkolemfumu, struggled. The qualitative data helps explain why some groups may have thrived while others did not despite using the same method.

For instance, the group in Ngoli was led by the village's headwoman and she ensured that the group maintained a focus on women—the group's constitution excludes men from participating—and its female participants reported a high-level of commitment to the group. This commitment shows in the data—the women in Ngoli had the highest median deposit frequency and the distribution of deposit frequencies was narrow, suggesting the woman in the group acted similarly. Households in the Henry Kapata SILC group, which underperformed, had been trained in other savings group methodologies (provided by other NGOs) prior to CRS' involvement in the village. These methodologies encouraged groups to meet once or twice a month rather than weekly, and the Henry Kapata group reported that it was difficult to change their behavior. The group in Ngulula had members that deposited with a variety of frequencies, but collectively, they were relatively successful. From the first to third cycle, the group accumulated progressively larger sums of cash and urged each other to take larger loans in hopes of earning more interest on their deposits. Unfortunately, this expansion of lending had disastrous consequences—one household secretly convinced multiple other group members to take loans on their behalf. The household that received all this money absconded with the cash, effectively ending the SILC program in the village, although this happened very late in the study (around Week 100).

While there was diversity in the groups' experiences, none of the groups failed early on during the study. Even the group in Ngulula, which failed late in the project, hopes to begin saving again soon. This is an important point for understanding the patterns, as a failure early in the study would have biased the results downward.

The deposits households made to SILC groups accumulated in the group fund until the end of the saving cycle at which point households received their "share-out." The share-out should be equal to the sum of a household's deposits plus their share of the interest generated from loans taken out by other members of the group less the value of a household's outstanding loans.

The data show that SILC groups were successful at generating very large sums of cash: a households' average share-out was 813 kwacha, more than 10 times the average weekly net income. For comparison, SILC households had net incomes in a week that were bigger than their largest share-out in only seven percent of weeks.

However, enumerators recorded only 193 share-outs from SILC groups during the two-year study period. This figure is lower than the expected number of share-outs. There would be 657 individual share-outs in the data if each group operated on an eight-month cycle and 438 individual share-outs if the groups operated on 12-month cycles if enumerators recorded each household member's share-out individually. If enumerators systematically aggregated households' share-outs from many share-outs to one per household, then there would be 405 share-outs with eight-month cycles and 270 share-outs with 12-month cycles if there were 100 percent compliance with the savings and loan programs. The shortage of share-outs indicates that either households received their share-out and enumerators never recorded it or the household never received their share-out.[26]

The data suggest that the share-outs that households reported receiving were useful. While money is fungible, it is possible to get a sense of how households used share-outs by looking at changes in spending and financial flows in the weeks after a household received them compared to other weeks. To do this, we identified the weeks in which households received their share-out and the three following weeks, examining households' average gross earnings, spending, and financial flows. We then compared these averages to other weeks that were not proximate to a share-out.

The data show that the weeks after receiving a share-out were a high-expenditure time for SILC households. They substantially increased their spending in the week that they received their share-out, and although they spent large sums of money, they normally had some left over, which they deposited in home savings. SILC households used this extra savings, along with their normal income and money they pulled-in through other financial tools, to maintain this higher rate of spending for two or three more weeks at which point they had often spent the total value of the share-out.

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[26] A household may not have received its share-out because it had an outstanding loan balance at least as large as the share-out at the end of the study.

Figure 19: Average Spending in Month when Household Receive Share Out
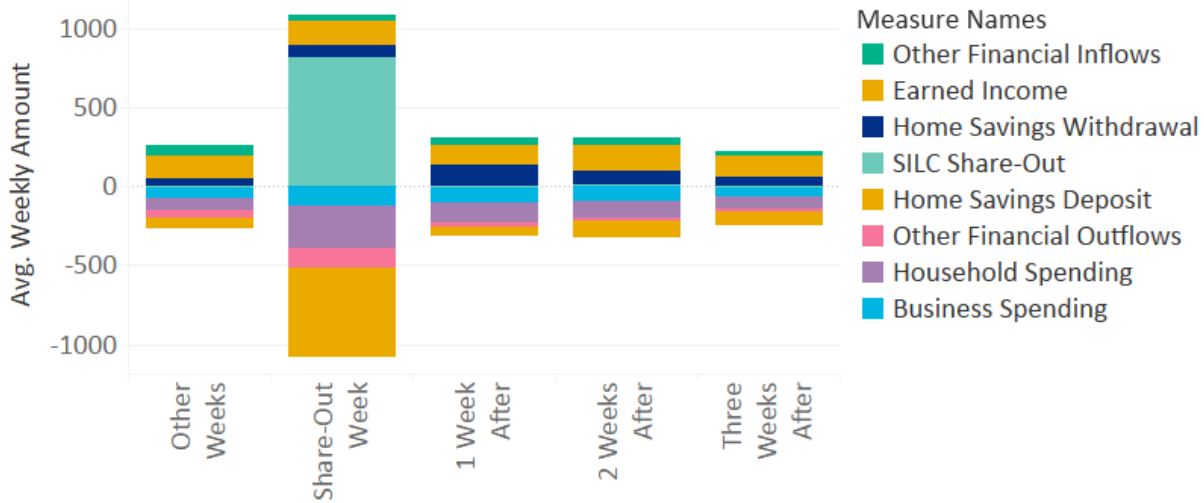
The graph shows average weekly inflows and outflows for the week a share-out was received and the subsequent three weeks, comparing those weeks to weeks that were not proximate to a share-out.

While there were small increases in day-to-day household and business spending following the receipt of a share-out, the primary reason spending increased was that households increased the frequency with which they made lump sum purchases. In the month after SILC households received their share-out, they doubled the frequency with which they made such purchases.

*Figure 20: Lump Sum Purchases in Share Out Month*
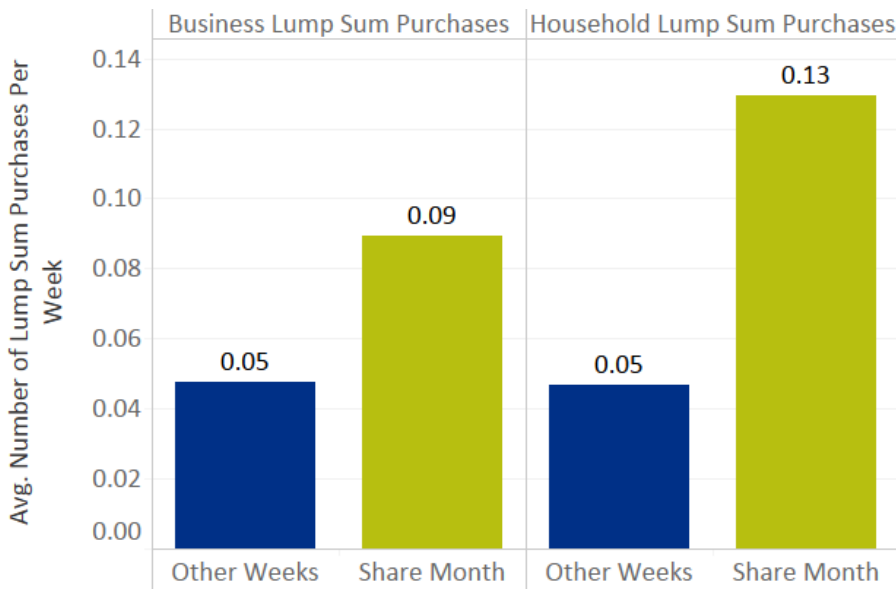
The graph shows the average number of lump sum purchases per week in the weeks in the month after a share-out was received versus other weeks. A frequency of .05 transactions per week is equivalent to one transaction being performed every 20 weeks; a frequency of .10 transaction per week is equivalent to one transaction being performed every 10 weeks.

SILC Loans

SILC households took out 556 SILC loans from their groups during the study period. This was equivalent to each household receiving .06 loans per week, which is roughly equivalent to receiving one loan every four months. The loans had an average value of 369 kwacha. While this is smaller than share-outs, it is still a meaningfully large sum of cash. Households reported receiving more net income in a week only five percent of the time.

The frequency with which households received SILC loans was relatively consistent over time, although the frequency with which respondents received them declined towards the end of the study. However, the size of the loans that households received grew.

Figure 21: Average Number of SILC Loans per Week
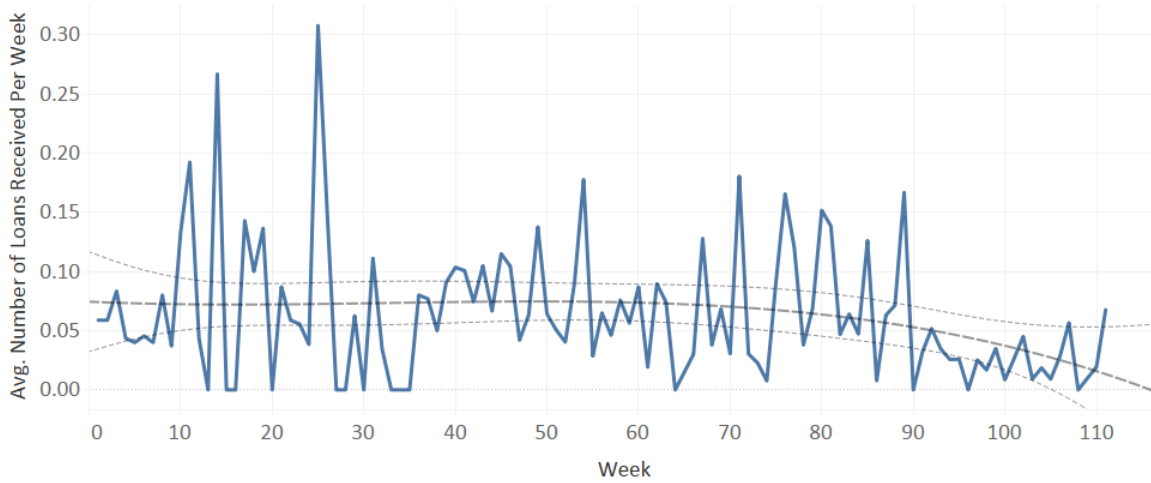
This graph shows the average number of SILC loans received per household per week during the study period. A fitted trendline is overlaid, along with the trendline's 95 percent confidence interval. Data prior to Week 40 is based on a random sample of data collected during that period, as described in Chapter 1.

Figure 22: Average Amount of SILC Loans by Week
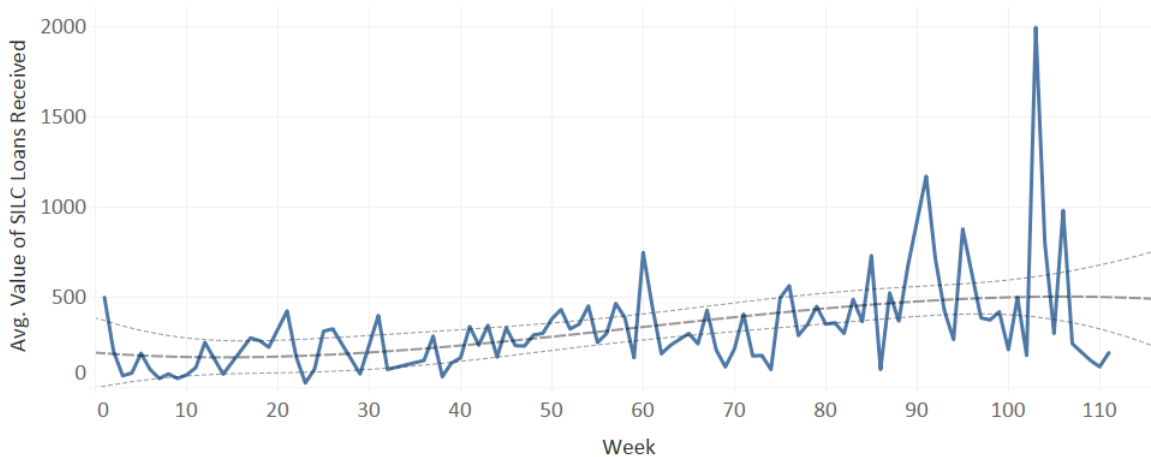
This graph shows the average value of SILC loans received each week during the study period. A fitted trendline is overlaid, along with a the trendline's 95 percent confidence internval. Data prior to Week 40 is based on a random sample of data collected during that period, as described in Chapter 1.
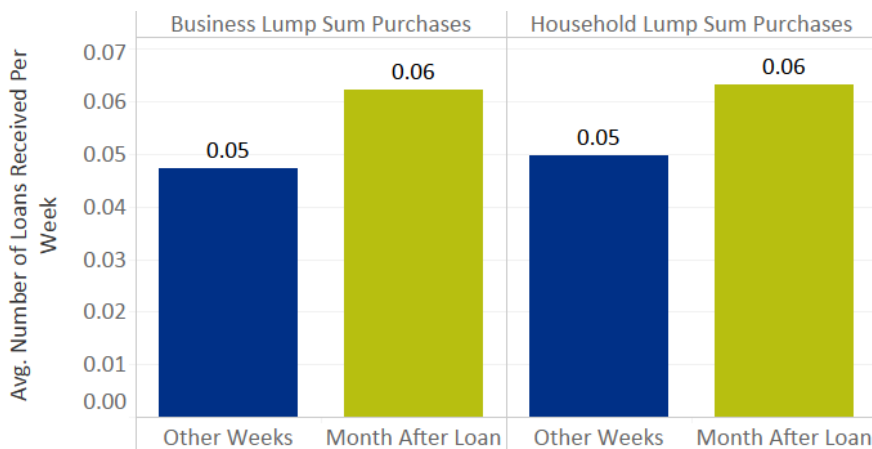
The loans also enabled households to make more frequent lump sum expenditures. While the increases were more modest than during the month after the share-out, they were still statistically significant differences.

Figure 23: Average Number of Lump Sum Purchases in SILC Loan Months

This graph compares how frequently households made lump sum purchases in the weeks during in the month after they received aloan versus other weeks. It is disaggregated for household and business purchases. For reference, .05 transactions per week is equivalent to one transaction every 20 weeks.

Insight from the In-Depth Interviews: SILC Loans and Informal Loans

This section showed that SILC loans were useful for households, allowing them to increase the frequency with which they made lump sum purchases. SILC households also reported in the in-depth interviews that they viewed SILC loans differently to informal loans.

Since SILC groups only met once per week, SILC loans were not great for meeting "financial emergencies"—instances where a household had no cash at home but had expenses they needed to make. Informal loans were much better for this because households could easily turn to friends and family. The informal loan system is part of households' informal insurance strategy—households give cash transfers and loans to people in need knowing that there will be a time when they will need financial assistance and these personal and financial debts can be called. Furthermore, the informal loan market is flexible—repayment periods are often not set. Unfortunately, interest rates can vary drastically, anywhere from zero to 50 percent.

Still, SILC households reported that they valued the SILC loan facility. Interest rates were set and repayment periods were predictable, making SILC loans better for predictable events and cash shortages. This helps to explain why households said SILC loans were good for investing in business and why they reported that they sometimes took loans just to ensure they would have enough cash on hand in the event of an emergency.

Some households reported that they preferred SILC loans because they insulated the households from reputational risk: if a SILC household does not payback a SILC loan, they lose their savings, but if a household does not pay back an informal loan to a community member, they risk their reputation. This is not a hard and fast rule though because SILC households could sometimes borrow more than they had saved, so if they defaulted, they risked affecting their group members' returns.

SILC SERVICES AND POVERTY

The previous section showed that SILC households used SILC services to access large sums of cash, which households used to make lump sum purchases and to cope in weeks when their income could not cover all their expenditures, but did relatively poor SILC households use these services in a different way than better-off households did?

The data suggest that a household's level of wealth and the frequency with which it made deposits were not strongly related nor were a household's level of wealth and the value of its average weekly deposits. A household's net income in a week was associated with making a larger deposit in the same week, but the marginal effect of any additional income was extremely small. Rather, many of these households' behaviors were more strongly associated with the behaviors of other households *within* the same group, suggesting that there were meaningful group-level effects.

Figure 24: Distribution of the Frequency of SILC Deposits by Village and Wealth Group
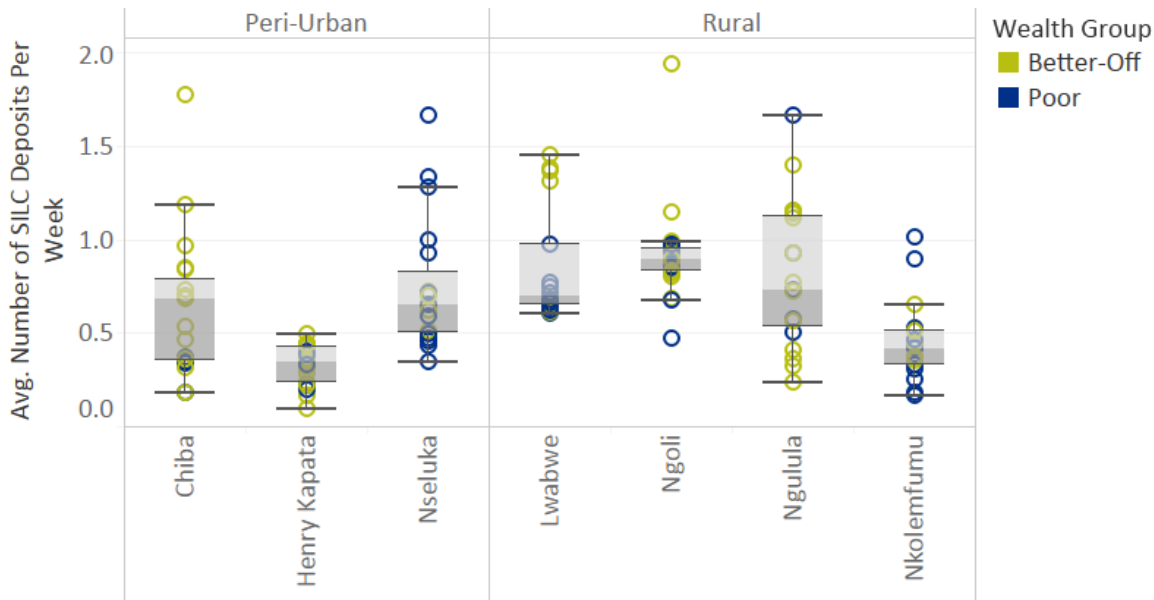
These box and whisker plots show the distribution of the frequency with which households made deposits within SILC villages. The graphs shows that frequencies were either tightly grouped or skewed in one direction.

There is good reason to expect such effects. The frequency with which a household can deposit is bounded by the frequency with which groups hold meetings, and groups set deposit limits that their members should ascribe to.[27] There are also potential effects that are difficult to observe—households may not want to deposit more frequently or in larger amounts than their peers do, fearing that it may expose them to negative social externalities.

Group dynamics appeared to influence households' SILC borrowing behavior less. As the data in the previous section indicate, the balance of a household's cash flow influenced whether or not an individual borrowed from a SILC group—lower net incomes and higher household spending in a week were associated with households taking loans more frequently. Furthermore, as with savings, the frequency with which households took loans was not associated with a household's wealth after controlling for other factors. However, better-off households borrowed larger loan amounts than poorer households.

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[27] The groups in the study typically had a deposit minimum of 2 or 5 kwacha and a deposit maximum of 100 to 500 kwacha (one group had a limit of only 30 kwacha).

Figure 25: Frequency of SILC Loans by Average Net Weekly Income and Wealth Group
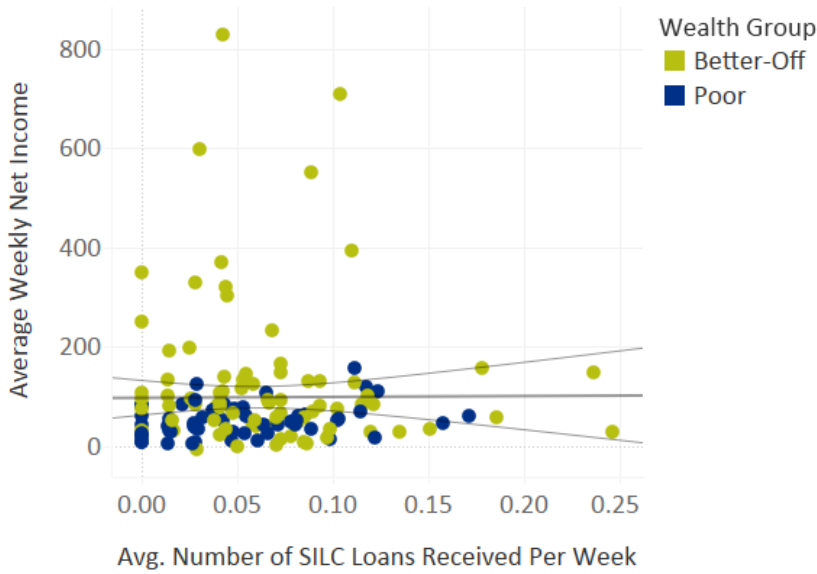
This analysis establishes that a household's wealth was not necessarily correlated with how it interacted with SILC services—relatively poor and better-off households deposited in similar amounts and whether a household received a loan was more about its cash flow in any given week than its wealth. The fact that there were so many similarities between the two groups, regardless of wealth, raises an important question: did poorer households experience an outsized benefit from participation in SILC?
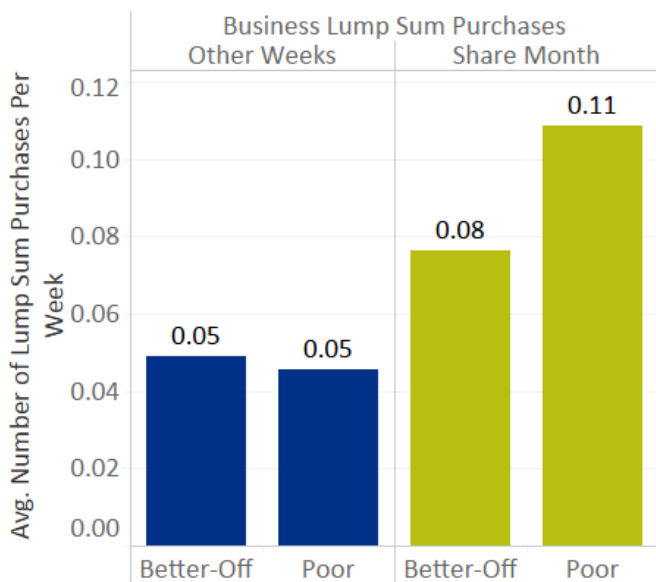
The data on this are also mixed, but there are some indicators that SILC services did have an outsized effect on poorer households. Consider the data on lump sum expenditures for the household. In weeks without a share-out, better-off households made lump sum purchases twice as often as poor households—a statistically significant difference. In the month following a share-out, that statistically significant gap vanishes—poor households increase the frequency of their lump sum purchases by a factor of four compared to the doubling of the frequency by better-off households.

Figure 26: Household Lump Sum Purchases by Share Month and Wealth Group
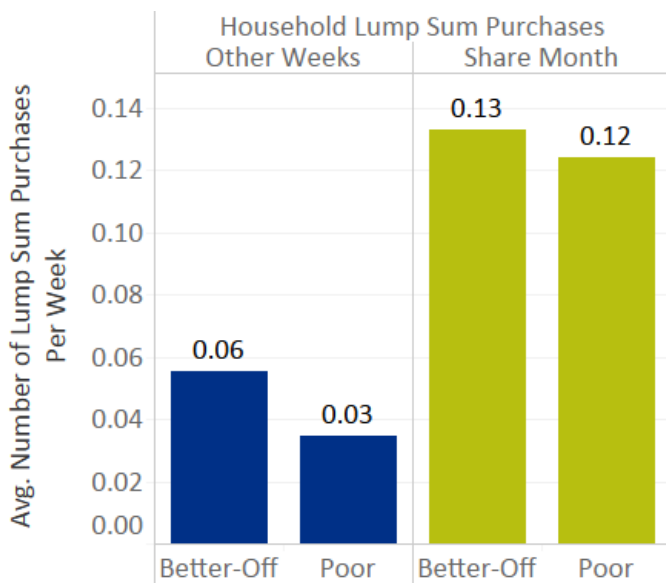
Similarly, there was no gap in the frequency with which better-off and poor households made lump sum purchases for businesses in weeks without a share-out, but poor households more than doubled the rate at which they made such purchases after receiving a share-out while better-off households increased their rate but only by about 60 percent.

The patterns in the frequency with which households made lump sum purchase by wealth group in the month following a SILC loan were similar.

Figure 28: Household and Business Lump Sum Purchases by Loan Month and Wealth Group
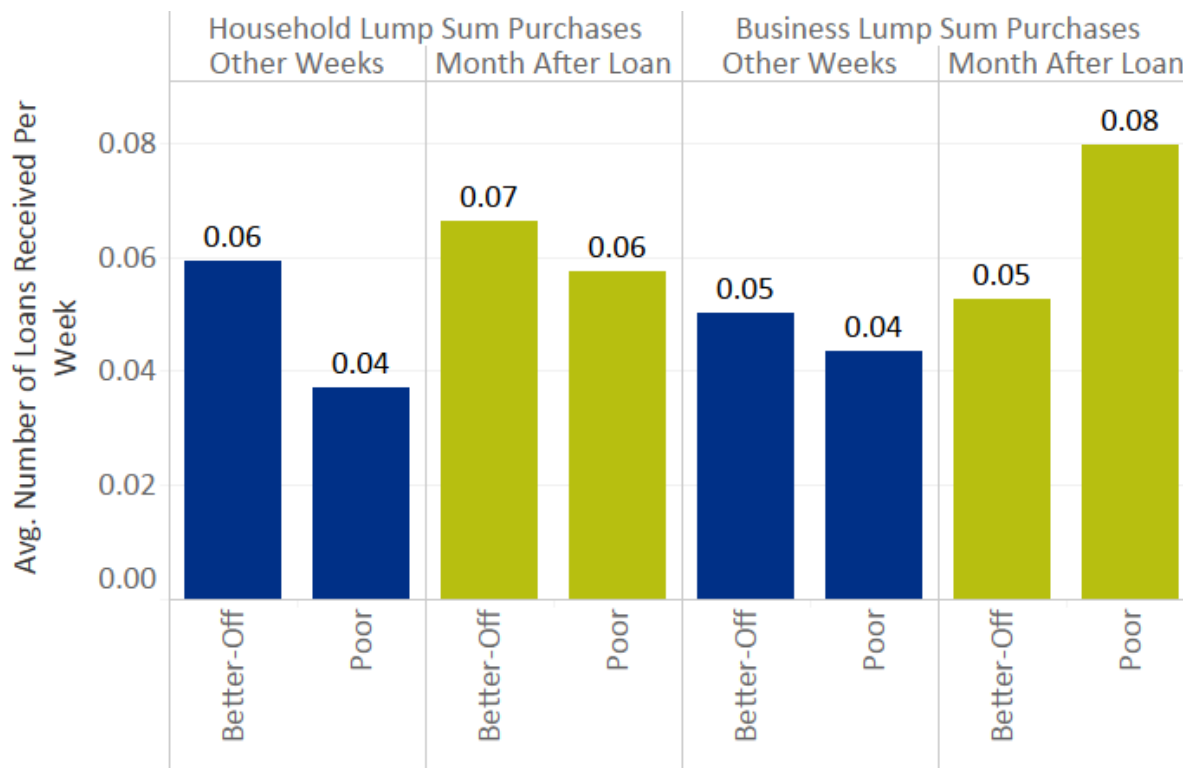
The data show that better-off and poor households allocated the resources from the share-outs in different ways. Better-off households purchased household items (mostly assets or quality of life improvements) and constructions items. They increased their spending on other items too but not as dramatically.

Figure 29: Average Frequency of Lump Sum Purchases by Expenditure Category, Better-Off Households
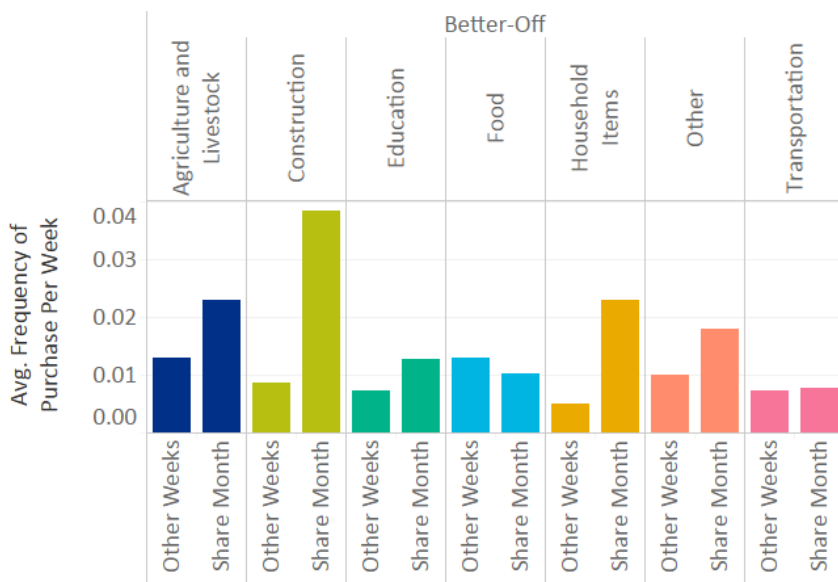
Poorer households, however, did not meaningfully reduce their purchases of food. However, they did increase their purchases of household assets dramatically, and they increased the frequency with which they paid school fees.
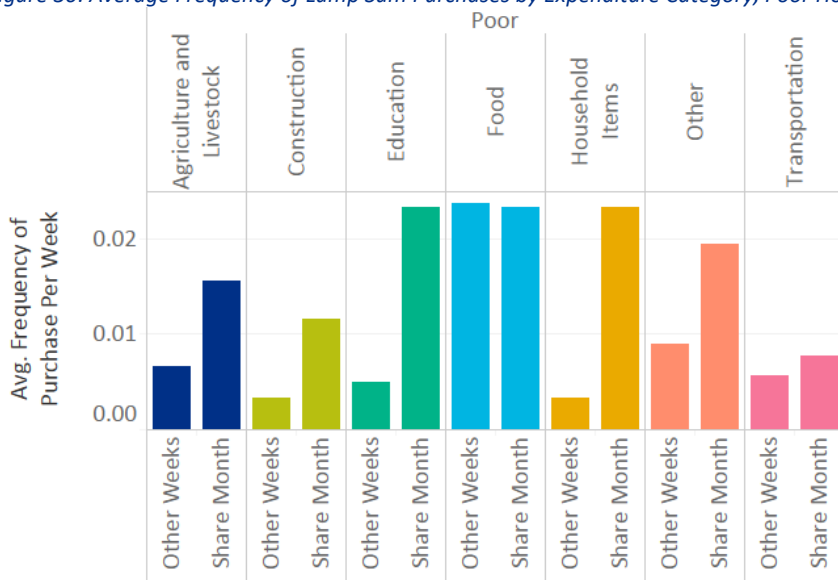
Figure 30: Average Frequency of Lump Sum Purchases by Expenditure Category, Poor Households

There are differences in how better-off and poor households changed their lump sum purchasing of business items, but these differences were less pronounced—both better-off and poor households increased the frequency with which they made bulk food purchases and agriculture purchases the most.

Enabling Asset Purchases for Otherwise Asset-Poor Households

Data from the PPI and PWR exercise show that households in the study, especially the poor households, were very asset poor. For instance, poor households lived in traditional mud houses with thatched roofs or roofs made with low quality iron sheets. They owned little furniture and their other assets, like bicycles and cell phones, were older and of lower quality than better-off households' assets. For these asset-poor households, the marginal benefit of being able to purchase a set of iron sheets, pots and pans, blankets, or a new bicycle was very high, especially when compared to the better-off household, which often had sturdier homes and a variety of higher quality assets such as furniture, televisions, DVD players, solar panels, and multiple mattresses.

CHAPTER 5: MANAGING CASH FLOW

RESEARCH QUESTIONS ADDRESSED IN THIS CHAPTER:
- How do SILC households manage their cash flow? How does their cash flow management change in response to major events in their lives? How are SILC and comparison households' cash flow management strategies different?

SUMMARY OF FINDINGS:
- On a day-to-day basis, SILC and comparison households rely on their income and home savings to fund household and business purchases.
  - SILC households had much larger cash flows than comparison households did. As described in previous sections, SILC households had larger gross earnings and business expenditures than comparison households but they had the same net incomes. They also had the same net savings flows.
- When receiving a windfall of income, SILC households and comparison households increase their expenditures. SILC households also drew more money in from financial tools these weeks but comparison households do not.
- When earning no income, households rely primarily on home savings and their informal networks.
  - SILC households also slightly increased their reliance on SILC financial tools, suggesting that these tools assisted households in consumption smoothing
- SILC households use a mix of income, home savings, informal financial services, and their SILC groups to fund lump sum purchases. Comparison households respond similarly but they do not have access to SILC services.
- Even when not spending any money, SILC households engage with their financial networks, primarily so they can make SILC deposits and loan repayments.

Chapter 3 described how households earned and spent their income as well as some of the informal and formal financial services households used. It showed that households' income was inconsistent and that lump sum purchases—for household and business use—were relatively common. It also showed that households made regular use of home savings and cash transfers and that their frequency of use was associated with income levels and income volatility. Chapter 4 provided an in-depth analysis of how SILC households used the services that groups provided, described how SILC households used group share-outs to make more frequent lump sum purchases, and how they borrowed from SILC groups more when their expenditures exceeded their income.

These patterns are indicative of the fact that households are constantly managing their cash flows and that they use financial tools to do so. This chapter describes that cash flow management process in depth, bringing together the data on income, expenditures, and financial service use, including SILC use.

This chapter describes how households use their income and financial services to manage small mismatches in their cash flow—situations when surpluses or deficits are not especially large. It then shows how households' management of their cash flow changes in response to a major cash flow event. Generally, there are four types of significant cash flow events:

Income Driven	**Windfalls** A household earned an unusually large sum of money. For this analysis, a windfall is equal to an amount twice the size of a household's average weekly gross income or larger.	**Shortfalls** A household's income was much lower than normal. For this analysis, we focus on weeks in which respondents did not earn any income ("zero income weeks")
Expenditure Driven	**Lump Sum Purchases** Lump sum purchases are expenditures on goods or services that are statistical outliers for a household.	**No Expenditures** A household made no expenditures on goods for their home or for their business.

The data show that households in Kasama had one or more of these cash flow events in over half the weeks of the study. Respondents experienced windfalls of cash in 13 percent of weeks and no income in 35 percent of weeks. They made lump sum purchases in nine percent of weeks and made no purchases at all in another seven percent of weeks. Households had no major cash flow events in 47 percent of weeks.

Table 10: Distribution of Unusual Cash Flow Weeks

Cash Flow Event	No Spending	Typical Spending	Lump Sum Purchase	Total
No Income	5.3%	27.6%	2.5%	35.4%
Typical Income	1.2%	47.0%	3.5%	51.6%
Windfall Income	0.2%	9.4%	3.4%	13.0%
Total	6.7%	84.1%	9.3%	100.0%

Comparing households' cash flows in weeks with no unusual events to the other weeks can provide valuable insights into how households prioritized spending and how their use of financial tools changed based on whether they received a windfall, earned no income, needed to make a big purchase, or made no purchases at all. By comparing these patterns across groups, we can determine whether SILC households rely on the financial tools provided by SILC groups to help improve resilience to shocks.

TYPICAL WEEKS

In 47 percent of weeks, households experienced no major cash flow events—sometimes their earnings were greater than their expenditures and sometimes the reverse was true, but these differences were not significant cash flow events. There were meaningful differences in the cash flows of SILC and comparison households, as suggested by the analysis in previous chapters. Comparison households had very limited financial flows in typical weeks besides home savings—they drew in small sums from cash transfers and other financial tools.

SILC households had higher average weekly gross income, higher business spending, and pushed and pulled much larger sums through financial tools than comparison households did. Although the SILC groups had larger cash flows, many of their net flows were similar to the comparison group. As mentioned previously, the groups' net incomes were nearly identical, which helps to explain why the two groups had comparable household expenditures in typical weeks. In addition, despite moving more than twice as much cash through home savings, the households' average net deposits were similar. Furthermore, SILC households' use of informal cash transfers and loans look similar to that of the comparison households.

Despite the similarities in net income, household spending, net flows, home savings flows, and their similar use of informal cash transfers and loans, SILC households managed to push 30 kwacha on average to their SILC groups in the form of SILC deposits and SILC loan repayments. Given that all other flows were nearly equal, where did SILC households get the extra cash? The data suggest the majority of it came from the SILC groups themselves—they pulled in 22 kwacha from SILC groups in typical weeks in addition to pushing 30 kwacha out. They filled the gap by pulling in cash from other financial tools, such as formal cash transfers or withdrawals.

Figure 31: Average Inflows and Outflows in Typical Weeks by Group
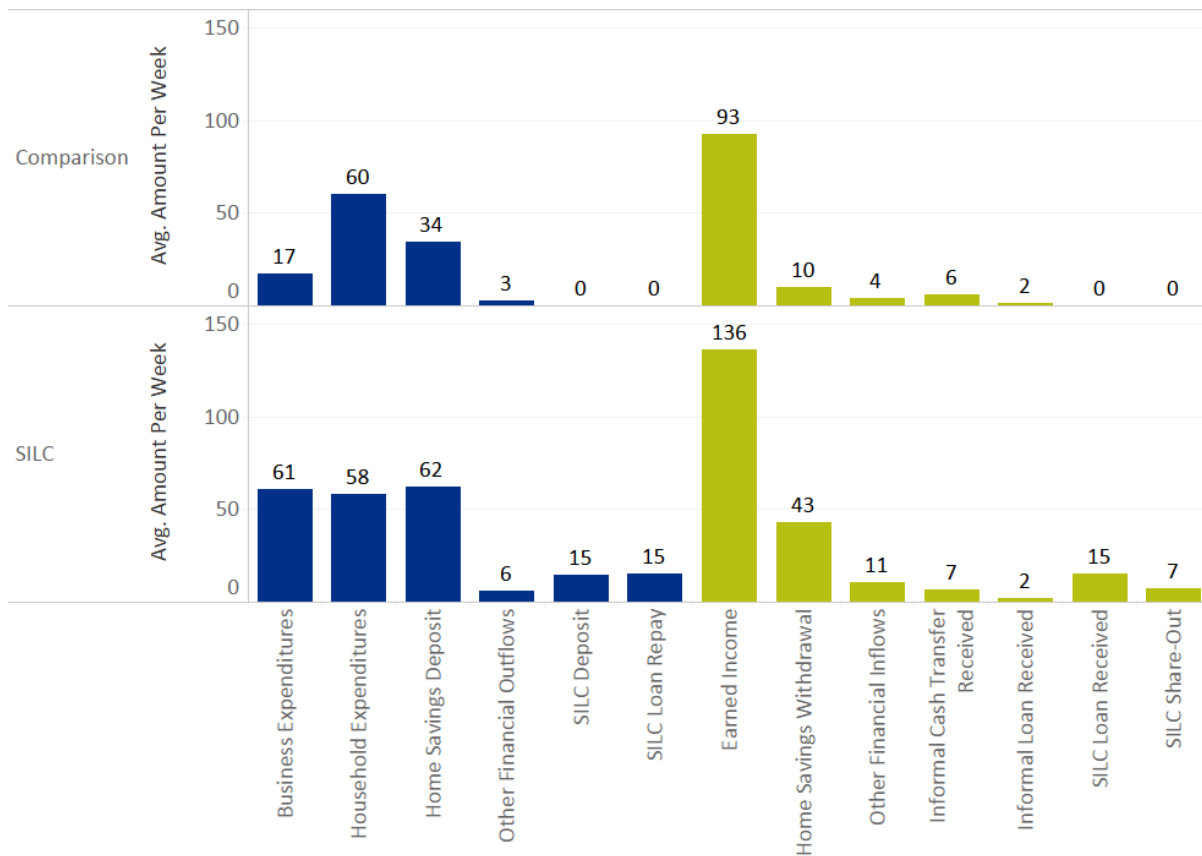
Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.
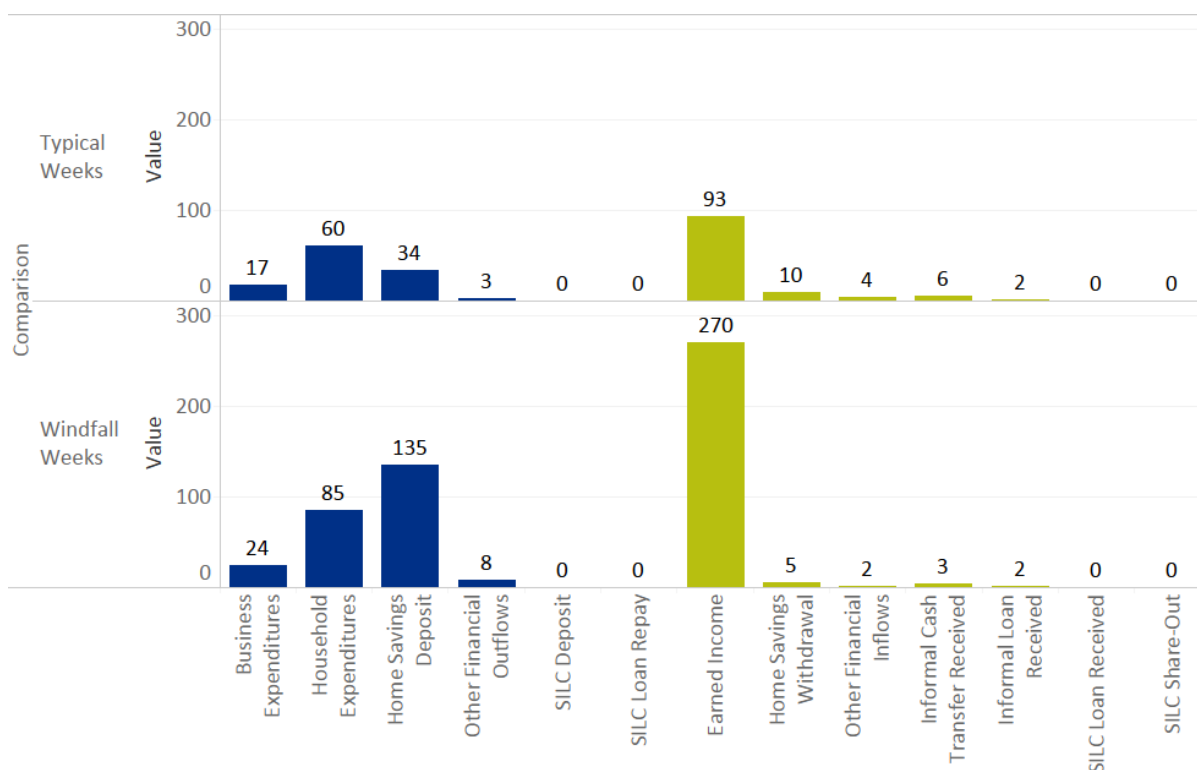
WINDFALL WEEKS

Sometimes a household earned an amount of money that was very large relative to their average weekly income. For this report, a windfall of income is greater than twice a household's average weekly income. However, the data show that the average size of a windfall was often much larger than the threshold. Households in the study received a windfall of income in 13 percent of all weeks, and in about 69 percent of those weeks, they did not have another major cash flow event at the same time.

Table 11: Average Gross Income by Windfall Week and Group

	No Windfall	Windfall
Comparison	59	326
SILC	81	556

The data shows that when comparison households received a windfall of cash, they used it to increase their household spending from an average of 60 kwacha per week to 85 kwacha per week. Households placed most of the rest of the cash into home savings for use in the future. Comparison households reduced the amount of cash they pulled in from other financial tools, but they still used them.

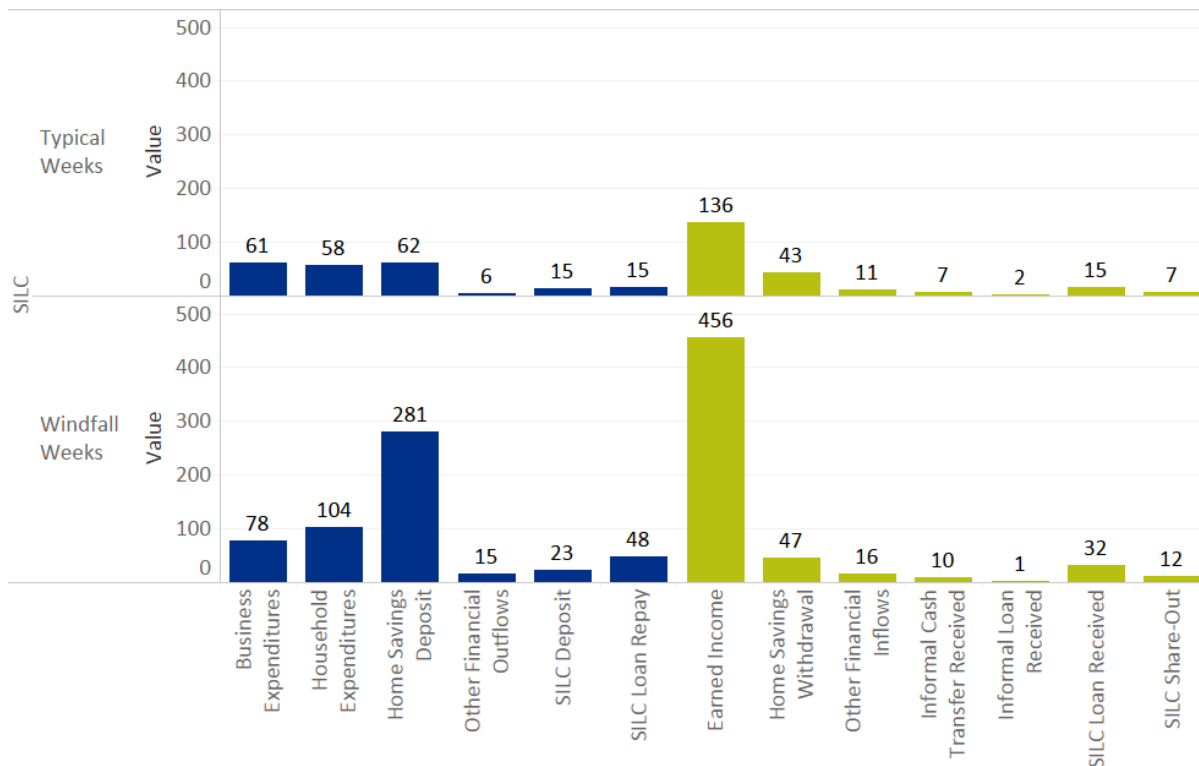*Figure 32: Average Inflows and Outflows by Windfall Week, Comparison Group*

This graph compares cash flows in typical weeks to weeks in which households received a windfall *and* did not experience another unusual cash flow event.

Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.

When SILC households received a windfall of cash, they also increased their household spending, and did so more relative to typical weeks than comparison households did. They also increased the amount they spent on business inputs slightly. Like the comparison households though, they deposited most of the income into home saving, and the use of their other financial tools was comparable to typical weeks. SILC households did push more money into their SILC groups—they increased the average size of their deposits and tripled the average weekly value of their loan repayments to the group. However, households offset the higher outflows to the group with increases in the average weekly value of cash drawn in from the group, namely a doubling of the value of new loans taken from SILC groups.

Figure 33: Average Inflows and Outflows by Windfall Week, SILC Group

This graph compares cash flows in typical weeks to weeks in which households received a windfall *and* did not experience another unsual cash flow event.
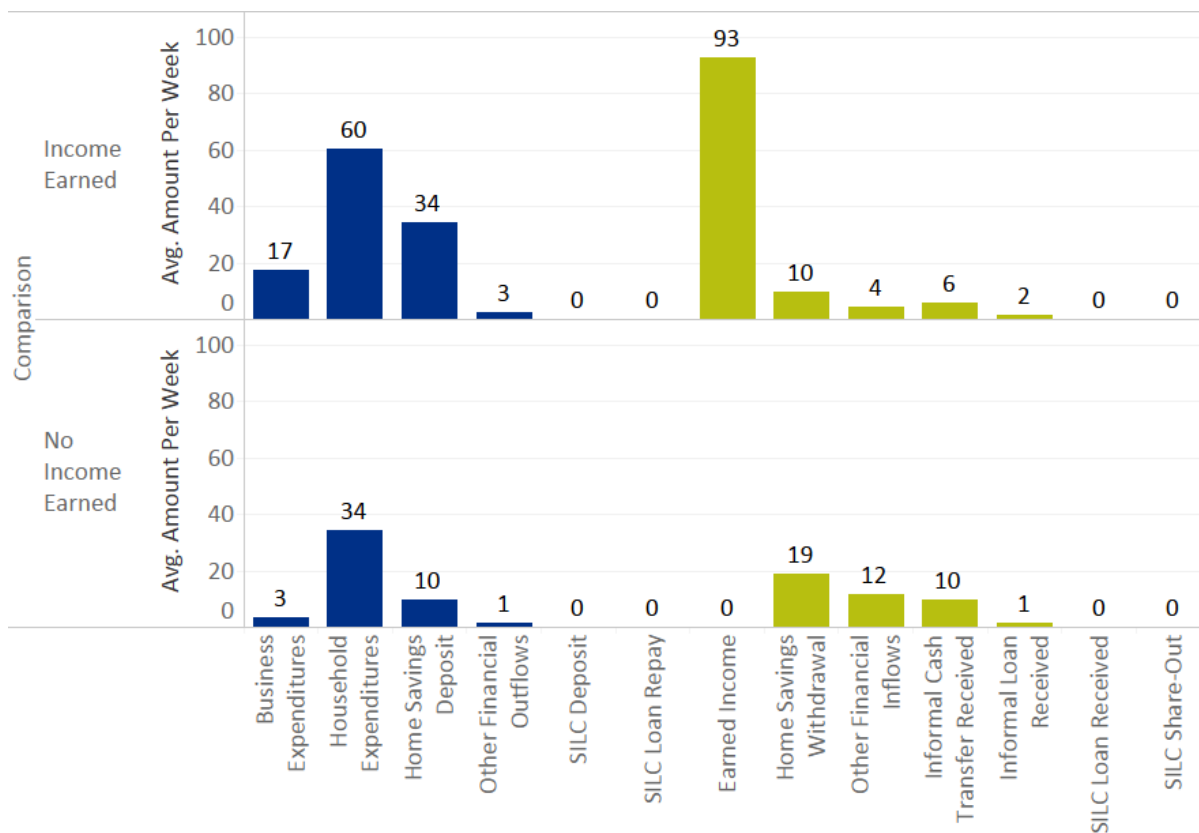
Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.

SHORTFALLS

Shortfall weeks are weeks in which income is lower than average. The most severe version of a shortfall is not receiving any income in a week and this was rather common for households. Households did not earn any income in 35 percent of weeks. In 80 percent of these zero income weeks, households did not have any other unusual cash flow events like a lump sum expenditure.

Weeks without any cash were difficult for comparison households, as they almost had to cease making all business-related purchases and cut their household spending by almost half. Home savings was the primary financial tool that households relied on, although informal cash transfers and a mix of other financial tools—from loan repayments to the periodic use of a formal financial service—helped too.
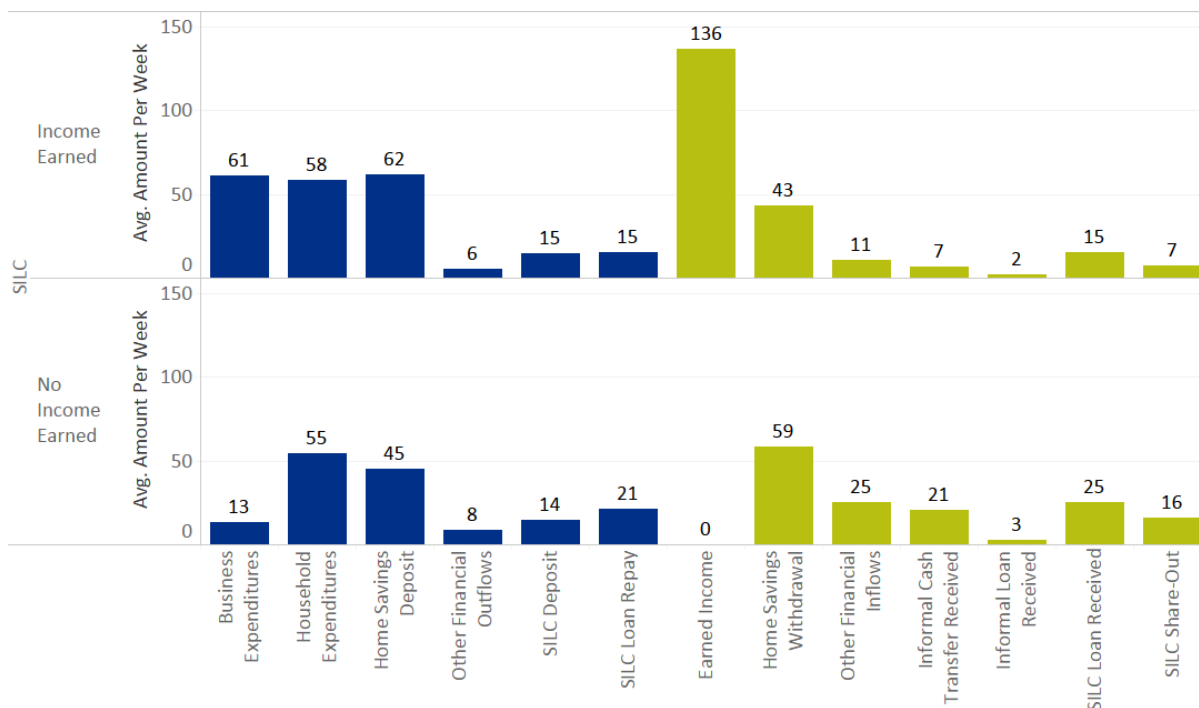
This graph compares cash flows in typical weeks ("Income Earned") to weeks in which households did not earn any income *and* did not experience another unsual cash flow event.

Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.

SILC households appeared to be more resilient to these zero income weeks. They too had to reduce their spending on business inputs dramatically but they were able to keep their household expenditures almost constant. Even without any income, households maintained the amount of money they deposited to their SILC groups on average, and they increased the size of their loan repayments. They withdrew more from home savings than normal, pulled in more from informal cash transfers and other financial tools, and drew in more money from the SILC groups themselves to fund these outflows.

This graph compares cash flows in typical weeks ("Income Earned") to weeks in which households did not earn any income *and* did not experience another unusual cash flow event.

Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.

SILC Households Refinance: Borrowing and Repaying in the Same-Week

The figures in this chapter show that SILC households get new cash loans *and* repay loans to the SILC group despite not having any income. The data reveal that taking a new SILC loan and repaying an old SILC loan in the same week was relatively common: SILC households repaid a SILC loan in the same week they received a new SILC loan about 38 percent of the time. The data suggest a good reason for this—households get about a 30 percent increase in cash by "refinancing" their SILC loan. In weeks when households got a new SILC loan and made a SILC loan repayment, the new loan was an average of 493 kwacha and the repayment was an average of 379 kwacha.

LUMP SUM PURCHASES

Households in the study made a lump sum purchase in about nine percent of weeks. Just more than one-third of those weeks happened without another unusual cash flow event, and the graphs in this section compare how cash flows changed in these weeks with a lump sum purchase but no other significant cash flow event compared to typical weeks. The data show that the weeks in which households made lump sum purchases contained a flurry of economic activity.

The lump sum activity was large—comparison households spent an average of 75 kwacha per week on business expenditures and 108 kwacha per week on household expenditures. Additionally, they increased their non-lump sum household purchases. Households funded the majority of this spending with an increase in income and withdrawals from home savings. Other financial tools feature prominently too—comparison households took small informal loans, relied on cash transfers, and received the other large financial inflows.

Figure 36: Average Inflows and Outflows by Lump Sum Weeks, Comparison Group
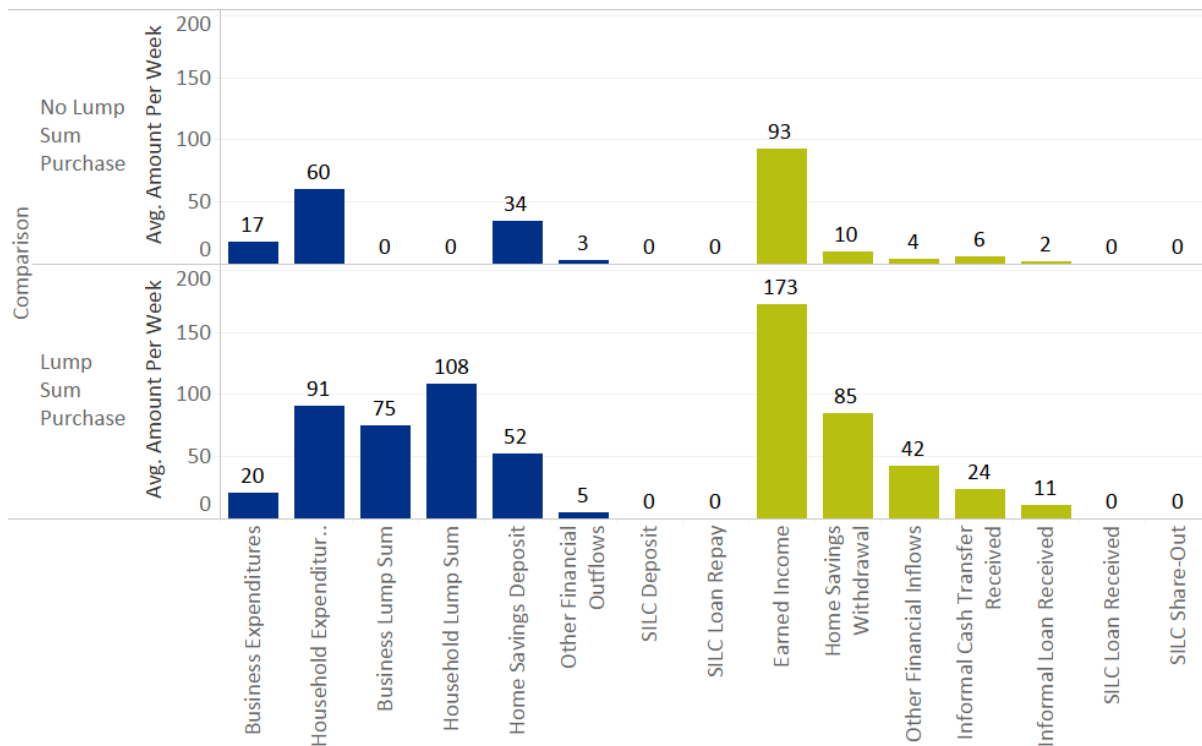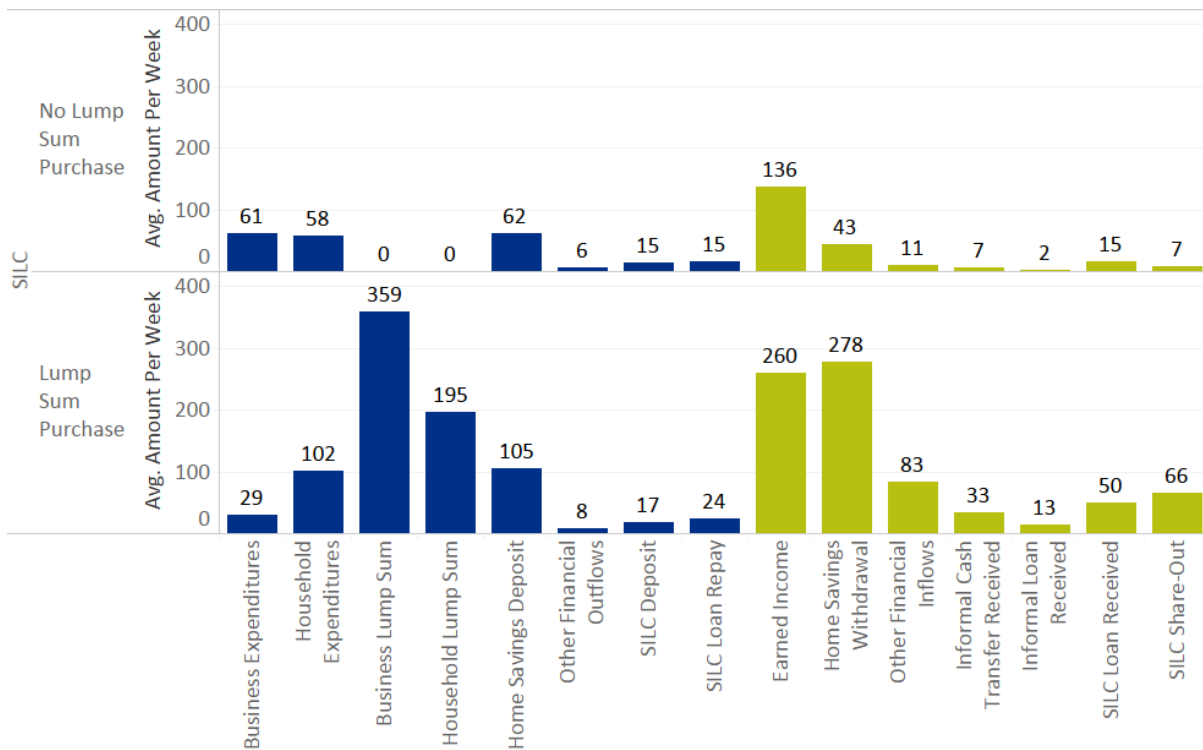

This graph compares cash flows in typical weeks ("No Lump Sum Purchases") to weeks in which households made at least one lump sum purchase *and* did not experience another unusual cash flow event. Readers should note the introduction of "Business Lump Sum" and "Household Lump Sum."

Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.

SILC households' spending on lump sum items for business purposes outpaced expenditures for lump sum purchases with a household purpose, but both were large. The outsize spending on business related lump sum purchase may explain the decrease in other weekly business spending. In contrast, SILC households increased their typical household spending. Households financed most of this spending with increases in income and a dramatic increase in the size of home savings withdrawals. The SILC group also pulled in cash from transfers and informal loans in amounts similar to the comparison group, although the SILC households did have other financial inflows that were larger, driven by the few households with very large flows from formal financial services. In addition, as suggested by the previous chapter, SILC services featured prominently during weeks when SILC households made lump sum purchases.

This graph compares cash flows in typical weeks ("No Lump Sum Purchases") to weeks in which households made at least one lump sum purchase *and* did not experience another unusual cash flow event. Readers should note the introduction of "Business Lump Sum" and "Household Lump Sum."
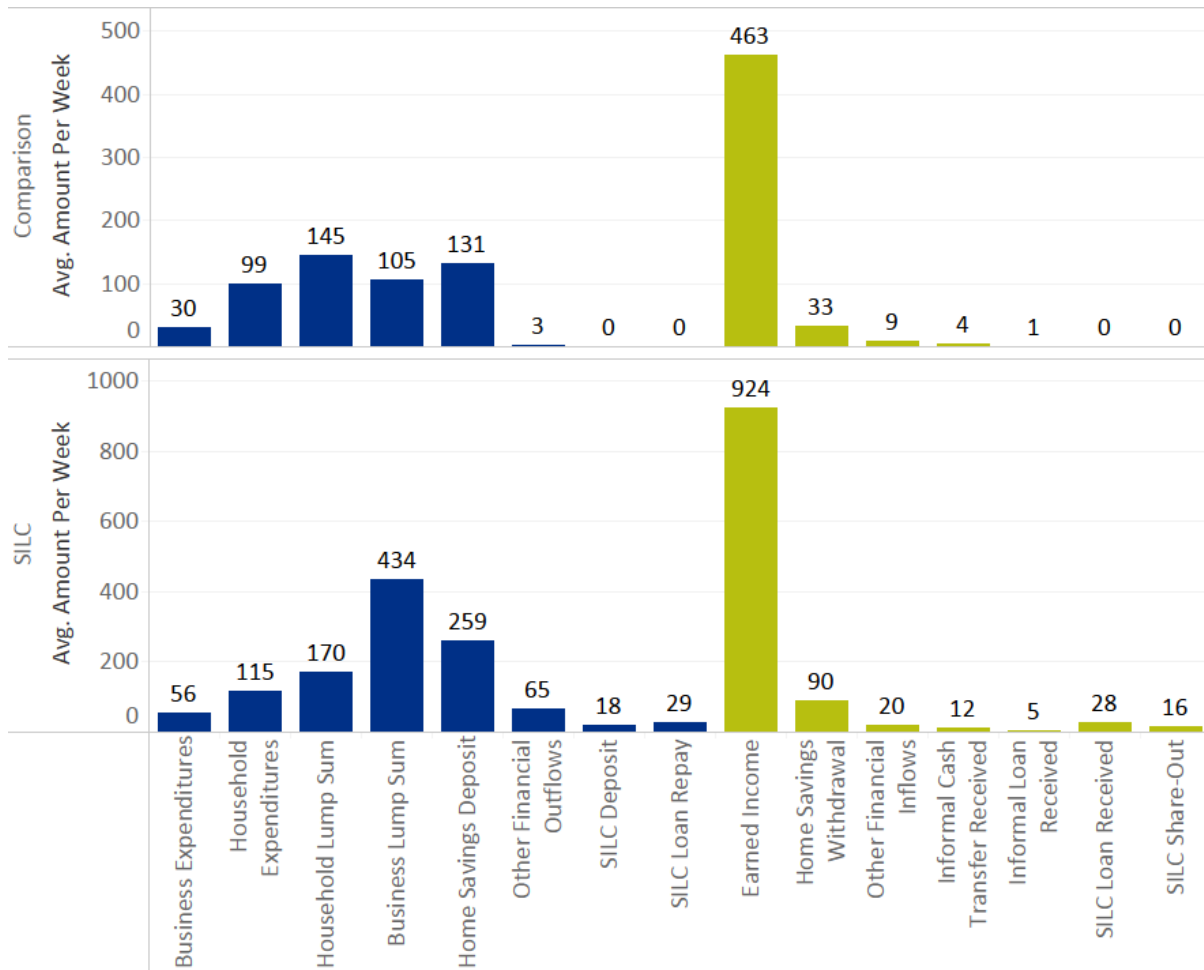
Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.

Lump Sum Purchases during Windfall and Zero Income Weeks

Of the weeks in which a lump sum purchase occurred, only 37 percent happened during weeks when no other unusual cash flow activity occurred. The remainder either happened at the same time a household received a windfall of income or no income at all.

In weeks when households had a windfall of income and made a lump sum purchase, they relied predominantly on that income. For SILC households, SILC services were not as prominent a resource.
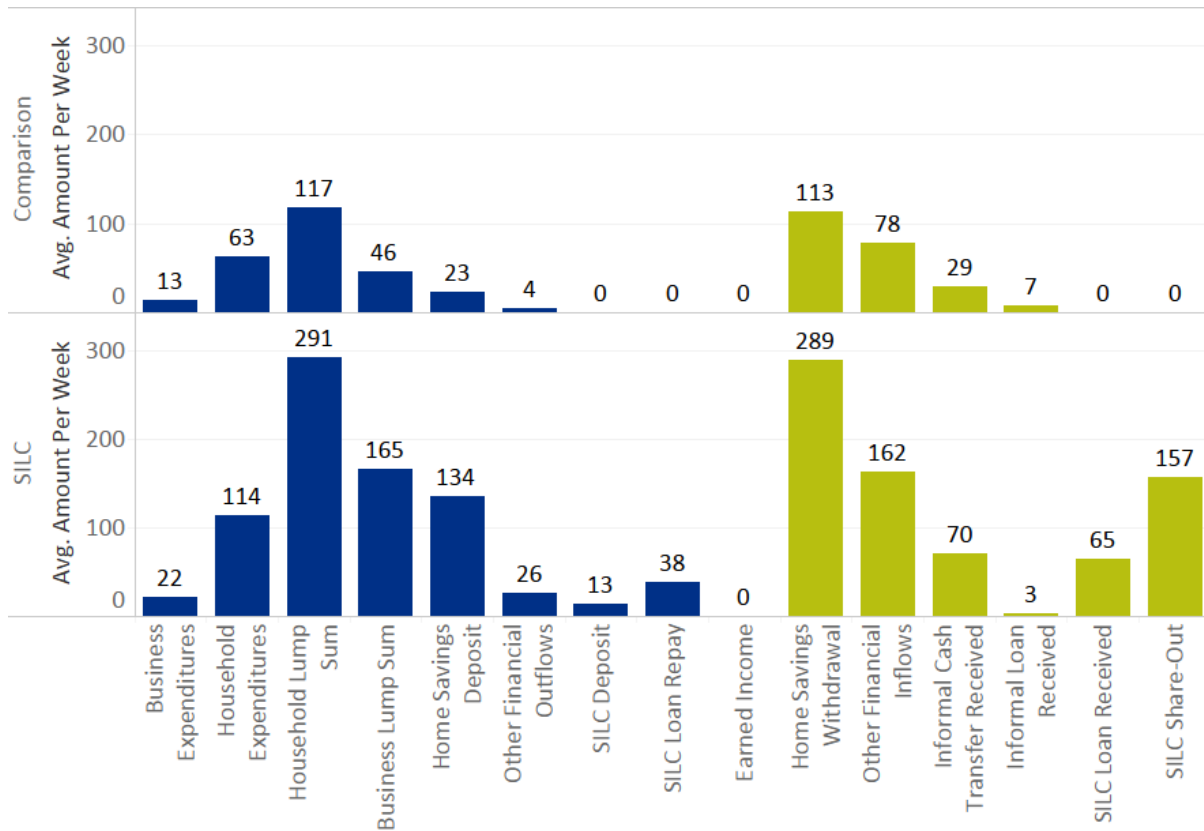
This graph shows average weekly cash flow in weeks when households received a windfall of income *and* made a lump sum purchase.

Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.

During weeks in which households made a lump sum purchase but earned no income, households accessed cash by using financial tools. Both comparison and SILC households drew in the most cash from their home savings followed by inflows from other financial sources like mobile money transfers or banks. Of all the cash management situations that SILC households faced, SILC services were most prominent in this one based on average flows.

This graph shows average weekly cash flow in weeks when households earned no income *and* made a lump sum purchase.
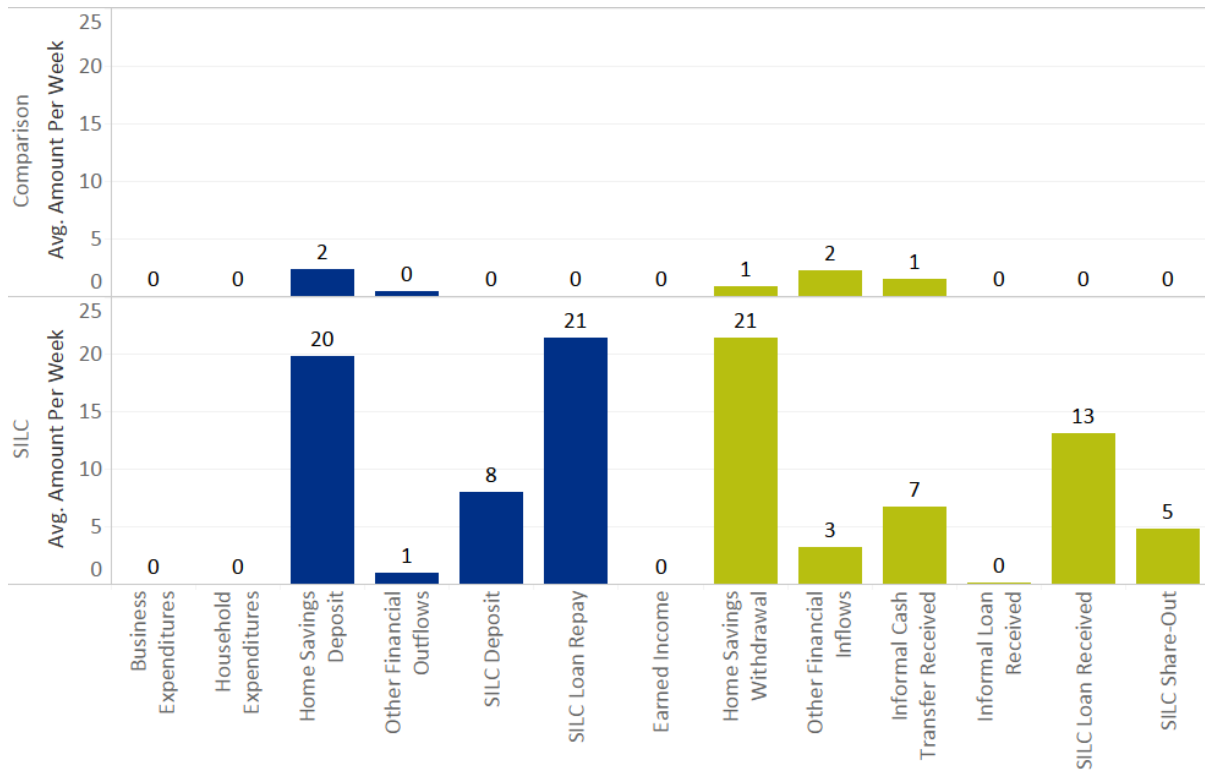
Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.

NO SPENDING WEEKS

In almost seven percent of weeks, households did not spend any money. In about one percent of weeks, they spent no money but earned some income, although this income was often less than what they earned in typical weeks. What little money the household did bring in they often gave to others in the form of cash transfers or small loan repayments.

During five percent of all weeks, households made no expenditures and earned no income. However, this did not mean that there was no economic activity. SILC households had to make deposits into their SILC groups and repay SILC loans, although both were smaller than normal. They funded these outflows with home savings and sometimes other, small informal cash transfers. In rare instances, the SILC households also pulled in money in the form of a SILC loan.

This graph shows average weekly cash flow in weeks when households earned no income *and* made no household or business expenditures.

Outflows of cash are represented in blue. Inflows of cash are represented in gold. Given the infrequency with which the outflows occur, formal and informal cash transfers and loans are aggregated in "Other Financial Outflows." "Other Financial Inflows" is an aggregate field, primarily composed of formal financial services and informal loan repayments.

CHAPTER 6: GENDER AND ECONOMIC ACTIVITY

RESEARCH QUESTIONS ADDRESSED IN THIS CHAPTER:
- Are there differences between the cash flows of men and women living in the same households? Are these differences the same between SILC and comparison households?

SUMMARY OF FINDINGS:
- A patriarch—the male economic leader in a household—earned more gross and net income than a matriarch—the female economic leader in a household—did, on average.
- Patriarchs spent more money than matriarchs did on average, and there were gender-based differences in how they spent money.
  - Matriarchs spent more money to buy food for the household while patriarchs spent more money on other categories like agriculture, construction, education, and transportation.
- One of the ways matriarchs managed cash shortfalls was by receiving intra-household transfers, typically from patriarchs, but they used other financial tools too.
  - Patriarchs in comparison households were able to cover these intra-household transfers from their net income.
  - SILC household patriarchs could not.
    - One of the ways SILC patriarchs dealt with this was by moderating the amount of money they deposited into SILC groups.
- In terms of cash flow, matriarchs used SILC services more than patriarchs did—their cash flows through SILC were about 30 percent larger than patriarchs' cash flows. However, since matriarchs relied on transfers from patriarchs, patriarchs financed a portion of this SILC activity.

This report has presented data so far at the household level and for good reason—many of the households in the sample have multiple economically active members, and those members coordinate some of their economic behaviors. However, this approach fails to account for differences within households, specifically how different members earned and spent as well as how they moved money within the household and used other financial tools.

This chapter aims to explore those internal household differences. The chapter focuses on the economic behavior of households' matriarchs and patriarchs—the women and men who led their households in terms of their economic activity and their role in decision-making. Focusing on these actors makes sense for three reasons. First, while other individuals periodically made transactions in their households, matriarchs and patriarchs accounted for 94 percent of the activity reported during the project. Their adult children often performed the remaining transactions. Second, looking at matriarchs and patriarchs allows us to discern how money moves between the prime financially responsible adults within the home. Third, the matriarch and patriarch designations are proxies for gender, allowing for the analysis of differences between women and men in a household.

INCOME AND EXPENDITURES

Income and Business Spending

Patriarch's average gross weekly earnings were larger than matriarch's average gross weekly earnings in both SILC and comparison households, but the gap within SILC households was much larger.

Figure 41: Average Gross Weekly Income by Gender and Group
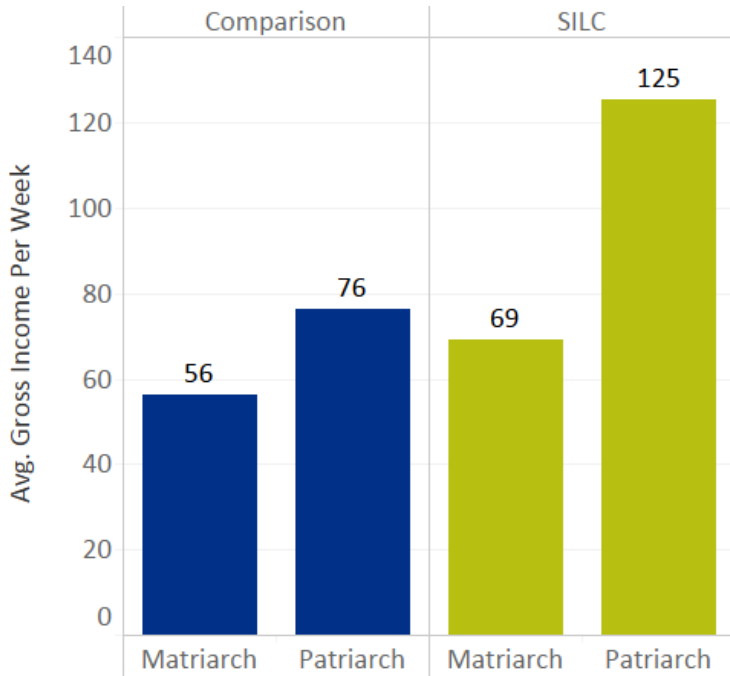
The data also show that patriarchs in SILC households spent more on business inputs on average each week. Patriarchs in comparison households spent less than women did, but this gap was very small.

Figure 42: Average Weekly Business Spending by Gender and Group
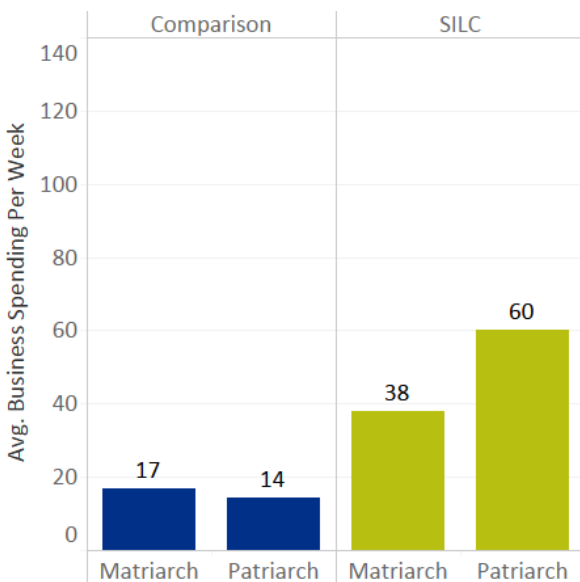
Business Spending and Gender

There were differences in what types of business items matriarchs and patriarchs purchased. Matriarchs were much more likely to spend money on food, including stock for small vegetable stands and ingredients to make foods for sale. Patriarchs were more likely to spend money on other items—including things like inventory for shops, construction materials, and airtime—than matriarchs were. They were also more likely to spend money on transportation to transport themselves and/or their goods. On average, patriarchs and matriarchs spent the same on household items needed for a business purpose.

Figure 43: Average Weekly Business Spending by Gender
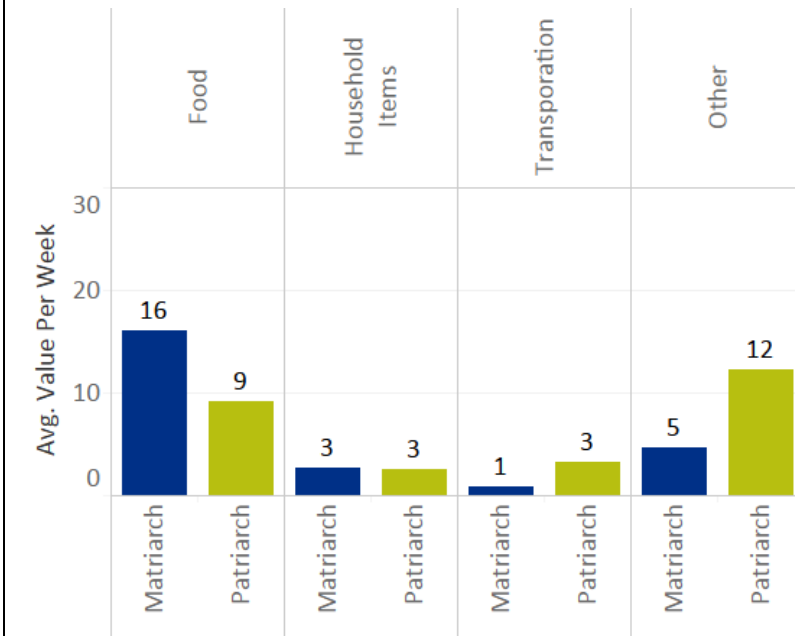
Together, these data show that patriarchs had higher net incomes than matriarchs did and that there were minor differences between SILC and comparison households.

Figure 44: Average Net Weekly Income by Gender and Group
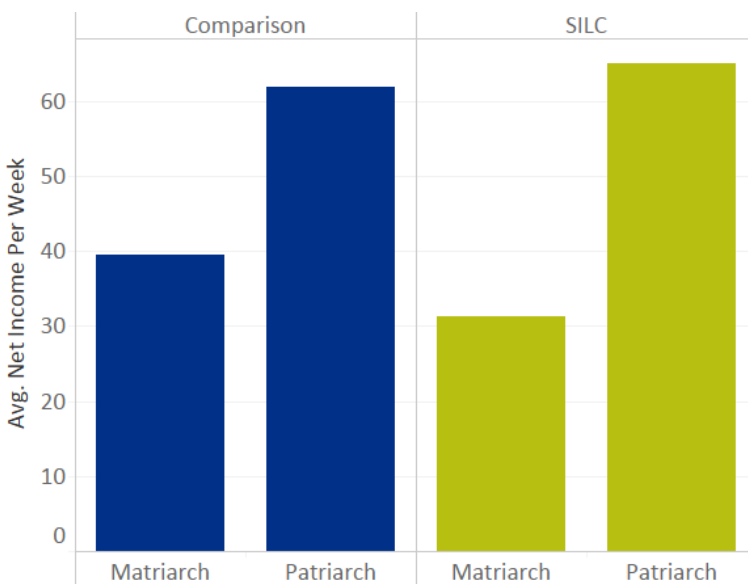
Household Spending

As might be expected given their higher net earnings, the patriarchs in the study spent more per week than the matriarchs—about 55 kwacha versus about 48 kwacha. Both men and women bought agricultural supplies, paid education fees, and bought food for the home, but there was still a clear division in these responsibilities. Matriarchs spent relatively more money on food while patriarchs spent relatively more on things like agriculture, construction, and transportation. Matriarchs and patriarchs spent about the same amounts in other areas, including education and household items.

Figure 45: Average Weekly Spending by Expenditure Category and Gender
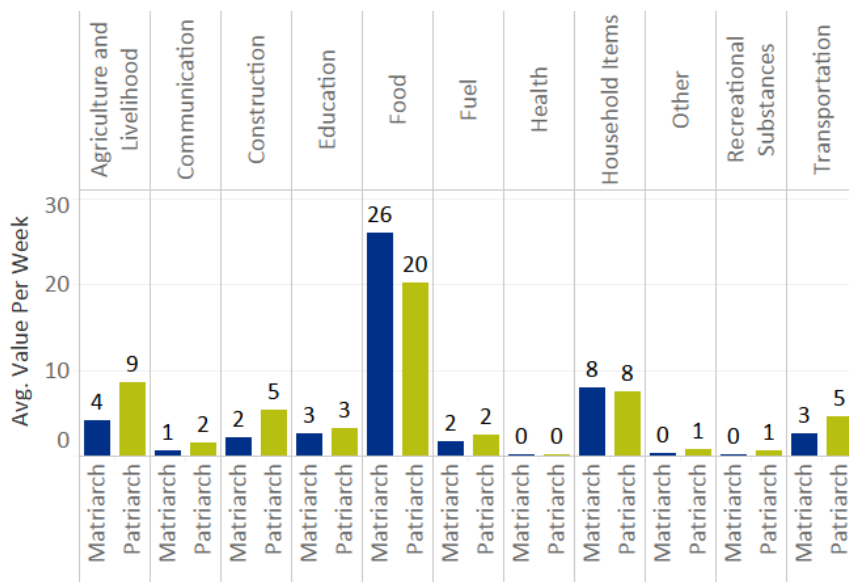
FINANCIAL TOOLS AND MANAGING CASH

The data show that, on average, patriarchs had about enough net income to cover their household expenditures while matriarchs did not. How did the matriarchs manage to fill the gap and what financial tools did matriarchs and patriarchs generally use?

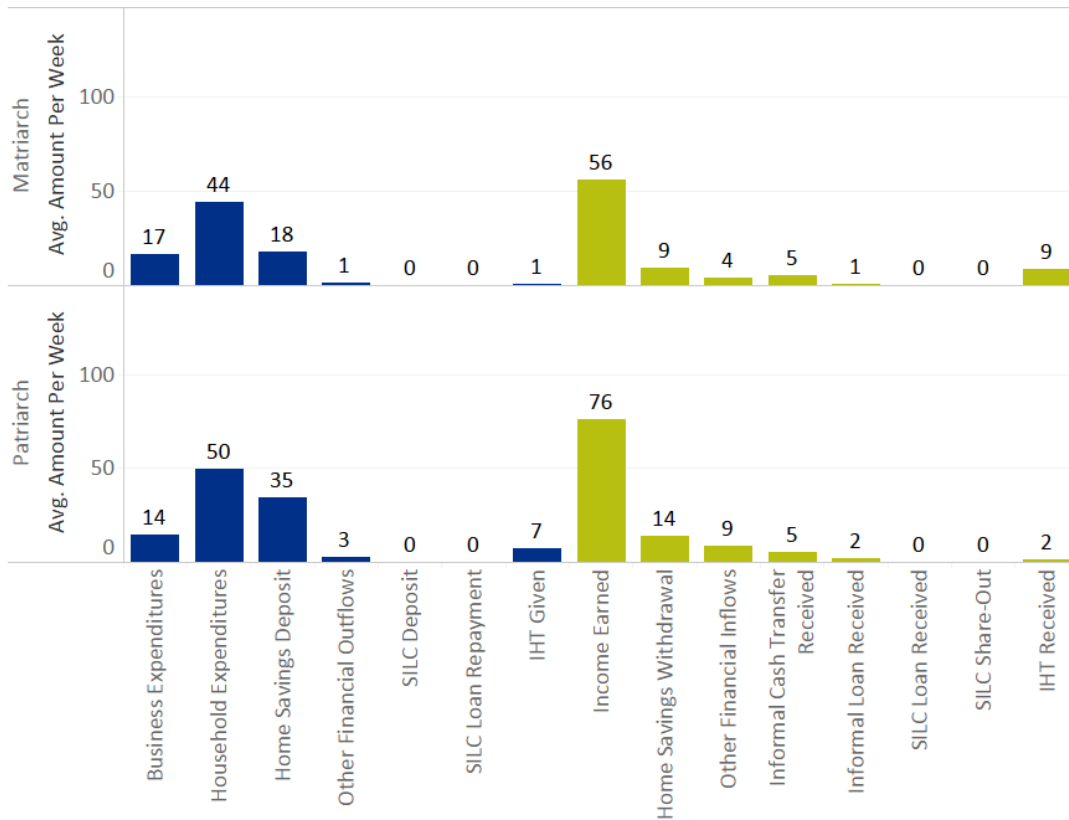*Table 12: Average Net Income and Household Spending by Gender and Group*

		Matriarchs	Patriarchs
Comparison	Net Income	39	62
	Household Spending	44	50
SILC	Net Income	31	65
	Household Spending	55	66

Comparison Households

Matriarchs in comparison households had net incomes of 39 kwacha but spent 44 kwacha on household items. One way women filled this gap was by receiving cash transfers from family members *within* their households, which we refer to as intra-household transfers (IHTs). Most of these transfers were from patriarchs. In addition, these women pulled in money from home savings, informal cash transfers, and other financial tools, which allowed them to make home savings deposits despite not having enough of their own money to pay cover all their expenditures.

Patriarchs in comparison households had 12 kwacha left after making all household and business purchases, on average. The data show that seven kwacha went to other household members (mostly matriarchs) to fund their purchases. On a net basis, patriarchs deposited more into their home savings than they withdrew. They were able to do this and cover the IHTs because they pulled in cash through other sources, such as informal cash transfers and informal loans.

SILC Households

The matriarchs in SILC households faced a similar problem. They had an average net income of 31 kwacha per week but 55 kwacha in household expenditures. They too addressed some of this gap by receiving IHTs from the patriarchs in their households, but that could only partially fill the gap. In addition to their household spending, the matriarchs made larger deposits into their SILC groups and larger loan repayments. The IHTs they received were insufficient to fund all these outflows, so the matriarchs used some funds from SILC groups, informal cash transfers and other financial tools, like periodically receiving a mobile money transfer.

The patriarchs in the SILC household had higher gross income and larger business expenditures than matriarchs, but the margin was such that the patriarchs had larger net incomes. However, after including their household expenditures, SILC patriarchs had no income with which to meet any of their financial obligations, including providing IHTs to the matriarchs. In order to make these transfers, the SILC patriarchs had to rely on financial tools, primarily their home savings, informal cash transfers, and other financial services like formal cash transfers and bank withdrawals. The data in this graph also reveal that patriarchs differed from matriarchs in another important way: they did not push or pull as much cash in to or out of SILC groups as matriarchs did.

Figure 47: Average Weekly Inflows and Outflows by Gender, SILC Group
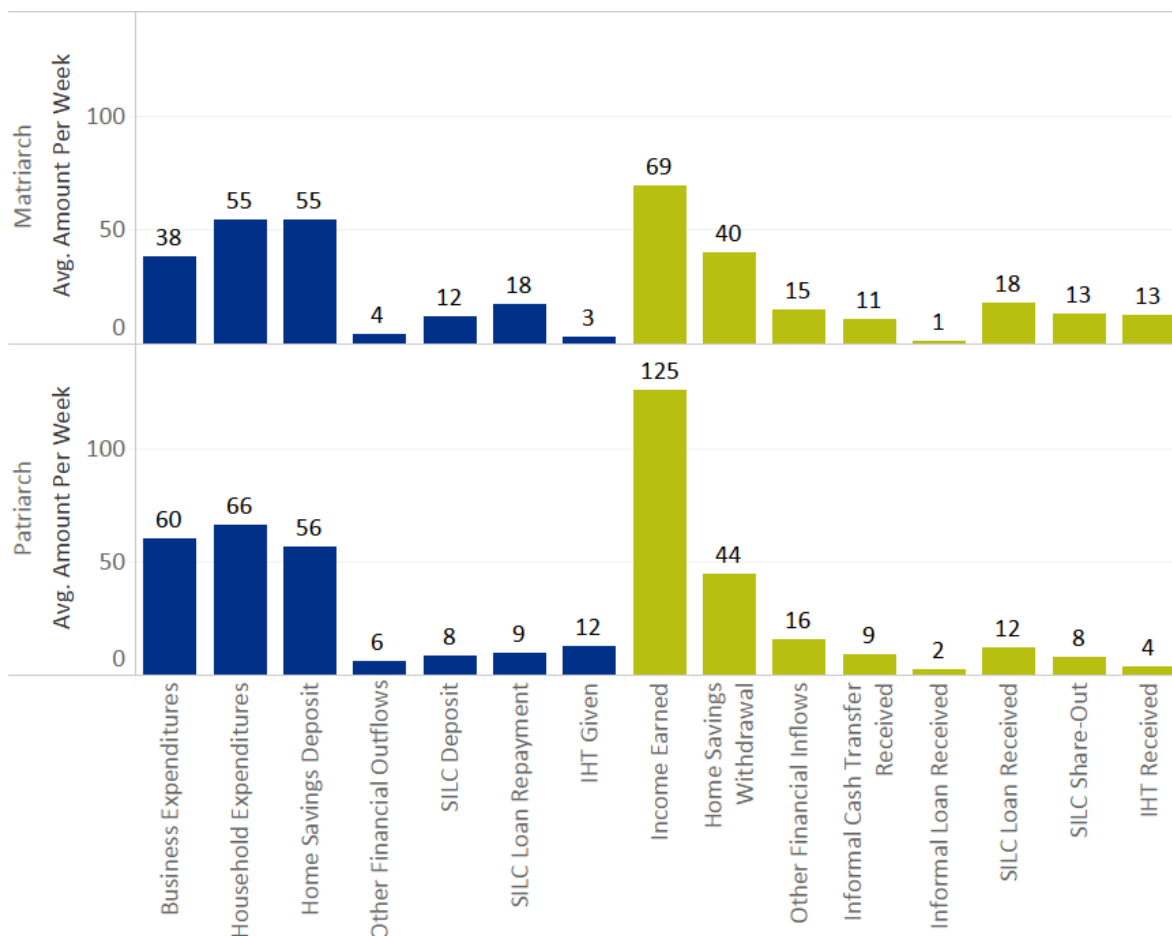
Deep Dive: Intra-Household Transfers

The data show that patriarchs regularly transferred money to matriarchs, a sum of money that was important for matriarchs but forced patriarchs to access a range of financial tools. Despite the consistent flow of money from patriarchs to matriarchs, patriarchs and matriarchs in the same households reported during in-depth interviews that they typically kept their money jointly and made decisions on what to do with it together. Furthermore, households said that they transferred money between each other based on spending needs. This raises interesting avenues for future research on gender-dynamics within SILC households. Are IHTs transferred based on a joint recognition of the importance of SILC to the home? Or, despite households reporting joint decision making, does the nature of IHT transfers suggest subtle shifts in the bargaining power between male and female members of the home as a result of SILC participation?

CHAPTER 7: CONCLUSIONS AND IMPLICATIONS

CRS launched the Financial Diaries research project as part of the EFI program to understand the experience of SILC households better. Specifically, CRS sought to understand:

- How SILC households earned and spent money and how they used financial tools;

- How SILC households interacted with SILC services;

- How SILC households managed their cash flows and SILCs' role in that process; and

- Whether men and women in SILC groups used the services differently.

In order to attribute any trends in the data to the SILC program, CRS included a set of comparison households that were like SILC households in many ways but did not participate in the savings program.

The data presented in this report showed that CRS extended SILC services to households living below the International Poverty Line, and SILC households tended to be better-off than other households within the same village were.

Additionally, this analysis showed that SILC households had markedly different cash flows than comparison households. SILC households were more likely to earn money from agricultural sales and trade than comparison households were; the latter were more likely to earn money from casual labor. Agricultural sales and trade yielded larger gross incomes but both livelihoods required more business inputs, and after accounting for these, the two groups had identical net incomes. The fact that SILC households had larger gross incomes helps to explain why they pushed and pulled more cash through financial tools than comparison households did.

After home savings, the financial tool SILC households used the most was the saving facility provided by the SILC group. The data show that the methodology enabled SILC households in Kasama to accumulate large sums of cash in a more secure location than their homes. The SILC households were also able to access large sums of cash through loans. Households used these lump sums of cash to make purchases that one would reasonably expect to improve a household's quality of life. For instance, the poorest SILC households invested in their children's education and purchased household assets. Better-off households purchased assets too as well as construction materials to improve their homes and plots. Furthermore, there is evidence that the cash from SILCs was in high demand. SILC households spent almost all of their share-out (the money distributed at the end of the saving cycle) in the month after receiving their money from the group, underscoring how cash poor these households were.

The chapter on how households managed their cash flows revealed that SILC services figured prominently when households did not earn any income, allowing households to be more resilient to cash flow fluctuations and smooth their consumption. This, along with qualitative data about the value of SILC groups, suggests that SILCs were making meaningful contributions to the well-being of households.

The section on gender-based differences showed that men and women used SILC services differently. Specifically, women deposited more money on average and received larger loans from SILC groups than men did. One reason for this could be that men were financing the deposits and subsequent loan repayments of women indirectly. The data show that women generally needed to receive intra-household transfers (IHTs) to meet their spending obligations in a given week. Household patriarchs disproportionately provided these IHTs but appeared to deposit less money into their SILC group than women did to make up for the difference. Data from the in-depth interviews suggests that most households were making decisions jointly, so CRS would need to undertake further research to understand whether and how SILCs empower female members.

While SILC groups provided a mechanism for households to build lump sums of cash that they used to purchase assets, pay school fees, and improve their homes, the data suggest that SILCs did not have a short-term effect on household income. Over the course of the two-year period, SILC households' net income oscillated but so did comparison households' net income—the difference between the two groups never diverged. This was not necessarily for a lack of trying. In addition to increasing the frequency with which they made household-related lump sum expenditures, SILC households also increased the frequency with which they made business investments like agricultural inputs and inventory for shops. Together, these data suggest that households were either unsuccessful in increasing the margins of their business endeavors after increasing their investment *or* that SILC services did not have an additive effect on investment, rather lump sums from SILC share outs and loans changed *when* households chose to invest. [28]

The finding that SILC services allowed for marginal improvements in household well-being is positive, but the data also raise important considerations for CRS as they continue to promote these groups. For instance, households' behavior was clustered in their groups—some groups performed very well and others did not. Furthermore, the data showed that the frequency with which households interacted with their groups—either in the form of making deposits or taking loans—trended downward over time. These patterns raise important questions for CRS to address with future research: What are the characteristics of the high-performing groups? What can CRS do to foster those characteristics in low-performing groups? Furthermore, to the degree CRS is interested in influencing the use of the financial tools, how can CRS use SILC groups to deliver interventions that *could* increase net incomes over time?

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[28] Since the study did not follow SILC households before they **began** participating in the group, we cannot check to see if the timing of investments shifted in any type of meaningful way. However, this change in timing may be a positive result if it allowed for greater flexibility and planning over longer time horizons, and thus would be worth further research by CRS.