Study on the Drivers of Over-Indebtedness of Microfinance Borrowers in Cambodia: An In-depth Investigation of Saturated Areas

Final Report – Abstract and Executive Summary

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March 2013
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Abstract

Cambodia’s microfinance sector has grown at a rapid pace over the past two decades, allowing poor households to access financial services and enabling them to grow income-generating activities. However, the sharp growth of the sector has also resulted in substantial competition, and there have been concerns that it may be leading to cross-lending and possibly, over-indebtedness of borrowers.

This study focuses on providing an in-depth understanding of the drivers of over-indebtedness (OID) in selected saturated areas, which represent less than 6% of total villages in Cambodia. This study does not attempt to measure the magnitude of over-indebtedness in Cambodia and our results regarding OID’s incidence cannot necessarily be extrapolated at a national level.

In this study, we used two definitions of over-indebtedness:

- An objective measure based on the traditional view of over-indebtedness that looks at the repayment capacity of the borrower by comparing the debt installments to the net income. Applying this measure, we found that 22% percent of clients in the sample of 1,480 were insolvent or over-indebted.
- A subjective measure derived from a client protection perspective, which takes into account the struggles and sacrifices that borrowers make to repay their debts on time. 6% of clients in a sample of 465 borrowers fit this subjective definition and were classified as over-indebted.

Two separate econometrical analyses were conducted to identify the potential drivers of OID based on i) our objective definition and ii) clients’ struggle to repay:

- Both econometrical analyses pointed us to multiple borrowing: Clients with multiple loans, especially three or more loans, were far more likely both to be insolvent and to have struggled to repay.
- Profit from entrepreneurial activities alone to cover debt obligations was a statistically significant factor in explaining differences in objective over-indebtedness, i.e. clients with insufficient profit from their own business were more likely to be insolvent.
- Financial literacy was strongly associated with having struggled to repay, in which borrowers with low financial literacy were more likely to struggle.
- Education had a negative, albeit moderate relationship with having struggled to repay.

The findings in this paper call for all actors of the Cambodian microfinance industry (MFIs, Lenders, NBC, Credit Bureau) to join forces to regularly monitor market penetration and multiple borrowing at the most local (i.e. village) level in Cambodia and to engage in a conversation on how to define precise guidelines on maximum level multiple borrowing in order to prevent over-indebtedness.

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3 The number of over-indebted borrowers based on the subjective definition of OID being too small to perform a robust econometrical analysis, we decided instead to analyze the drivers of clients’ struggle to repay. Despite their high level of tolerance, 51% of the borrowers admitted that they have struggled to make loan repayment.
Executive Summary

Rationale
Cambodia’s microfinance sector has grown tremendously over the past decade, expanding from just USD 3 million of outstanding loans and 50,000 borrowers in 1995, to a remarkable USD 732 million and 1,197,722 borrowers in 2012. The increase in the number of MFI operators to a current 32 institutions, all with a focus on portfolio growth, has resulted in increasing market penetration. For some years now, there has been a growing concern that the increase in competition among MFIs may be leading to cross-lending and possibly, the over-indebtedness of borrowers.

Understanding the current state of multiple borrowing (defined as having more than one loan regardless of the loan provider), the extent of the possible struggles of borrowers with repayment capacity issues, and assessing the presence of over-indebtedness and the drivers behind it are critical to the financial stability of the Cambodian microfinance sector. Even more importantly, they are critical to the socio-economic welfare of MFIs’ borrowers, who are the poor and vulnerable. The challenge that has been faced thus far is that this data is not currently being collected or monitored in a systematic manner.

This is the motivation behind this study. Co-financed by three key international microfinance investment vehicles present in Cambodia – BlueOrchard Finance, Incofin Investment Manager and Oikocredit -- this study was made possible thanks to the invaluable and constructive collaboration of the eight largest non-bank MFIs in Cambodia (AMK, Amret, HKL, KREDIT, PRASAC, Sathapana, TPC and VisionFund Cambodia). Accounting for 77% of the total number of microfinance borrowers in Cambodia, they agreed to share with us information on their clients, which made this study possible.

Objectives
An important point to mention from the onset is that this study does not attempt to measure the magnitude of over-indebtedness in Cambodia. The focus is on the drivers of over-indebtedness in saturated areas in order to gain a better understanding of the main factors behind over-indebtedness (OID) and the extent to which multiple borrowing can lead to OID. More specifically, the study explores the following:

- The degree of multiple borrowing and OID in selected saturated areas
- How OID is being felt and perceived by borrowers
- The relationship between multiple borrowing and OID
- The internal and external drivers of OID (e.g. MFI lending behavior and client borrowing behavior)

Definitions
Building from the existing research on OID, such as analyses carried out in Kosovo and Ghana, this study defined two different measurements of over-indebtedness: an objective one and a subjective one:

From an objective definition, we determined a microfinance borrower to be over-indebted when his/her total debt service is higher than his/her net income during a
defined timeframe, whether it is from one or multiple loans. The net indebtedness index (NII) was used to measure if a borrower is over-indebted. The formula is:

Figure 1: Net Indebtedness Index Formula

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\text{NII} = \frac{\text{Monthly installments on all business and household debt}}{\text{Monthly net income (revenue from business and household minus expenses from business and household excluding debt expenses)}}
\]

Income data includes all business income and household income. Business income refers to income from entrepreneurial activities including agriculture, manufacturing and services. Household income refers to income from non-entrepreneurial activities such as wages, remittances, pensions, etc. Expenses included business expense and household expense. Both income and expenditure data is the average amount per month over 12 months, which has been standardized regardless of the method of data collection used by individual MFIs.

The defined thresholds are as follows:

- If the net indebtedness index > 100%: Insolvent
- If the net indebtedness index is between 76% and 100%: At risk
- If the net indebtedness index ≤ 75%: Solvent

From a subjective point of view, we define a microfinance borrower to be over-indebted when he/she feels that he/she struggles to repay his/her loan to the point that he/she is making frequent and unacceptable sacrifices impacting his/her living standards. This subjective definition was inspired and adapted from the work of Jessica Schicks, who developed a sacrifice-based definition of OID and applied it to microborrowers in Ghana.\(^4\) The underlying assumption of this definition is that over-indebtedness starts before an actual default. When a borrower struggles to make repayments on time, this could be an early warning that the borrower may fall into a situation of over-indebtedness.

**Step One: Village Selection and Sampling**

Because of the absence of Credit Bureau data at the time of the study, it was not possible for us to randomly pick borrowers throughout Cambodia to produce a sufficiently large sample of borrowers in potential situation of multiple borrowing and/or over-indebtedness in order to conduct rigorous statistical analysis. The objective of the first step of our work was therefore to identify villages with the highest market penetration, and to then select a sample of these villages to study the instance and drivers of over-indebtedness of microfinance borrowers.


*Study on the Drivers of Over-Indebtedness of Microfinance Borrowers in Cambodia*
The eight participating MFIs in the study provided us with village level data on their portfolios. We then looked at the total number of loan accounts divided by the total number of households in each village to arrive at an indication of market saturation. Household population was used instead of active borrowing population because: 1) no existing data on active borrowing population exists at the village level, 2) MFIs lend to the household unit and not individual unit; and 3) this indicator helped identify areas where there may be a high incidence of multiple borrowing and thus, potential over-indebtedness.

The results show that out of the 14,074 villages in Cambodia: 6% of villages (914 villages) were saturated, which means that their market penetration was over 100%; 9% (1,260 villages) had very high market penetration, defined as levels between 75-100%; 17% (2,444 villages) had high penetration, defined as levels between 50-75%; 62% (the majority) of villages had moderate (levels between 25-50%) or low market penetration (levels less than 25%), and 6% (914 villages) had no penetration at all.

Among the 914 saturated villages, all 8 MFIs had overlapping services in 44 villages. This study therefore covers these 44 villages.

**Step Two: Measuring Objective Over-Indebtedness**

The second step of our study consisted of building an aggregated database with data on 10,266 clients, which served as the sampling frame for the desk review. The consolidation of the database allowed us to identify overlapping names of clients, and thus those clients that had multiple borrowings. A random sample of 1,500 clients was selected from the consolidated database, and then stratified by the number of loans, locations, MFIs, etc. Individual client data of these 1,500 clients were then collected from loan files of the eight partner MFIs. Subsequently, a net indebtedness index was calculated for each client to identify those that were over-indebted.

The descriptive analysis showed the following results:

- **The majority of borrowers in the sample (56%) were “solvent,”** meaning that their monthly debt installments were 75% or less of their net monthly income. Within the sample, 12% of borrowers were categorized as “at risk”, 22% were “insolvent” and 10% could not be classified because no income data were available.5
- Among the 1,326 borrowers in the sample, **56% had more than one loan:** 28% had two loans, 13% had three loans, 9% had four loans, and 6% more than four loans.
- **There is a clear relationship between multiple borrowing and OID.** The percentage of OID borrowers, as determined according to the objective definition, increased with the number of outstanding loans: 20% of the borrowers with two loans were insolvent, 48% of those with three loans, 70% more than four loans.

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5 Includes only loan accounts of the 8 partner MFIs
6 The 10% of borrowers with no income data were not included in the analysis.
7 After removing from the sample clients with no income data, the total sample size was 1,326 borrowers.
of those with four loans, 84% of those with five loans, 94% of those with six loans and 100% of those with seven loans.

- **The percentage of borrowers who were insolvent increased as the number of loan cycle increased.** Among borrowers on their first loan, 5% were insolvent. This rate increased to 16% for borrowers on their second cycle and continued to increase to a peak of 67% for borrowers on their eighth loan cycle.

- **Borrowers that had borrowed more cycles tended to be over-indebted because they also tended to have more outstanding loans.** Among borrowers on their first loan cycle, the average number of outstanding loans was 1.2 loans. This number increased to 1.5 loans for borrowers on their second cycle, and continued to increase to a peak of 3.3 loans for borrowers on their eighth loan cycle.

- **Insolvent borrowers had much higher total debt levels** than the average borrower (USD 2,461 versus USD 1,496), and at the same time, **lower net incomes** (USD 108 versus USD 204 per month).

- When we isolated the “multiple loan effect” by looking at only borrowers with one loan, **the data showed no relationship between OID and loan size.**

- **There appears to be a connection between the economic activity of the borrower and OID.** Among borrowers engaged in agricultural activities, 30% were insolvent. The rate among non-agriculture activities was much lower, at 21%, and for wage earners it was 18%.

- **We did not find any relationship between OID and lending methodology.**

- A final interesting finding is that if borrowers made sufficient profit from their business alone, before considering other income sources, then they were much less likely to be over-indebted. For many borrowers (43%), the profit from their entrepreneurial activities alone was sufficient to cover their debt payments, while for 16% it was not sufficient (when MFIs assess their clients’ repayment capacity, they include all sources of income, of which the business profit is only one). For 41% of borrowers in our sample, only wage income was registered in the loan file. Half of the borrowers who did not earn enough profit to finance their debt were insolvent, and 20% were at risk of being insolvent. In contrast, only 5% of borrowers who earned sufficient profit were insolvent.

A regression analysis was then conducted to identify empirically the drivers that are statistically significant in explaining OID. Overall, the results of the regression analysis confirm most of our descriptive analysis from the preceding sections. The regression finds that **two variables were statistically significant in clarifying differences in objective OID: multiple loans and profit from entrepreneurial activity:**

- Having multiple loans increased a borrower’s odds of being over-indebted by 6 times, specifically when the borrower has 3 or more outstanding loans.

- Having insufficient profit from entrepreneurial activities to cover debt obligations increased the chance of being insolvent by 180%, while having

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8 Entrepreneurial activity means all the activities of the borrowers that are commercial (or self-employed) regardless of the sector (agricultural, trade, industrial, services), contrary to wage incomes.
sufficient profit from entrepreneurial activities (vs. wage income) reduced the likelihood of being insolvent by 59%.

- The correlation between OID and other factors such as assets, lending methodology, loan cycle, nonproductive use, loan tenor, economic activity, household size, and education were not statistically significant.

**Step Three: Measuring Subjective Over-Indebtedness**

The third step of our study was to collect additional, qualitative data to deepen our understanding of the drivers of OID, the profile of OID borrowers and to know the borrowers’ perception of their debt burden (subjective measure of OID). The data was gathered through face-to-face interviews with a planned sample of 500 borrowers (of whom a total of 465 borrowers were interviewed). The 500 borrowers were randomly selected from the Desk Review Database of 1,500 borrowers.

The descriptive analysis showed the following results:

- **51% of borrowers surveyed (237 people) said they had struggled to repay their micro loans on time** (45% struggled a few times, 6% struggled most of the time and less than 1% always struggled). In order to meet their loan repayments, 227 of these struggling borrowers (49% of all borrowers interviewed) had made at least one sacrifice over the past 12 months. Among these borrowers, however, only 32 of them (7% of all respondents) felt that the sacrifices were unacceptable. Only 27 borrowers (6% of all borrowers) repeatedly made these unacceptable sacrifices and were, therefore, based on the subjective definition, over-indebted. The wide gap between the objective and subjective level of over-indebtedness may reflect borrowers’ high tolerance for making sacrifices to repay their debts. It may also reveal the high value borrowers place on their access to microcredit.

- **The most common sacrifice or coping strategy used by microfinance borrowers was to reduce the quality of food (48%) or the quantity of food (44%)**. More than a quarter of the borrowers (27%) dealt with the repayment pressure by sending a family member to find work outside the village. 25% of borrowers said they depleted their savings over the past 12 months to cover loan repayments, while 23% took out a new loan to be able to repay their existing loans.

- **Consistent with our finding in the desk review, no connection between loan size and struggled to repay were found.**

- **Another interesting finding was that the main source of household income for 64% of the borrowers was from wages and remittances.** The high contribution of wage income explains why most borrowers said that their income was regular (86%) and stable (73%).

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9 This break down is different from the desk review, which showed that the majority of households rely on agriculture activities. This is likely because MFIs listed the economic activity for which the loan was used on as the main activity rather than the activity that contributed most to income.
To determine the robustness of our descriptive analysis and to isolate the factors that had a strong and statistically significant correlation with the incidence of having struggled to repay, a contingency analysis was conducted on the survey data. The results of the econometric tests were mostly consistent with the descriptive analysis, which found that:

- **Multiple loans had the strongest, positive correlation with having struggled to repay.** This means that borrowers with many multiple loans were more likely to struggle to repay. The association between multiple loans and struggled to repay was highly statistically significant.

- **Lack of or weak financial literacy was strongly associated with having struggled to repay,** in which borrowers with low financial literacy are more likely to struggle. This factor was also highly statistically significant.

- **Education** had a negative, moderate relationship with having struggled to repay. This means that as a borrower’s education increased, they were less likely to be in a situation of struggling. However, it is important to point out that almost all of the microborrowers in the survey had low education levels, and this finding was likely biased by the small sample of borrowers with high education.

- Interestingly, and in contrast to what we saw with the objective measurement of OID, it appeared that from a subjective OID standpoint, **profit from entrepreneurial activities did not show a strong or significant correlation with repayment struggles.** This is likely because the majority of borrowers in the survey repaid their loans with wage income.

- There was no statistically significant relationship between having struggled to repay and the other factors.

**What This All Means and Moving Forward**

Our probe into the potential drivers of over-indebtedness based on both our objective and subjective measures of over-indebtedness consistently points us to **multiple borrowing:** Clients with multiple loans, especially three or more, were more likely to be insolvent and/or struggle to repay.

The complete summary of our findings regarding the potential drivers of OID and of clients’ struggle to repay is provided in the below table:

<table>
<thead>
<tr>
<th>OID Measure / Data Source</th>
<th>Descriptive Analysis</th>
<th>Econometrics Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective OID - Desk Review Data</td>
<td>Possible correlation: • Income (-) • Profit from entrepreneurial activities (-) • Multiple loan (+) • Loan cycles (+) • Economic activity</td>
<td>Statistically significant: • Multiple loans (+) • Profit from entrepreneurial activities (-)</td>
</tr>
</tbody>
</table>

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A contingency analysis in statistics refers to analyzing the correlations of variables through the use of cross tabulations.
<table>
<thead>
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<th>OID Measure / Data Source</th>
<th>Descriptive Analysis</th>
<th>Econometrics Analysis</th>
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<tr>
<td></td>
<td>Household size</td>
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<td>Education</td>
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<td>Gender</td>
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<td></td>
<td>Nonproductive loan</td>
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<td>Lending methodology</td>
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<td>Loan tenor</td>
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<td></td>
<td>Loan Size</td>
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<tr>
<td>Subjective OID → Struggled to Repay - Survey Data</td>
<td>Possible correlation:</td>
<td>Statistically significant:</td>
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<tr>
<td></td>
<td>Income (-)</td>
<td>Multiple loans (+)</td>
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<td></td>
<td>Profit from entrepreneurial activities (-)</td>
<td>Financial literacy (-)</td>
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<td>Multiple loans (+)</td>
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<td>No correlation</td>
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<td>Personal factors such as gender, education, marital status, poverty, and dependency ratio.</td>
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<td>Health shock</td>
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<td>Risk appetite</td>
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<td>Economic activity</td>
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<td>Irregular income</td>
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<td>Volatile income</td>
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<td>Loan size</td>
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**Working together to sustain the industry and protect microfinance borrowers**

The findings in this paper call for all actors of the Cambodian microfinance industry (MFIs, Lenders, NBC, Credit Bureau) to join forces to regularly monitor market penetration and multiple borrowing at the most local (i.e. village) level in Cambodia and to engage in a conversation on how to define precise guidelines on maximum level multiple borrowing in order to prevent over-indebtedness.

Furthermore, while this study shows that the scope of information collected by MFIs’ credit officers during the loan appraisal process is consistent with national level data and survey data, it also highlights the need for constant improvements in MFIs’ lending practices in terms of defining and systematically implementing precise rules on maximum number of loans per client. It also shows that income analysis done at the household level needs to be conducted cautiously, recognizing that while sources of income not directly generated by the financed business might often be used for debt repayment purposes, clients are in a better, more solvent, position, if their businesses can generate sufficient income to repay debts.

While, it is clear that a high level of cooperation and exchange of information has traditionally characterized the Cambodian microfinance industry, now the areas of discussion which need to be considered include: i) industry level guidelines
regarding multiple borrowing; ii) refined repayment capacity analysis to make sure that financed businesses are profitable enough to cover interest payments; iii) enhanced credit appraisals for loan renewals taking into account the volatility of microfinance borrowers' income.

We hope that this report could be the first step in a national dialogue between microfinance institutions, their lenders and investors and policymakers to discuss creatively and openly how to manage multiple borrowing in a socially responsible way.

For any further information on the study, please feel free to contact:
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At Oikocredit, Tes Pilapil at tpilapil@oikocredit.org

BlueOrchard Finance S.A. was founded in 2001 as the first commercial manager of microfinance debt investments worldwide. To this day, the company has deployed approximately USD 2bn in loans to microfinance institutions, providing access to microcredit to over 30 million individuals across 50 countries. Investors in BlueOrchard-managed funds include private and institutional investors, supranational institutions as well as renowned foundations. The company employs 41 staff internationally including 22 investment professionals in Geneva, Luxembourg, Lima, Phnom Penh, Bishkek and Johannesburg.

Incofin Investment Management (Incofin IM) manages funds that have invested in more than 115 microfinance institutions (MFIs) in 44 developing countries. As a specialist in rural microfinancing, Incofin IM’s main goal is to reach out to people who live in more secluded rural areas and/or who are active in the agricultural sector. From its offices in Belgium, Colombia, India and Kenya Incofin employs 36 staff around the world, all dedicated to the provision debt, equity and technical assistance to MFIs.

Oikocredit is one of the world’s largest sources of private funding to the microfinance sector. It also provides loans to trade cooperatives, fair trade organizations and small-to-medium enterprises (SMEs) in the developing world. As of the end of 2012, Oikocredit has EUR 530 million in outstanding loans invested into 854 partners in over 70 countries, 583 of which are microfinance institutions. In addition to earning modest financial returns, Oikocredit investors are secure in the knowledge that their money is being used to fight poverty, promote fair trade and respect the planet's natural resources. Oikocredit provides services to its partner organizations through its network of 37 regional and country offices all over the world.

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