

# Investigating the Effect of Microcredit on Hardcore Poor Household Income in Peninsular Malaysia

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## ABSTRACT

This study employed a cross sectional design with stratified random sampling to examine how Amanah Ikhtiar Malaysia (AIM)'s microcredit program improved the income of hardcore poor households in Peninsular Malaysia. This study designed and tested a structural equation model to examine the underlying relationship between group-based microcredit programs and how they affect household income. It was evident that AIM's microcredit program increased household income. Therefore, this program should focus on providing adequate training, flexible and diversified loan programs, and increasing outreach. Policies should also be reviewed and re-organized to increase the employment rate and to reduce repayment problems and the dropout rate.

**Keywords:** income, poverty, microcredit/microfinance, welfare economics

## INTRODUCTION

The poverty rate in Malaysia has declined dramatically from 49.3 percent in 1970 to 16.5 percent in 1990, and further declined to 3.6 percent in 2007 (Economic Planning Unit, 2010). The government of Malaysia has implemented several strategies and has worked together with private sector and non-government organizations (NGO) to improve the socio-economic conditions of the poor. *Amanah Ikhtiar Malaysia* (AIM) is the most active among the NGOs. It started as an applied research project in 1986 and as at March 2008, it has outreached to a total of 183,901 clients (82% of the total poor and hardcore poor households in Malaysia) and has achieved 98 percent repayment rate on its loans. AIM selects its clients based on the client's gross average monthly household income. Households with a gross monthly household income

below the poverty line income (PLI; calculated by the Malaysian government based on the price of food and other basic needs) would be considered as absolute poor, while households with a gross monthly household income below half of the PLI would be categorized as hardcore poor. AIM only selects those households whose gross monthly household income falls below the PLI, which includes both poor and hardcore poor households. AIM provides small amounts of collateral free credit requiring a small repayment on a weekly basis through center meetings. AIM's microcredit schemes provide three loans for income-generating activities and AIM also provides recovery loans, education loans, and housing/multipurpose loans.

A large amount of the impact assessment literature has shown that microcredit enables poor and hardcore poor households to take advantage of profitable investment opportunities, adopt better

technology, expand microenterprises, diversify economic activities, promote risk taking, reduce reliance on expensive informal sources, enhance ability to face external shocks, improve profitability of investment, reduce distress during selling of assets, increase economic growth, enable purchase of productive assets, improve allocation of resources, and increase economic growth. These improvements in households' abilities lead to an increase in household income, household consumption, asset position, education for children, and empowerment as well as reducing social exclusion and improving quality of life.

Despite the positive impact of the group-based microcredit programs practiced by AIM, many researchers question the effectiveness of microcredit programs in improving the socio-economic conditions of the hardcore poor borrowers (CGAP, 2006; Datta, 2004; Hasan, 2003; Hashemi, 1997; Islam 2007; Rahman, 1998). The hardcore poor are trapped in chronic deprivation due to the combination of poor health, poor education, broken families, cruel resource distribution, inadequate infrastructure, varied forms of exclusion, and scarce employment opportunities. The small amounts of working capital provided by Micro-Finance Organizations (MFOs) are commonly invested in businesses which operate on a small scale, without any paid staff and with few assets. With low capital and no specialized skills, these businesses are operating arenas of low entry requirements and high competition, and therefore have low productivity. These characteristics of the hardcore poor lack the complementary resources that can be used by the hardcore poor to lift themselves out of the state of chronic deprivation (Islam 2007; Matin & Begum, 2002). The benefit clients received from participating in microcredit program depends on their ability to make use of the credit in income-generating activities and the ability of the hardcore poor household is not the same as that of high income group borrowers (Rahman, 1998; Datta, 2004; Islam 2007). CGAP—Consultative

Group to Assist the Poor (2006) and Islam (2007) also mentioned that microcredit can even harm the poor who do not have the capacity to absorb debts. Recently Rahman, Rafiq, and Momen (2009) also addressed the importance of measuring the impact on hardcore poor households separately. Therefore, this study measured the impact of AIM's microcredit schemes on hardcore poor households separately, in order to explore how the group-based microcredit program offered by AIM affects the income of hardcore poor households in Peninsular Malaysia.

## LITERATURE REVIEW

### Impact of microcredit

Microcredit was originally established to bridge the capital gap unfilled by the rural cooperatives and commercial banks (Prahalad, 2006). Products and services of microcredit programs are targeted to the poor and hardcore poor households, who make up nearly half of the total population of the world (Abed, 2000). A study conducted by Hossain (1988) noted that Grameen members' average household income was 43 percent higher than non-participants. Khandker and Chowdhury (1995) noted that the increase in self-employment among the poor with access to credit has resulted in an increase in rural wages. Mustafa et al. (1996), mentioned that microcredit clients have better coping capacities in lean seasons and that these increased with the length of membership and the amount of credit received. Mosley (1996) noted that clients' enterprise income increased by 91 percent, 39 percent of borrowers employed staff after participation, and 26 percent used the loan for new technology. Khandker and Pitt (1998) mentioned that moderate poverty had fallen by around 15 percent and ultra poverty by 25 percent for households who have been microcredit clients for up to three years. Latifee (2003) noted that about 90 percent of borrowers reported an improvement in their standard of living. He also noted that the

poverty rate among borrowers declined significantly. Dunn (2005) indicated that microcredit has a significant positive impact on household income, employment, business investment, business registration, and post-war transition. Hussain and Nargis (2009) mentioned that household income increased across all income percentiles for all regular, occasional, and non-participant groups. The study conducted by Rahman, Rafiq, and Momen (2009) mentioned that age, education, and the number of gainfully employed members had a significant positive effect on household income and assets. This study suggested some adjustment to the existing microcredit programs to achieve the intended outcome, that is, to serve the purpose of assisting those in the lower income society. Panda (2009) noted a significant increase in borrowers' household income (11.41%), asset position (9.75%), and savings (42.53%). This study also found an increase in annual employment days among the clients.

The impact of AIM's microcredit schemes follows a similar pattern, as seen in other microfinance organizations which have followed Grameen's microcredit model. The first impact study conducted by Gibbons and Kasem (1988) discovered a significant (55%) increase in monthly household income. The second impact study conducted by AIM's research and development unit in 1990 showed further overall improvement among participating households. The Social Science and Economic Research Unit (SERU) of the Prime Ministers Department conducted an impact study in 1990, reconfirming the findings of the first two impact studies. The study conducted by AIM's research and development unit in 1993 found a direct, positive relationship between the level of income and utilization of loans, with the more loans being utilized, the higher the income. Salma (2004) noted an increase in household income, expenditure, savings, and assets after participation.

Impact studies conducted by academics, government agencies, and AIM indicate that

participation in a microcredit program improves the socio-economic conditions of poor borrowers in Malaysia. However, no known study has measured the impact at the hardcore poor level separately. Studies conducted to measure the impact of microcredit programs mostly reported their findings as percentage changes while few studies used inferential statistical tests which include tests for mean difference, correlation, and regression analysis. These statistical tests failed to rationalize the underlying relationship between microcredit, household resources, and household activities.

### **Impact assessment methodologies**

As mentioned by Hulme (1997), "behind all microfinance programs is the assumption that intervention will change human behaviors and practices in ways that will lead to the achievement or raise the probability of achievement of desired outcomes". Because of the uses of a loan in non-income generating activities, recent studies have tended to use the household as the unit of analysis. Studies attempting to measure the effects of microcredit commonly used a quasi-experimental approach where control and treatment group are used to measure the impact. When both groups show similar characteristics, differences between the two groups can be attributed to microcredit programs (Hulme, 2000). The most common methods used in impact assessment are the sample survey, rapid appraisal, participation observation, case studies, and participatory learning and action.

Conceptual models are used to demonstrate the underlying relationship between a complex set of links where effect becomes a cause and generate further effects. When a client receives credit, it leads clients to modify their economic activities; which in turn leads to an increase/decrease in income which leads to changes in educational and skill levels and in future economic and social opportunities. The complexity of such chains provides researchers a range of choices about which link or links to focus on (Hulme, 1997). The most complex conceptual

model for impact assessment was presented by Chen and Dunn (1996), called the Household Economic Portfolio Model (HHEP). The researchers confirmed the usefulness of the HHEP model in addressing the fungibility and attribution issues. The key advantage of the HHEP model is that it helps in the formation of the research design and hypothesis. However, a group-based microcredit program which also provides training facilities and weekly center meetings improves the social bonding among clients. The HHEP model fails to identify the effect of the improvement in human and social capital through participating in a group-based microcredit program.

## RESEARCH METHODOLOGY

### Theoretical framework and conceptual model

Socio-economic development is a complex process of social and economic development, which with regard to the assessment of the impact of microcredit, is demonstrated by using social capital theory, human capital theory, access to finance, and a conceptual model named the 'modified household economic portfolio model'. AIM's microcredit program allows clients to assemble at a weekly center meeting, where they exchange information and ideas with each other, which may improve their social bondage, and subsequently, improve a household's ability to grasp income generating opportunities.

The importance and effect of training programs to improve a household's abilities to take advantage of income generating opportunities was addressed by almost every study measuring the performance of a microcredit program (Matin & Begum, 2002; Otero, 1999; Rahman, Rafiq, & Momen, 2009; Zaman, 1999). The benefits clients receive through training provided by AIM can be explained based on human capital theory. Moreover, access to finance increases the ability of clients and their household to increase income-generating opportunities and employment opportunities, which ultimately leads to an increase in household income

and assets. Measuring the impact of AIM's microcredit program on the income of a hardcore poor household therefore strengthens the underlying assumptions of access to finance which is expected to lead to an increase in the income of hardcore poor households in Peninsular Malaysia.

In order to measure the impact of a microcredit program, besides credit, researchers also have to consider the effect of the development in social capital and human capital. The modified conceptual model is therefore designed to cover all aspects of microcredit programs.

The modified HHEP model, as presented in Figure 1, shows the circular flow of poor and hardcore poor households (a) receiving credit and (b) receiving training from MFO's and (c) improving social capital, which is expected to improve the household's socio-economic status. These flows of credit, training, and social capital combined with household resources and the output from the social network are finally invested in household activities. Households then receive the outcome of this utilization, which helps to improve their socio-economic status. Part of the outcome is also used to repay the debt and contribute to society.

### Research model

The circular flow of microcredit as presented in the modified HHEP model clearly indicates that participation in the microcredit program is the cause, and changes in household resources and household activities are the effects of participation in the microcredit program. Participation in the microcredit program is defined by the number of months as a client and the total amount of credit received. Clients who joined early are expected to attend a higher number of weekly center meetings and are also expected to receive more training from AIM. The number of months as a client therefore represents the level of social bondage and training provided by AIM. The total amount of credit is expected to affect a household's income generating abilities, which can lead to an increase in household income.

The mediating variables which are expected to have a strong contingent effect on the household income of a respondent are the number of sources of income, the number of gainfully employed members, and the total productive assets. E1 to E4 represent the contribution of other unmeasured factors on the

mediating variables and the dependent variable. As shown in the model, two independent variables (number of months as client and total amount of credit received) effect the mediating variables, namely, net worth of productive assets, number of gainfully employed members, and number of

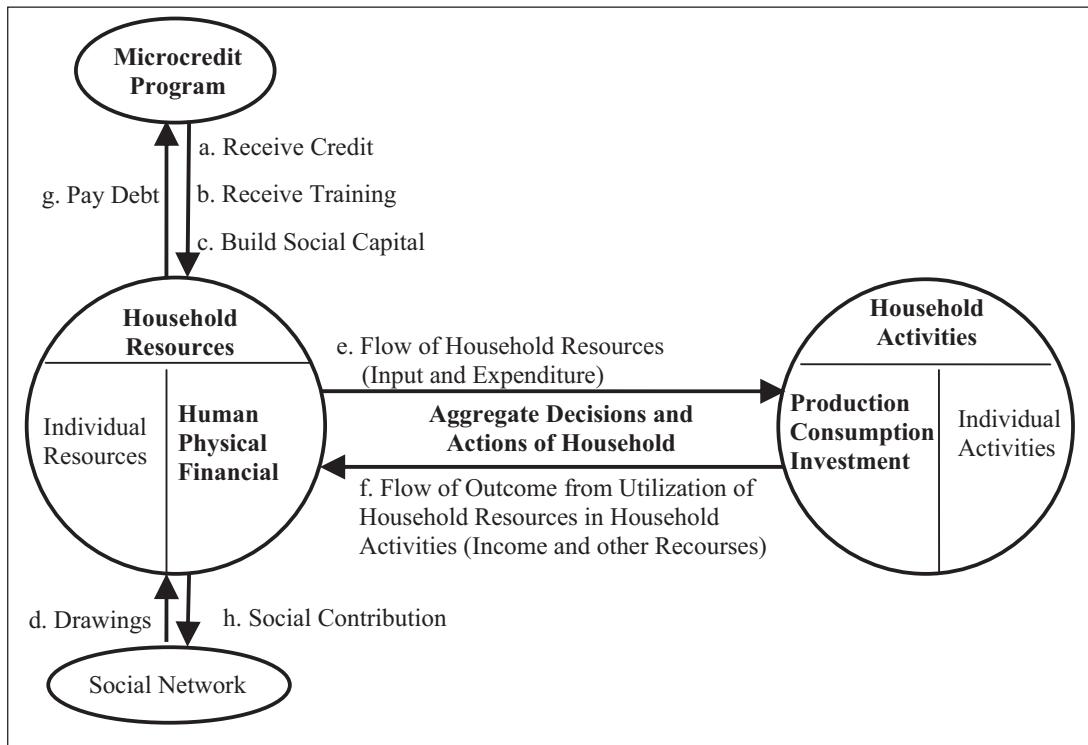


Figure 1 Modified household economic portfolio model

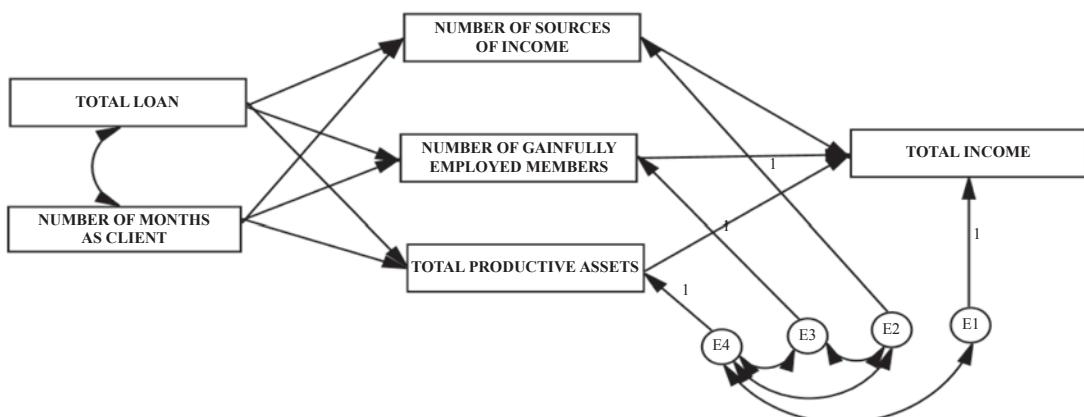


Figure 2 Income model

sources of income. The contribution of other socio-economic indicators on 'net worth of productive assets', 'number of gainfully employed members', and 'number of sources of income' are noted as E1, E2 and E3, respectively. Similarly, the contributions of other factors are noted as E4. Since all the mediator and dependent variables are expected to be correlated, the error terms of the moderating and dependent variables are therefore also expected to correlate.

This study tested a structural equation model (SEM) to confirm the impact on household income. The SEM serves a similar purpose as multiple regression, which takes into account the correlated error terms, nonlinearities, measurement errors, modeling of interactions, flexible assumptions, correlated independents, the desirability of testing the overall model, and the ability to test models with multiple dependents. Because of the correlated independent variables and the need to test the overall model rather independent paths, this study used the SEM.

#### Sample selection and data collection

This research employed a cross-sectional design with stratified random sampling, where samples were selected from three different geographic areas from three states namely Kedah, Kelantan and Terengganu in Peninsular Malaysia. These three states were randomly selected from the bottom six states (the poverty rate was relatively higher in these six states) of Peninsular Malaysia. AIM offered financial services to the poor and hardcore poor households through a total of 28 branches in the three selected states. Most of these branches are located in a very small town or rural areas, as the poverty rate in isolated rural areas is expected to be much higher than in urban areas. Among these 28 branches, this study randomly selected three branches, with one from each state. The selected three states were Baling from Kedah, Pasir Puteh from Kelantan and Setiu from Terengganu. All data were collected from these

branches.

The sampling methodology was designed to collect data from two groups of clients, where both groups were selected from the client base of AIM. This study selected new clients (number of months as clients was less than 24 months) and old clients (number of months as clients was between 48 months and 72 months) based on the number of months they had participated in AIM. During the periods, 2,779 clients were found to be participating in AIM's microcredit program in the three selected branches, of whom 505 were hardcore poor. There were 22 hardcore poor who were no longer participating. Of the remaining 483 participants, 386 clients consented to be interviewed. This study collected complete data from 333 hardcore poor clients, of whom 161 were old clients and 172 were new clients.

## RESULTS AND DISCUSSION

The multivariate kurtosis value or Mardia's coefficient for the Income model was 62.98, which being higher than 1.96 means that the multivariate normality assumption is violated. The *p*-value of the Bollen-Stine bootstrap test was 0.522, which was greater than .05, indicating a satisfactory model fit in the presence of multivariate non-normality. The model fit measures of the structural equation model are presented in Table 1. The CMIN, CMIN/DF GFI, AGFI, RMSEA, NFI, RFI, IFI, TLI, and CFI values showed empirical evidence of an acceptable model fit. In addition, Hoelter's critical N indicates that the sample size was adequate to test this model. However the overall fit test does not establish that the particular paths in the model are significant. Since the research model is acceptable by all the above-mentioned tests, this research continued to analyze the structural coefficients and corresponding *p*-values.

The standardized and unstandardized regression weights of the two independent variables on the three mediating variables and the

standardized and unstandardized regression weights of the three mediating variables on household income are presented in Table 2. The unstandardized regression weights between independent variable (total loan) and all three mediating variables indicated positive linear relationships. The total loan amount received by sampled clients had the strongest, positive, significant, linear relationship with total productive assets, which indicates that AIM's microcredit schemes had increased the net worth of productive assets owned by hardcore poor

households in Peninsular Malaysia. The total loan amount also had a significant, positive relationship with the number of gainfully employed members, which indicates that the total loan amount provided by AIM enabled hardcore poor borrowers to take advantage of employment generating opportunities, which led to an increase in number of gainfully employed members.

The standardized regression coefficients between the number of months as a client to the number of sources of income, number of gainfully

**Table 1** Model fit summary: Income model

CMIN	DF	p-value	CIMN/DF
0.45	1	0.50 > 0.05	0.45 < 2
GFI	AGFI	NFI	RFI
1.00 > 0.9	0.99 > 0.9	1.00 > 0.95	0.99
IFI	TLI	CFI	RMSEA
1.00 > 0.9	1.00 > 0.95	1.00 > 0.9	0.00 < 0.05

**Table 2** Regression coefficient: Income model

Variable		Standardized Regression weight	Unstandardized Regression weight	p-value
Total loan	→ No. of gainfully employed members	0.442	0.000	0.000*
Total loan	→ No. of sources of income	0.076	0.000	0.347
Total loan	→ Total productive assets	0.697	1.049	0.000*
No. of months as client	→ No. of gainfully employed members	0.090	0.002	0.201
No. of months as client	→ No. of sources of income	0.111	0.003	0.166
No. of months as client	→ Total productive assets	-0.020	-9.332	0.707
No. of gainfully employed members	→ Household income	0.106	97.252	0.081
No. of sources of income	→ Household income	0.065	66.685	0.137
Total productive assets	→ Household income	0.901	0.048	0.000*

Note: \*  $p < 0.05$

employed members per household, and net worth of productive assets, as presented in Table 2, indicate that the number of month as a client had a greater positive effect on the number of income-generating opportunities. This indicated that development in human and social capital through participating in AIM's microcredit program leads to an increase in the number of sources of income for hardcore poor households in Peninsular Malaysia. The number of months as a client also had a positive effect on the number of gainfully employed members per hardcore poor household. However, the number of months as clients also had an unexpected, negative, linear relationship with the net worth of productive assets owned by hardcore poor households. However, the *p*-values of all three unstandardized regression coefficients were not statistically significant.

Finally, the three positive regression coefficients between the mediating variables and dependent variables indicated that the number of gainfully employed members, the number of sources of income, and the net worth of productive assets had a positive effect on household income. Among these three regression coefficients, the standardized coefficients indicated that the net worth of productive assets owned by hardcore poor households had the maximum effect on household income compared to the other two mediating variables. The positive, linear relationship between the net worth of productive assets owned by hardcore poor households in Peninsular Malaysia and their household income was statistically significant. Even though the linear relationship of the other two mediating variables with household income were not statistically significant, the sampled data indicated a positive relationship. The number of sources of income and the number of gainfully employed members therefore led to an increase in the household income of respondents. As presented earlier, a significant model fit, with significant, positive linear relationships clearly indicated that participation in AIM's microcredit program led to

an increase in the average monthly income in a hardcore poor household in Peninsular Malaysia.

## CONCLUSIONS AND RECOMMENDATIONS

This study designed a conceptual model (Modified Household Economic Portfolio Model) which took into account the possible effects of the development in human and social capital through participation in AIM's microcredit programs. The implications of this model can be used to measure the effect of social and human capital as well as microcredit. This study also designed and tested a structural equation model which successfully demonstrated and determined the effect of credit provided by AIM's group-based microcredit program on the household income of hardcore poor clients in Peninsular Malaysia. The findings of this study provided empirical evidence that participation in AIM's microcredit program leads to an increase in the number of gainfully employed members per household and in the total amount of productive assets owned by hardcore poor households, which when combined, ultimately lead to an increase in household income.

The findings of this study support and expand the literature, since other impact studies on AIM's microcredit schemes also showed that the microcredit services offered by AIM increase the income of poor and hardcore poor households. AIM therefore can focus on increasing its outreach to the remaining 18 percent of poor households. AIM should identify the reasons why these 18 percent poor and hardcore poor households are not participating, and how to bring them under the microcredit programs. Moreover, the findings of this study showed that around 50 percent of the old respondents (members for more than 4 years) received on average RM12,000 from AIM's microcredit programs. This indicates a large number of inactive borrowers among the clients. AIM should determine why these members are inactive or

borrowing less. To increase the outreach and the amount of credit received by clients, AIM should offer a more flexible credit program based on a client's needs. Moreover, the average dropout rate among new and old clients was 4.36 percent. When any client drops out of the microcredit program, despite the causes, it always indicates a limitation of the MFO's policy and the programs. Therefore, AIM should review its policy and microcredit methodology, and organize it in such a way that it leads to a reduction in the dropout rate.

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