

AN ECONOMIC IMPACT ASSESSMENT OF A MICROCREDIT PROGRAM IN MALAYSIA: THE CASE OF AMANAH IKHTIAR MALAYSIA (AIM)

Norma Md Saad*

International Islamic University Malaysia

Jarita Duasa

International Islamic University Malaysia

ABSTRACT

This study uses econometric models to evaluate the economic performance of clients participating in the microcredit program of Amanah Ikhtiar Malaysia (AIM). Several proxies are used for the economic performance variable (dependent variables), such as level of earnings/income, ratio of spending to income and value of assets. The regressors (independent variables) used are education level, age, amount of loan, source of income, and ownership of assets. The study found that the economic performance of AIM participants is significantly determined by the amount of money borrowed from AIM. Other factors found to influence the respondents' economic performance are education level, age, gender, assets owned before joining AIM, and area of residence. Because level of education is found to contribute significantly to the economic performance of AIM participants, it is suggested that AIM should work to educate its borrowers. In particular, it should provide business training.

Keywords: Microcredit, Microfinance, Poverty, Amanah Ikhtiar Malaysia (AIM)

1. INTRODUCTION

According to Yunus and Abed (2004), microfinance is an effective tool to alleviate poverty. This argument has been confirmed by many researchers, such as Khandker (2003), Gertler et al. (2003), and Park and Ren (2001), and through the success of several microfinance programs, including Grameen Bank in Bangladesh, Bank Rakyat Indonesia in Indonesia, Amanah Ikhtiar Malaysia (AIM) in Malaysia, the Center for Agriculture and Rural Development (CARD) in the Philippines, and the Foundation for International Community Assistance (FINCA) and ACCION in Latin America. Given this widespread success, the United Nations has included

* Corresponding Author: Associate Professor, Economics Department, Kulliyah of Economics and Management Sciences, International Islamic University Malaysia, P. O. Box 10, 50728 Kuala Lumpur, Malaysia. Email: norma@iiu.edu.my

microfinance among the tools to achieve its Millennium Development Goals of halving the number of people living in poverty by 2015.

Microcredit in Malaysia began in 1987 with the establishment of Amanah Ikhtiar Malaysia (AIM), a nongovernmental organization that adopted the Grameen Bank model for rural microfinancing (Conroy, 2002). Working to alleviate rural poverty, by September 2006 AIM operated in 3,745 villages and had disbursed RM1.8 billion of financing to 157,787 rural poor.

Historically, the micro-credit approach in poverty eradication was introduced by Professor. Muhamad Yunus in Bangladesh in 1976 and has since expanded to all over the world. Its expansion in Malaysia occurred in the year 1986, initiated by Professor. David Gibbons and Associate Professor Sukor Kasim who were at that time serving at Universiti Sains Malaysia (USM). The initial project to examine the suitability of Grameen Bank's approach, known as Projek Ikhtiar, was conducted by USM and financed by Islamic Economic Development Foundation of Malaysia, Asia-Pacific Development Centre and the Selangor State Government. Projek Ikhtiar, an action research project carried out by the Centre for Policy Research, USM, is a research to examine Grameen Bank's approach in reducing rural poverty by granting access to micro-credit to the poor. This micro-credit scheme is aimed at financing the efforts in increasing income and strengthening the poor via joint management with AIM, in order to achieve continuity and success of the programme.

The history of AIM's expansion is closely related to the establishment of Grameen Bank. Grameen Bank's history began in 1976, when Dr. Muhammad Yunus, a Lecturer of Economics at the University of Chittagong, Bangladesh, carried out a research on the poor who rarely involved in banking activities. His research revealed that the poor people were not able to improve their quality of life due to lack of capital. The Grameen Bank's approach began to be employed in Malaysia via researches in the north-western area of Selangor. It started off with a pioneer project for two and a half years. This project involved 373 poorest households who received their first welfare loan. At the end of the Projek Ikhtiar, at least 90 percent repayment were made including the loan capital and cost of financing. This proved that the programme was successful. In the early stages of the project, 232 male members and 141 female members received their loans. Multiple projects were implemented by the members, among others are retail shop, restaurant, farmers market, vegetable, rice and animal farming based on skills and experience that they have.

Towards the end of June 1988, a research was carried out on these members to ascertain the status of their projects. Research showed that female members performed better in implementing their projects. The rate of repayment among female members at 95 percent was of a higher percentage than that of their male counterparts at 75 percent. The research on impact on income showed a more significant increase in income among the female members, which was an increase of RM136 per month in comparison to the male members at only RM65 per month. The huge success demonstrated by the members has given the Founding Committee the confidence to continue expanding the Projek Ikhtiar to other states with higher poverty rate. (AIM website, <http://www.aim.gov.my/~cms/englishversion/AboutUs/History.htm>)

AIM has achieved a remarkable repayment rate of 95 percent due to its unique method for managing risk. Social pressure motivates client members to avoid defaulting on their loans. The set up of the weekly meeting is already a mechanism by itself to make sure that members attend and their weekly payments. In the event that a group member fails to repay, others in the group will take responsibility to raise funds to help the defaulter. AIM personnel also make field trips to monitor member projects.

As of 2006, members of AIM have expanded to seven states, which includes Kedah, Kelantan, Perak, Terengganu, Selangor, Sarawak and Sabah. Table 1 shows the active number of members in each states and percentage of the members who are out of poverty after joining AIM activities.

Table 1: Number of Active Members and Percentage of Members Out of Poverty by Region (1986-2006)

Region	Number of active members	% out of poverty
Kedah	28,039	18.47
Kelantan	27,370	16.98
Perak	24,664	2.77
Terengganu	17,248	15.29
Selangor	14,503	3.71
Sarawak	18,265	7.95
Sabah	25,398	5.18
Total	155,487	10.16

Sources: AIM presentation slides, Main Office, Kuala Lumpur.

Studies evaluating whether AIM has been able to achieve its targets have been descriptive in nature. This study, by contrast, applies an econometric model to empirically test changes in the economic welfare of AIM clients after participating in the program. In particular, it examines changes in income, the ratio of spending to total monthly income, and asset value. The objectives of this study are to determine whether AIM loans contribute to an increase in income and to identify factors that contribute to any such increase.

This paper is organized as follows: Section 2 reviews the literature. Section 3 discusses the data and methodology used. Section 4 presents the results and analysis. Section 5 concludes.

2. LITERATURE REVIEW

There have been many studies on the economic and social impacts of microcredit, and the results have been mixed. Afrane (2002), for example, studied the impact of two microfinance interventions in Africa (Sinapi Alba Trust (SAT) in Ghana during 1997 and Semeto Microfinance Development Program (SOMED) in South Africa during 1998). The results indicate that microfinance interventions achieved significant increases in business incomes,

access to life-enhancing facilities and the empowerment of people, particularly women. Microfinance clients also experienced enhanced public respect, acceptance and self-esteem, participated more in community activities and made greater monetary contributions to social projects. On the other hand, they also experienced greater time pressures due to increased business activities, worsened family relations, and poorer church attendance and participation in church activities.

Morduch (1998) investigated the impact of microfinance in Bangladesh by analyzing a cross-sectional survey of nearly 1800 households during 1991-1992. It showed that households served by microfinance programs all do substantially better than control households. Nonetheless, this study found no evidence that the programs increased consumption levels or educational enrollments for children relative to levels in control villages. The most important potential impacts were associated with a reduction of vulnerability and not with a reduction of poverty per se. Consumption smoothing appears to be driven largely by income smoothing, not by borrowing and lending. This study criticized microfinance programs for mistargeting when selecting clients; approximately 20-30 percent of microfinance clients were already better off than the poor.

Examining a group-lending program in northeast Thailand, Coleman (1999) addressed the issues of self-selection and endogenous program placement. In previous studies, these had led to biased assessments of the impacts of microfinance programs. To overcome these problems, this study conducted a quasi-experimental impact study, collecting detailed data on household and village characteristics. A Tobit regression analysis showed that the impact of group lending was insignificant on physical assets, savings, production, sales, productive expenses, labor time, and on most measures of expenditures on healthcare and education. The impact was significant on only one variable, a reduction of expenditure on men's healthcare. The impact on women's high-interest debt was significant and positive; this was perhaps because a number of members had fallen into a vicious cycle of debt from moneylenders to repay their village bank loans. At the same time, the impact is significant and positive on women's lending with interest; some female members engaged in arbitrage, borrowing from the village bank at a relatively low interest rate and then lending the money out at a higher rate. These results are consistent with those of Adams and von Pischke (1992), who noted that "debt is not an effective tool for helping most poor people to enhance their economic condition."

Kabeer and Noponen (2005) examined the social and economic impacts of microfinance carried out by a Self Help Group (SHG) organized by Professional Assistance for Development Action (PRADAN) in Jarkhand, one of India's poorest states. Their study used interview as its tool for qualitative research and descriptive statistics as its tool for quantitative research. The results indicated that the bank-linkage model of the PRADAN SHG had significantly improved participants' livelihood bases, savings and debt positions, and living and consumptions standards. PRADAN participants have been able to secure their primary livelihood sources through their own agriculture supplemented by labor, livestock and non-farm enterprise activities. By comparison, more marginally positioned nonmembers relied on working as unskilled laborers for their primary income source.

Participants' access to financial services and the strengthening of their agriculture activities is associated with less economic vulnerability as shown by higher savings, less onerous debt and fewer crises related borrowing, more investment in productive activities, and fewer months of seasonal migration. It is also associated with significant household welfare gains, especially in shelter, food security and education. Despite these improvements, the study showed that women's empowerment does not automatically result from targeting them with financial services. While women discernibly gained knowledge, awareness and skills, impacts were far more modest in terms of participation in decision-making within the household and the public domain.

Another study on the impact of microfinance activities in India was carried out by Mummidi (2009). Drawing on a socioeconomic and comprehensive approach using primary data of a qualitative nature, the study looked in detail into the livelihood of women microfinance clients. The study attempted to understand why women develop (or do not develop) any specific activity and sustain these activities. In addition, the study also looked at the skills, knowledge, capabilities, and motivations underlying microcredit clients' involvement in income generating activities. Mummidi (2009) conducted intensive interviews with six women to take a close look into their life experiences in order to answer the questions of, what makes 'poor' women entrepreneurs. The case studies based on the six women showed that women do not separate their participation in income generating activities from their family lives. The study suggests that a comprehensive knowledge of the diversity of women's livelihood and an improved understanding of the sorts of constraints, skills and capabilities of women through their livelihood might be able to assist in understanding the impact of microfinance. Mummidi's suggestion is very similar to that of Rao (2008) who also conducted a study on microfinance program in Andhra Pradesh, India. During 1996-2004, the state of Andhra Pradesh launched a liberalization program with an emphasis on women's empowerment. Rao (2008) investigated the content of this policy and argued that women's empowerment policies were actually constrained by the policy context of liberalization. Rao (2008) reported that in the villages studied, the microfinance program was not backed up by the kind of administrative support that would allow the poorest and the lowest caste women to participate without assistance from their family members

Studying an education program in Ghana, MkNelly and Dunford (1998) investigated the impact of microcredit on the education of mothers and the nutrition of their young children in a rural setting. The study looked at a mother's economic capacity, her empowerment, and her adoption of key practices that affect her children's nutrition, health and survival. Specifically, it examined several indicators such as income, health and nutrition practices (vaccinating newborns, introducing formula in addition to breast milk, not using feeding bottles, enriching the traditional complementary food, koko (a porridge made from millet or corn), with beans, cowpeas, egg, fish, groundnut, milk or palm oil, women empowerment (self confidence, vision of the future, status and bargaining power within the household, and status in network and the community). The results indicated that credit and education services provided together to women can increase their incomes and savings, improve their health and nutrition knowledge and practices, empower them and ultimately improve their households' food security and their children's nutrition.

Della-Gusta and Phillips (2006) undertook a case study in Gambia to investigate the challenges faced by women entrepreneurs in small enterprise sector. The study attempted to look at the barriers to survival and growth, and also the difficulty in obtaining capital for expansion, faced by women entrepreneurs. It also discussed the issue on the need to resolve business with family responsibilities. The study concentrated on women's enterprises located in two different areas; Banjul, an urban and tourist area; and Basse, a depressed rural area. The women here were engaged in activities such as handicraft, tie and dyeing, batik making, and sewing. Thirty women entrepreneurs were interviewed in the study. Della-Gusta and Phillips (2006) reported that the two sample groups in Banjul and Basse produced quite different pictures despite their similarities in pre-entrepreneurial experiences which include culture, tribalism, males decision making, responsibility for children, and income levels. Della -Gusta and Phillips (2006) noted that Banjul women entrepreneurs were probably more entrepreneurial than Basse women entrepreneurs. Della -Gusta and Phillips (2006) also explained that this depended probably on their greater exposure through tourism, different educational backgrounds, and the larger market place. The researchers observed that although the women entrepreneurs in both groups tended to locate near each other in saturated markets, the Banjul women attempted to differentiate and deepen their product lines, whereas the Basse women, in contrast, engaged only in price competition. The study concluded that the gendered nature of the institutional framework affects women entrepreneurs in multifaceted ways and this tends to be unnoticed in policies for the support of either women entrepreneurs specifically or small scale entrepreneurs as a whole. The study suggested that there is a need for an integrated policy to remove barriers faced by small entrepreneurs.

Regarding the economic impact of microcredit programs in Malaysia, a few studies have examined the effectiveness of AIM's microcredit program in reducing poverty. An impact assessment was conducted on 283 members of AIM's pilot program in 1988; specifically, it evaluated the organization's effectiveness in replicating the results of Grameen Bank's microcredit program in increasing household income. The study found that 70 percent of participants significantly increased their monthly household incomes, from an average of RM142 to RM220 (Kasim, 2000).

The Social and Economic Unit (SERU) of Malaysia's Prime Minister's Department initiated another impact assessment of AIM's microcredit program in 1990. Among other things, the study evaluated AIM's mechanism of delivering credit to its members and the organization's overall effectiveness as well as its cost effectiveness in reducing poverty. It found that, by using rigorous means testing, AIM has ensured that only the poor have gained access to its microcredit program. The study also concluded that members' household incomes had more than doubled, from an average of RM198 before joining AIM to RM457.

AIM conducted its own internal assessment in 2005. This study found that, after clients borrowed from AIM, their average monthly household incomes almost tripled, from RM326 to RM932 (Amanah Ikhtiar Malaysia, 2008).

3. DATA AND METHODOLOGY

3.1 *Participants and Sampling Procedures*

This study examines the economic performance of participants in AIM's microcredit program. Therefore, the subjects include Malaysians who borrow from AIM to improve their standards of living. We restrict the sample to program participants in the states of Perak and Kelantan because these two states that have large number of program clients (refer to Table 1).

We apply several stages of stratification. First, two territories or areas of each state are chosen to represent that state's recipients of AIM funding, as follows:

- i. Kuala Kangsar and Teluk Intan in Perak.
- ii. Kota Bharu and Tumpat in Kelantan.

Second, in each area, participants are selected randomly from different centers ('pusat'), named for AIM branch offices. We pre-determine the sample size from each area at 500. Consequently, the total number of survey participants from the four areas is 2000.

3.2 *Sampling Instrument*

Almost all survey participants are ethnic Malay, and we prepared a set of questionnaires in the Malay language. Question topics include the respondents' socio-economic backgrounds, their borrowings from AIM, their incomes and assets before and after borrowing from AIM, their expenditures, and their awareness of available Islamic financial products and their opinions of these products. Questionnaires are given in the Appendix.

3.3 *Model and Data Analysis Techniques*

This study utilizes several methods to analyze results. Descriptive measures such as frequencies, proportions and means provide a general summary of the findings. For more in-depth analyses, ordinary least squares (OLS) regressions are estimated to determine factors that may affect particular variables. Several proxies are used to estimate the economic performance variable (dependent variables), such as level of earnings/income, ratio of spending to income and value of assets. The regressors (independent variables) are education level, age, marital status, ownership of assets, amount of loan and others.

The OLS model used is as follows:

Equation (1):

$$\begin{aligned} (income)_t = & \beta_0 + \beta_1 (area_residence)_t + \beta_2 (education)_t + \beta_3 (age)_t \\ & + \beta_4 (gender)_t + \beta_5 (amt_loan)_t + \beta_6 (source_income)_t + \beta_7 (assets_own)_t + \\ & \beta_8 (marital_status)_t + \dots \end{aligned}$$

Equation (2):

$$\begin{aligned}
 (\text{spending/income})_t = & \beta_0 + \beta_1 (\text{area_residence})_t + \beta_2 (\text{education})_t + \beta_3 (\text{age})_t \\
 & + \beta_4 (\text{gender})_t + \beta_5 (\text{amt_loan})_t + \beta_6 (\text{source_income})_t + \beta_7 (\text{assets_own})_t + \\
 & \beta_8 (\text{marital_status})_t + \dots\dots\dots
 \end{aligned}$$

Equation (3):

$$\begin{aligned}
 (\text{asset_value})_t = & \beta_0 + \beta_1 (\text{area_residence})_t + \beta_2 (\text{education})_t + \beta_3 (\text{age})_t \\
 & + \beta_4 (\text{gender})_t + \beta_5 (\text{amt_loan})_t + \beta_6 (\text{source_income})_t + \beta_7 (\text{assets_own})_t + \\
 & \beta_8 (\text{marital_status})_t + \dots\dots\dots
 \end{aligned}$$

4. EMPIRICAL FINDINGS

Table 2 reports the description of sample respondents. AIM participants in both provinces are overwhelmingly women. Of total respondents (usable data), 89.6 percent (1758 respondents) are women and 2.6 percent (51) are men; the remaining 7.8 percent (152) are missing value. Respondents from Perak constitute 55.3 percent (1000) of the sample, while 44.7 percent (758) are from Kelantan. Of those from Perak, 94.9 percent (949) are women and only 5.1 percent (51) are men. In Kelantan, 100 percent of respondents are women.

Malays consist of 96.1 percent of respondents. Other ethnicities include Chinese (0.4 percent), Indians (3.3 percent) and others (0.2 percent). Among the Malays, 97.0 percent (1676) are women and 3.0 percent (51) are men. There are no men from other ethnicities.

In general, sample respondents are literate. Only 11.9 percent do not have any formal education. Most respondents (56.6 percent) have some primary schooling or/and lower secondary and 29.1 percent have a middle secondary school certificate (Sijil Pelajaran Malaysia or SPM). Only 2.2 percent have a Malaysian higher school certificate (Sijil Tinggi Persekolahan Malaysia or STPM) needed to enter university; and .1 percent (two women) have a bachelor degree or higher.

The overwhelming majority (94.0 percent) of respondents are married; the remainder (6.0 percent) are unmarried or divorced. Among female respondents, 93.9 percent are married, and 6.1 percent are unmarried or divorced. The marriage rate among men is slightly higher (97.7 percent, with only 2.3 percent unmarried or divorced).

Respondents were asked their monthly and yearly incomes before participating in the AIM program. From yearly income and household size, per capita income is computed. Respondents were also asked the sources of their incomes. Table 3 reports respondents' income levels before participating in the AIM program. Respondents' average income was about RM5,362 a year or about RM447 a month. Per capita yearly income, which takes into account the size of a household, provides a better measurement of standard of living. Respondents' average per capita yearly income was RM1,045. Since the participants engage in many types of work, we

divide income sources (or jobs) into three categories: own business, not-own business and unemployed (including housewives and retirees).

Table 4 displays respondents' incomes after joining AIM. Average income is almost RM24,000 a year or RM1,987 a month. Taking household size into account, per capita income is RM4,734 a year, more than 4.5 times what it was before the loans were issued. The differences between respondents' mean per capita incomes before and after joining AIM are more formally compared using more sophisticated statistical tools. As reported in Table 5, the t-statistic is highly significant at the one percent level. Not surprisingly, this confirms that the increase in per capita income after joining AIM is indeed significant.

Table 2: Description of Respondents

		Gender		Total
		Female	Male	(within gender)
Ethnicity	Malay	1676 (97.0)	51 (3.0)	1727 (96.1)
	Chinese	7 (100.0)	0 (0.0)	7 (0.4)
	Indian	60 (100.0)	0 (0.0)	60 (3.3)
	Others	3 (100.0)	0 (0.0)	3 (0.2)
	<i>Total</i>	<i>1746 (97.2)</i>	<i>51 (2.8)</i>	<i>1589 (100.0)</i>
State	Perak	949 (94.9)	51 (5.1)	1000 (55.3)
	Kelantan	809 (100.0)	0 (0.0)	809 (44.7)
	<i>Total</i>	<i>1758 (97.2)</i>	<i>51 (2.8)</i>	<i>1809 (100.0)</i>
Marital	Married	1563 (97.4)	42 (2.6)	1605 (94.0)
Status	Unmarried/Divorced	101 (99.0)	1 (1.0)	102 (6.0)
	<i>Total</i>	<i>1664 (97.5)</i>	<i>43 (2.5)</i>	<i>1707 (100.0)</i>
Religion	Muslim	1679 (97.1)	51 (2.9)	1730 (96.2)
	Christian	4 (100.0)	0 (0.0)	4 (0.2)
	Buddhist	10 (100.0)	0 (0.0)	10 (0.6)
	Hindu	54 (100.0)	0 (0.0)	54 (3.0)
	Other	0 (0.0)	0 (0.0)	0 (0.0)
	<i>Total</i>	<i>1747 (97.2)</i>	<i>51 (2.8)</i>	<i>1798 (100.0)</i>
Highest	No formal education	210 (98.6)	3 (1.4)	213 (11.9)
Education	Primary school/PMR/SRP	976 (96.6)	34 (3.4)	1010 (56.6)
	Secondary School (SPM)	505 (97.5)	13 (2.5)	518 (29.1)
Level	Certificate/STPM/Diploma	39 (97.5)	1 (2.5)	40 (2.2)
	Bachelor degree and above	2 (100.0)	0 (0.0)	2 (0.1)
	<i>Total</i>	<i>1732 (97.1)</i>	<i>51 (2.9)</i>	<i>1783 (100.0)</i>

Notes: Percent in parentheses.

A regression analysis is done to determine important factors that might contribute to the economic performance of respondents after they participate in AIM. For this purpose, the OLS model is adopted; the indicators of economic performance used are income (Equation 1), ratio of spending to total monthly income (Equation 2) and assets value after the respondents participated in AIM (Equation 3). For the income indicator, the study uses per capita yearly income, as it best reflects a respondent's standard of living. The regressors used are education, age, loan amount, source of income, and assets owned. For per capita income, asset value and amount of loan, the variables are converted into logarithm in order to minimize the gap between data within a similar variable so that the coefficients could be interpreted as elasticity. We detected the problem of heteroscedasticity in the original OLS estimation and corrected it using White-heteroscedasticity estimates.

Table 3: Levels of Income before Participating In AIM

Statistic	Yearly income (RM)	Monthly income (RM)	Per capita yearly income (RM)
Minimum	.00	.00	.00
Maximum	24000.00 (USD6837.61)	2000.00 (USD569.80)	10000.00 (USD2849)
Mean	5362.27 (USD1527.71)	446.86 (USD127.31)	1045.35 (USD297.82)
Standard deviation	2565.16 (USD730.82)	213.76 (USD60.90)	720.54 (USD205.28)

Table 4: Levels of Income after Participating In AIM

Statistic	Yearly income (RM)	Monthly income (RM)	Per capita income (RM)
Minimum	0	0	0
Maximum	264000.00 (USD75213.70)	22000 (USD6267.81)	60000 (USD17094)
Mean	23841.45 (USD6792.44)	1986.79 (USD566.04)	4734.44 (USD1348.84)
Standard deviation	21266.31 (USD6058.78)	1772.19 (USD504.90)	5102.6 (USD1453.75)

Table 6 displays the regression results. Applying per capita yearly income to the sample data as a dependent variable (Equation 1) shows that the economic performance of AIM participants is significantly determined by the respondents' education level, gender, the amount of loan made and the area of residence. Specifically, the study found that higher levels of education correlated to higher levels of per capita income after respondents participated in AIM. It is expected that more educated respondents are more knowledgeable in handling projects. Regarding age, older respondents tend to earn higher per capita incomes from the AIM program; it is expected that experience comes into play to help older respondents earn more. For the gender variable, men (male) record higher per capita income than women (female). The significant and positive sign of the dummy for the Tumpat coefficient indicates that respondents from that area earn higher per capita incomes than those from Hilir Perak. Looking at the coefficient of the focal variable, the amount of loan from AIM, the positive and significant sign indicates clearly that the borrowings from AIM contribute to increases in respondents' per capita income.

Applying the ratio of monthly spending to total income as the indicator of economic performance (Equation 2), the results show that only two factors significantly determine this ratio: the amount of the loan obtained from AIM and the area of residence. Similar to the results of Equation 1, the amount of loan obtained from AIM contributes significantly and positively to respondents' ratios of spending to income. Contrary to Equation 1, however, the coefficient of the dummy for Tumpat is significant at the five percent level with a negative sign. This means that the ratio of business spending to total business income is less for participants residing in Tumpat. This could be because the scale of businesses in Tumpat (an area where many households are poor) tends to be very small and thus enterprises require less revolving capital.

Table 5: Differences in Means of Per Capita Income before and after Joining AIM

	Paired Differences					
	Mean	S.D.	Std. Error Mean	t	df	Sig.(2-tailed)
Per capita income (before AIM) – per capita (after AIM)	-369.07495938		12.48	-32.81	1943	0.00

When the value of assets after participating in AIM is used as the dependent variable to measure respondents' economic performance (Equation 3), the study identifies six determinants that significantly affect economic performance: education level, marital status, person responsible for handling the AIM project, assets owned before joining AIM, amount of loan from AIM and source of income. Regarding education level, the variable's negative sign shows that respondents who have lower levels of education tend to possess more valuable assets. This

Table 6: Regressions on Income, Ratio of Spending to Loan Size and Ratio of Asset Value to Loan Size

Dependent variable	Log (Per capita yearly income)	Spending/ total income monthly	Log (Asset value)
(Constant)	-10925.3***	-3.60	5.15***
Education level	511.45***	0.02	-0.14**
Age	2.12	-0.00006	0.0004
Dummy gender	1941.39**	4.37	N/A
Dummy marital status	191.48	0.061	0.46**
Person handling AIM project	145.84	0.42	0.20**
Dummy asset owned before joining AIM	1076.05	-0.27	0.47***
Log (Amount of loan)	1692.86***	0.53*	0.43***
Dummy source of income/type of expenses	-95.76	-0.17	0.46**
Dummy Tumpat	1774.20***	-0.72**	0.021
Dummy Kota Bharu	492.58	-0.14	0.052
Dummy Kuala Kangsar	136.42	-0.29	0.22
R-squared	0.08	0.02	0.08
Adjusted R-squared	0.08	0.01	0.07
Durbin-Watson	2.08	1.39	1.63
F-statistic	13.77***	2.73***	7.14***

Notes: *, ** and *** significant at 10, 5 and 1 percent, respectively.

result is the opposite from the first regression when per capita income is the dependent variable. This is probably because the value of assets owned does not necessarily depend on a person's education level. For example, assets could be inherited. Income, however, is a flow of money which is highly dependent on education level. Regarding marital status, the regression found that married respondents are more likely to own assets of greater value than unmarried ones. The positive sign of the coefficient of person handling the AIM projects implies that respondents who co-manage AIM projects with a spouse or children are more likely to own assets of higher value than those who manage projects alone.

The dummy for assets owned before joining AIM has a positive and significant sign, which is as expected. This result implies that those who owned assets, either land or a vehicle, before joining AIM tend to continue to own more valuable assets after joining the program. They also earn more per capita income than those who did not have any assets. The focal variable, the amount of loan obtained from AIM, again shows that the loans do in fact contribute positively to the value of assets that respondents acquire. Finally, the positive and significant sign of the dummy variable for source of income or type of expenses indicates that spending the loan on business items tends to increase the value of respondents' assets.

5. CONCLUSION

The OLS regression analysis of the sample data has shown that the economic performance of AIM participants (measured by per capita income, ratio of spending to income and value of assets) correlate significantly and positively to the amount of money borrowed from AIM. These findings are consistent with most previous studies of microcredit in other countries, such as in Bangladesh (Khandker, Samad and Khan, 1998; Hossain, 1988), Ghana and South Africa (Afrane, 2002).

Other factors that affect respondents' economic performance are education level, assets owned before joining AIM, marital status, gender, source of income and area of residence. The study found that respondents' levels of education correlate with their levels of per capita income, a key indicator of economic performance. It is expected that respondents who are more educated are more knowledgeable about handling their projects. It is therefore important that AIM, in addition to lending money, must instill knowledge and education in participants. Such knowledge and education would enable participants to better manage their loans as well as their businesses and personal expenses. Thus, an education program could accelerate poverty alleviation. It is thought that the government, working through an AIM agency, could provide such education programs for loan participants. For example, it could give business training or disseminate information about information technology.

The close relationship between the amounts of assets that participants owned before joining the AIM microfinance program and their subsequently earning more money implies that amounts of owned assets affect the program's effectiveness in increasing incomes of the poor. No doubt, owning assets helps give participants experience and knowledge that enable them to run businesses and therefore help increase their incomes. This relationship suggests a strategic initiative for AIM. It is important that the agency expand its programs to include ones that help enable participants to acquire additional assets and so increase their incomes.

ACKNOWLEDGEMENTS

This paper originates from of a research project funded by the International Centre for the Education of Islamic Finance, Malaysia. The authors would like to thank the Centre for generously funding the research.

REFERENCES

- Adams, D. W. & von Pischke, J. D. (1992). Microenterprise credit programs: Déjà Vu. *World Development*, 20(10), 1463-1470.
- Afrane, S. (2002). Impact assessment of microfinance interventions in Ghana and South Africa: A synthesis of major impacts and lessons. *Journal of Microfinance*, 4(1), 37-58.
- Amanah Ikhtiar Malaysia (AIM) website, <http://www.aim.gov.my/~cms/englishversion/AboutUs/History.htm> (accessed on 4 September 2010)
- Amanah Ikhtiar Malaysia, Annual Report, various issues.
- Coleman, B. E. (1999). The Impact of Group Lending in North East Thailand. *Journal of Development Economics*, 60(1), 105-1041.

- Conroy, J. D. (2002). Microfinance in Malaysia: Time to rebuild. http://www.bwtp.org/publications/pub/AIM_paper.htm (accessed on 6 September 2010).
- Della-Gusta, M. & Phillips, C. (2006). Women entrepreneurs in the Gambia: Challenges and opportunities. *Journal of International Development*, 18(8), 1051-1064.
- Gertler, P., Levine, D. & Moretti, E. (2003). *Do Microfinance Programs Help Families Insure Consumption Against Illness?* CIDER Working Paper C03-129.
- Hossain, M. (1988). *Credit for Alleviation of Rural Poverty: The Grameen Bank in Bangladesh*. International Food Policy Research Institute Research Report No. 65.
- Kabeer, N. & Noponen, H. (2005). *Social Economic Impact of PRADAN's Self Help Group Microfinance and Livelihoods Promotion Program: Analysis from Jarkhand, India*. University of Sussex, Imp-Act: Improving the Impact of Microfinance on Poverty: Action Research Program, Working Papers No. 23755.
- Kasim, S. (2000). *Impact of Banking on Rural Poor in Peninsular Malaysia*. Final Report of External Impact Evaluation Study on AIM Active Borrowers, Non-Borrowing Members, Dropouts and Non-Participating Poor. Penang: Center for Policy Research, Universiti Sains Malaysia.
- Khandker, S. R. (2003). *Microfinance and Poverty – Evidence Using Panel Data from Bangladesh*. World Bank Policy Research Working Paper No. 2945.
- Khandker, S. R., Samad, H. A. & Khan, Z. H. (1998). Income and employment effects of microcredit programmes: Village-level evidence from Bangladesh. *Journal of Development Studies*, 35(2), 96-124.
- MkNelly, B. & Dunford, C. (1998). *Impact of Credit with Education on Mother and Young Children's Nutrition: Lower Pra Rural Bank Credit With Education Program in Ghana*. Freedom from Hunger Research Paper No. 4.
- Morduch, J. (1998). *Does Microfinance Really Help the Poor? New Evidence from Flagship Program in Bangladesh*. Woodrow Wilson School of Public and International Affairs, Research Program in Development Studies Working Paper No. 198.
- Mummidi, T. (2009). *Women and Income Generating Activities: Understanding Motivations by Prioritising Skill, Knowledge and Capabilities*, Working Paper 2009-1, Rural Microfinance and Employment Project, <http://www.rume-rural-microfinance.org/spip.php?article78> (accessed on 8 September 2010).
- Park, A. and Ren, C. (2001). Microfinance with Chinese characteristics. *World Development*, 29(1), 39-62.
- Rao, S. (2008). Reforms with a female face: Gender, liberalization, and economic policy in Andhra Pradesh, India. *World Development*, 36(7), 1213-1232.
- Yunus and Abed (2004). Poverty Matters, State of Microcredit Summit Campaign Report 2004, <http://www.microcreditsummit.org/pubs/reports/socr/2004/SOCR04.pdf> (accessed on 4 September 2010).