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Full Length Research Paper

Comparing the effect of Amanah Ikhtiar Malaysia's (AIM) microcredit program on quality of life in urban and rural Malaysia

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This study was undertaken to measure and compare the impact of Amanah Ikhtiar Malaysia's (AIM) microcredit programs on low-income household's quality of life between urban and rural Peninsular Malaysia. To achieve the aforementioned objective, this study employed a cross-sectional data analysis using stratified random sampling method to examine whether participation in AIM's microcredit programs improved the quality of life of low-income households. A quality of life index was developed using eleven selected indicators, namely, use of permanent housing materials for the walls, floors and roofs, environmentally safe cooking fuel, better access to public water supply and healthy sanitary facilities. Findings of this study revealed that with participation in AIM's microcredit programs, the quality of life index as measured by these indicators improved for urban households. In fact, the overall quality of life among AIM borrowers was found to improve after participation. The current level of quality of life of the low-income urban households also appeared to be better than that of poor rural borrowers' households. The results suggest that AIM should, therefore, focus on increasing the outreach by targeting 'low income clients' in urban as well as rural Malaysia. Moreover, AIM also should review and re-organize their programs in order to come up with a dynamic and well-diversified microfinance program to fulfill all financial needs of urban clients.

Key words: Microcredit, poverty, quality of life, welfare, Malaysia.

INTRODUCTION

The poverty rate in Malaysia is calculated by using quantitative money-metric measures in terms of the poverty line income (PLI). A household is considered to be poor when the gross monthly household income falls below PLI. The official poverty line income has been calculated since 1976, which is estimated based on the necessities for food and other basic needs. Basic need includes education and recreation, transportation and communication, rent, fuel and power, clothing and footwear, and health-care (Zin, 2007). The Institute of Medical Research (IMR) develops the food requirements per household, which is based on the daily requirement of calories intake, which is 9,910 calories for each household with five members. The Department of Social Welfare, Government of Malaysia, evaluates the minimum requirement for clothing and footwear. All other items are calculated based on the findings of Household Expenditure Survey which assesses the minimum level of expenditure of lower income households in Malaysia. The government of Malaysia adjusts PLI based on consumer price index (CPI). However, because of the differences in the cost of living between Peninsular Malaysia and East Malaysia (consists of Sabah and Sarawak), the government of Malaysia measures PLI separately for each region. Based on the PLI- 2007 (Mid-Term Review

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Table 1. Incidence of poverty in Malaysia.

	Incidence of poverty (%)						Incidence of hardcore poverty (%)					
	1995	**1997**	**1999**	**2002**	**2004**	**2007**	**1995**	**1997**	**1999**	**2002**	**2004**	**2007**
Overall	8.7	6.1	8.5	6.0	5.7	3.6	2.1	1.4	1.9	1.0	1.2	0.7
Urban	3.6	2.1	3.3	2.3	2.5	2.0	0.9	0.4	0.5	0.3	0.4	0.3
Rural	14.9	10.9	14.8	13.5	11.9	7.1	3.6	2.5	3.6	2.6	2.9	1.4

Source: Mid-Term Review of 9th Malaysia Plan (2008) and Economic Report (2008/2009).

of the 9th Malaysia Plan, 2008), households in Peninsular Malaysia with gross monthly income below RM 720 are categorized as absolute poor households. For Sabah and Sarawak, the cut-off ceiling is RM 960 and 830 respectively. Hardcore poverty is a condition in which average monthly household income is below half of the PLI. Consequently, in 2007, the Government of Malaysia announced PLI for hardcore poor in Peninsular Malaysia separately, which is RM 430.

This money-metric PLI, however, is limited to capture the real sense of poverty but it ignores the importance of homegrown food, household size and composition, unsatisfied basic needs, economic vulnerability, ownership of household assets, dwelling characteristics and access to basic services. Any shortcoming in these indicators can lead to an underestimation of poverty (Baker and Schuler, 2004). Therefore, measurement of quality of life, which commonly includes details about housing conditions, dwelling characteristics and access to basic needs, provide in-depth understanding about the dynamic aspects of poverty. As a result, there is a need to measure the quality of life of the clients and their households participating in a program aimed at reducing poverty and improving socio-economic conditions of poor and low-income households. These measurements also provide valuable input into the process of socio-economic development strategies by highlighting the effectiveness of a well established development program. Moreover, existing research measuring the impact of microcredit program on the quality of life of poor or hardcore poor households were conducted either in rural areas or in urban settings. Previous studies concentrates on the overall effectiveness of microcredit program. This creates a vibrant gap in comparing the effectiveness of microcredit between rural and urban areas. This study aims to fill this gap which is a unique contribution of our study.

Poverty in Malaysia

The poverty rate (proportion of households living below PLI) in Malaysia declined dramatically after independence. About half (49.3%) of Malaysian households lived below the poverty line in 1970, but this number reduced to 16.5% in 1990, 8.7% in 1995 and only 3.6% in 2007. Both rural and urban poverty declined during this period. As presented in Table 1, the incidence of poverty in rural areas decreased from 14.9% in 1995 to 13.5% in 2002 to 7.1% in 2007. The incidence of poverty in urban areas decreased from 3.6% in 1995 to 2.3% in 2002 to only 2.0% in 2007. Poverty rate is high among agriculture, hunting and forestry workers in rural areas (Mid term review of 9th Malaysian Plan, 2008).

Urbanization and poverty in Malaysia

Better infrastructure, education, health care, financial institutions, employment opportunities together with rapid economic growth and industrialization accelerated the rate of urbanization from 20.4% in 1950 to 72.2% in 2010. The United Nations Population Division (2011) expects this trend to increase to 87.9% by 2050. This rapid urbanization created social imbalance and increased the incidence of poverty among the vulnerable Bumiputera's, Orang Asli's and other indigenous communities living in urban areas (Mok et al., 2007). These vulnerable groups commonly include single female headed households, uneducated and unskilled workers, foreign workers and unemployed. The study by Mok et al. (2007) reported that education is an important determinant of urban poverty in Malaysia, which supports government's strong emphasis on education in its poverty reduction programs. This study shows that a high number of children less than 15 years of age increase the incidence of poverty. Unexpectedly, a high number of adults also increase the chances of the household being poor in urban areas. This is because many adults are enrolled in higher education instead of generating income, and this may lead to temporary poverty until the adult household members are employed.

Poverty reduction initiatives

The rapid economic growth and poverty reduction initiatives generate higher-paid employment opportunities as well as more profitable micro and small-scale business opportunities which have been benefiting the poor. The government of Malaysia implemented several strategies to diversify sources of income to increase productivity and improve the quality of life of the poor. These poverty reduction strategies were incorporated into Malaysia's

core development plans. The Malaysian government has been encouraging and working together with private sectors and non-government organizations (NGO) to eradicate poverty (Tenth Malaysia Plan, 2010). Currently, Amanah Ikhtiar Malaysia (AIM), Tabung Economi Kumpulan Usahawan National (TEKUN), Bank Simpanan and AgroBank are providing collateral free small amount of credit as working capital to the poor and hardcore poor households in urban and rural Malaysia. Among them, AIM provides more diversified products and services and outreached more than 82% of the total poor and hardcore poor households in Malaysia (AIM, 2010). Since AIM uses well established group based microcredit model to provide collateral free credit in order to improve poor households' socio-economic conditions at national level, this study, thus, selected AIM's microcredit program in order to measure the impact of microcredit on quality of life in Peninsular Malaysia.

Amanah Ikhtiar Malaysia

AIM was established in 1987 to provide small scale financial services and training to poor households in order to improve their socio-economic condition. AIM uses a group based Grameen Bank (a Bangladeshi microfinance organization) model, which has been replicated by many MFO's all over the world. AIM selects their clients based on clients' average monthly household income. In rural areas, AIM only selects those households, whose average monthly household income falls below PLI, which includes both poor and hardcore poor households. AIM provides three economic loans namely I-Mesra loan, I-Srikandi loan and I-Wibawa loan. AIM also provides I-Penyayang loan or recovery loan. In addition, AIM provides education loan (I-Bistari) and housing/ multipurpose loan known as I-Sejahtera. No legal action is taken if the borrowers fail to settle their payments. As in August 2010, AIM has extended their outreach to 87 branches in Malaysia. There are 60497 groups in 6646 centers, currently serving a total of 254,116 clients with a 99.42% repayment rate (AIM, 2010).

In 2008, AIM launched "Urban Micro Finance Program". The group formation process is the same as conventional microcredit model practiced by AIM mostly in rural areas. However, unlike the rural microcredit program, Urban Micro Finance Program does not select their clients based on PLI, rather, they select clients with a household income below RM 2000 a month, or has a per capita income below RM 400 a month. Moreover, applicant's asset ownership must also not exceed RM 50000 and applicant's residential status in residential locality must be more than 2 years. The objectives of urban micro finance program are (1) to harness the potential of self-employment among the poor households and low-income group and (2) to expand AIM's micro-financing approach to the poor and lower income group in urban areas. The terms and conditions of financing include (1) participants must agree to form a five-member group and attend basic financing training for 5 days (1 h per day); (2) participants must agree to form a centre; (3) participants must attend a Centre Meeting every week; (4) participants must agree to contribute 1% from economic financing to the Group Fund; (5) participants must agree to contribute to the Group Fund an amount of RM 3.00 per week; (6) participants must agree to contribute an amount of RM 2.00 per week to the Centre Fund; (7) repayment shall be on a weekly basis; (8) participants must contribute to the Credit Khairat Fund; and (9) payment of financing charges 1% per month of the loan amount. As of 2009, AIM has extended their outreach to 17 branches in Urban Malaysia, currently serving a total of 4402 clients (AIM, 2010).

LITERATURE REVIEW

Microcredit came into existence nearly two decades ago, in order to fulfill the need for the basic financial services of nearly half of the world's population (Abed, 2000). Microcredit was established to uplift poor people and bring them out of poverty by lending small amount of collateral free credit for small scale income generating activities (Rosenberg, 2010). The Asian Development Bank (2009) defines microcredit as the provision of a broad range of financial services such as loans, deposits, payment services, money transfer, and insurance to poor and hardcore poor households and their micro-enterprises. Consultative Group to Assist the Poor (CGAP, 2010) defined microcredit as "a credit methodology that employs effective collateral substitutes to deliver and recover short-term, working capital loans to micro entrepreneurs." Harris (2006) mentioned that 'The Microcredit Summit 2006' adopted the definition of microcredit as "programs to extend small loans to very poor people for self-employment projects that generate income, allowing them to care for themselves and their families." The objective of Microcredit Summit is to ensure that 175 million of the world's poorest families, especially the women in those families, receive credit for self-employment and other financial and business services before the end of 2015 (Harris, 2009). As mentioned by Harris (2009), "assuming five persons per family, reaching 175 million of the world's poorest families would affect 875 million family members. When 100 million families income would increase to above US$ 1 a day threshold, half a billion people will be able to escape from extreme poverty".

Microcredit provides productive capital, which together with social capital and human capital, enables the poor and hardcore poor households to move out of poverty (Otero, 1999; Abed, 2000). A plethora of literatures on microcredit showed that it has a significant impact on poverty reduction around the world. Studies conducted by

Hossain (1988), Mustafa et al. (1996), Khandker and Pitt (1998), Kamal (1999), Latifee (2003), Khandker (2003), Hussain and Nargis (2008), Hoque (2008), and Rahman et al. (2009) on several microfinance organization's clients in Bangladesh noted that participation in microfinance program improved poor households ability to generate income which led to an improvement in households income, net working capital, fixed assets, increase spending on food, medical facilities and children's schooling. Study conducted by Khandker and Pitt (1998) addressed indirect improvement of household welfare by increasing market labor supply and children's schooling. Findings of Malhota et al. (2002) revealed that women became more conscious about their family welfare after participating in a group based microcredit program, which ultimately leads to positive outcomes in child health and education as well as household wellbeing. Latifee (2003) in his study on Grameen Bank's microcredit clients in Bangladesh mentioned that about 90 percent of the borrowers reported an improvement in standard of living. Studies conducted by Sutoro (1990) in Indonesia, Sebstad and Walsh (1991) in Nairobi, Mosley (1996) in Bolivia, Dunn (2005) in Bosnia and Herzegovina, and Panda (2009) in India also noted similar positive impacts of microcredit.

The impact of AIM's microfinance schemes followed a similar pattern, as it does for others. Study conducted by Gibbons and Kasim (1990) discovered a significant 55% increase in client's monthly household income. Second Internal Impact Study in 1990 conducted by Research and Development Unit of AIM showed further overall improvement among participating households. Around 98% of them experienced an increase in household income compared to 70% from the first study. The per capita monthly income also increased from RM 40 to 73. Third Internal Impact Study (1994) measured the impact on quality of life, by analyzing the ownership and quality of housing, type and quality of household assets, agricultural land and savings. Findings of the study also noted that increase in household income enables the participants to improve their housing conditions. Household savings increase from an average of RM 33.11 to 211.25. The increase in household income also facilitated an increase in expenditure on food, nutrition, education and reinvestment.

Earlier researches used a wide range of indicators to measure the quality of life of the households of microfinance organizations clients. Snodgrass and Sebstad (2002) conducted an impact study in three MFO's; SEWA Bank in India; Mibanco in Peru and Zambuko Trust in Zimbabwe. The indicators they used to measure households quality of life in India include materials used in the walls, floor and roof, number of rooms, number of floors, separate room for a kitchen, separate household plot, separate house/ room/ building, availability of electricity, sources of water, light and cooking fuel. Uotila (2005), in his impact assessment in Rwanda, measured the quality of life of microfinance clients households based on their sources of drinking water, cooking fuel, toilet facilities and children in school. Third Internal Impact Study (1994) measured their client's household's quality of life by using the following indicators, owner occupied house, use of electric household products, ownership of agricultural land, perception of nutritional quality and voluntary savings. After reviewing the earlier studies, this study selected the following indicators to measure the impact of AIM's microfinance schemes on household's quality of life - size of the house, number of storey, number of rooms, structural condition, materials used in walls, roof and floor; sources of drinking water, cooking fuel, toilet facilities and sources of light.

RESEARCH METHODOLOGY

Conceptual model and hypothesis

As mentioned by Hulme (1997), "behind all microfinance programs is the assumption that intervention will change human behaviors and practices in ways that lead to the achievement (or raise the probability of achievement) of desired outcomes." The conceptual model of impact chain presents a complex set of links as each 'effect' becomes a 'cause' in its own right generating further effects. One of the most complex conceptual models for impact assessment was presented by Chen and Dunn (1996), called the household economic portfolio model (HHEP), where researchers only explained the effect of credit on household resources and household activities. This study however only measures one of the implications of Household Economic Portfolio Model; which is hypothesized as:

H_1: Participation of microfinance program leads to an improvement in households' quality of life in Peninsular Malaysia.
H_2: There is a significant difference in current level of quality of life of AIM's urban and rural clients in Peninsular Malaysia.

Research design

As mentioned by Montgomery and Weiss (2011), impact assessment methodology addresses how participation in microcredit program affects the selected variables and how those same selected variables would represent in the absence of microcredit program. The most appropriate method to address the question should be by employing an experimental design. Since it is just not possible to control all the factors while measuring the impact of microcredit (Hulme, 2000), therefore, full experimental approach is not feasible for assessing the impact of microcredit programs (Khandker and Pitt, 1998; Swain and Varghese, 2009; Montgomery and Weiss, 2011). This study therefore, used a quasi-experimental approach to measure the impact of microcredit. In quasi-experimental approach control and treatment groups are used to measure the impact of AIM's microcredit programs. Moreover, in Malaysia, AIM provides financial services to more than 82% of the poor households. The rest of the poor and hardcore poor households are more likely to receive financial aid from other government and non-government development agencies or projects. It is also highly likely that these poor households live in remote locations therefore, are unable to form a five member group and participate in weekly center meetings and/or they just do not want to participate in AIM's microcredit program. To minimize the difference between the control and the treatment group (participating more than 12 months), this study selects the control group (participating less than or equal to 12 months) from AIM's client base. This study also used before after method to measure the impact of microcredit on urban low

income household's quality of life.

This research employs a cross-sectional design to measure the impact of AIM's microcredit schemes in Peninsular Malaysia. This study adopts group statistics that has been most often used known as 'average effect of treatment of treated', which measures the impact on the outcome of one group compared to others. The average program impact is estimated by comparing the average outcome of the members of treatment group (old respondents) with the same average outcome of the members of the control group (new respondents).

Sample selection and data collection

This research employs a stratified random sampling method and collects data through face-to-face structured interviews. AIM's "Urban Micro Finance Program" currently offers financial services through 18 branches in 11 states in Peninsular Malaysia. Among the 18 branches, 8 are in Selangor. Eight branches are randomly selected, of which three are from Selangor (Cawangan Puchong, Cawangan Ampang and Cawangan Shah Alam) and one branch each from other selected five states, which are Cawangan Seremban in Negeri Sembilan, Cawangan Melaka in Melaka, Cawangan Johor Bahru in Johor Bahru, Cawangan Kuantan in Pahang and Cawangan Alor Star in Alor Star.

In rural Malaysia, AIM's microcredit program currently offers financial services through 87 branches in 13 states. Among the 87 branches, 7 branches are randomly selected from five states, where poverty rate is relatively higher compared to other states. Out of the seven branches, two are from Kedah (Cawangan Baling and Cawangan Pendang), two are from Kelantan (Cawangan Machang and Cawangan Tumpat) and one branch each from Perlis (Cawangan Perlis), Perak (Cawangan Batang Padang) and Terengganu (Cawangan Besut). A team of nine Research Assistants together with the Project Manager then visited each of the branches from 18 April, 2011 to 9 May, 2011. Respondents were randomly selected during the centre meetings. After the data collection team had explained the purpose of this study a total of 286 rural and 249 urban respondents agreed to be interviewed and complete data were collected from total of 281 poor rural clients, and 242 low-income urban clients in Peninsular Malaysia.

FINDINGS

Housing conditions

Respondents housing conditions were assessed based on the size of the house, number of storey of the house, number of rooms in the house and structural condition of the house. The percentage distribution of size of home for urban and rural as well as new and old respondents is presented in Table 2. It shows that a relatively higher proportion of rural households live in small and big houses compared to urban households, whereas a higher proportion of urban households live in medium size houses. The *p*-value for Pearson's chi-square tests indicates an association between respondents location - urban and rural, with the size of the house they living in (*p*-value = 0.032 < 0.05). The *p*-value for Mann-Whitney test is more than chosen 5% level of significance, indicating that the difference in mean size of the clients houses in urban and rural areas are not statistically significant. Among the new and old respondents, a relatively higher proportion of old clients live in medium and big houses compared to new clients. The *p*-value for Pearson's chi-square tests indicates an association between respondents membership status – new and old, with the size of the house they living in (*p*-value = 0.000 < 0.05). The mean size of the old respondents houses is also significantly bigger compared to the new respondents houses (Mann-Whitney test, *p*-value = 0.003 < 0.05). Forty (40) out of 523 respondents reported that they are currently living in better houses than before participation. The mean size of the house after participation is also significantly bigger than that of before participation (Wilcoxon Signed Ranks test, *p*-value = 0.000 < 0.05). The standard deviation of size of the houses also decreased after participation. It is therefore concluded that participation in AIM's microcredit program does lead to bigger houses for the clients in Peninsular Malaysia.

On the number of storey of the houses, a relatively higher proportion of rural households live in one and two storey houses compared to urban households, and a higher proportion of urban households live in more than two storey houses. The *p*-value for Pearson's chi-square tests indicates an association between respondents location - urban and rural, with the number of storey of the houses they live in (*p*-value = 0.001 < 0.05). The *p*-value for Mann-Whitney test is more than required 5% level of significance, indicating that the difference in mean number of storey of the houses in urban and rural areas is not statistically significant. Among the new and old respondents, the *p*-value for Pearson's chi-square tests indicates that there is no association between respondents membership status – new and old, with the number of storey of the houses they are living in (*p*-value = 0.911 > 0.05). The mean number of storey of old respondents houses is also not significantly higher than that of new respondents (Mann-Whitney test, *p*-value = 0.881 < 0.05). Twenty five (25) out of 523 respondents reported that they are currently living in better houses than before participation. The mean number of storey of the houses after participation is also significantly higher than that before participation (Wilcoxon Signed Ranks test, *p*-value = 0.000 < 0.05).

With regard to the number of rooms in respondents' houses, the findings presented in Table 3 indicate that a relatively higher proportion of rural households live in houses with one, two and more than three rooms compared to urban participants. The *p*-value for Pearson's chi-square tests indicates an association between respondents location - urban and rural, with the number of rooms in the respondents houses (*p*-value = 0.000 < 0.05). The *p*-value for Mann-Whitney test is more than chosen 5% level of significance, indicating that the difference in mean number of rooms in the clients houses in urban and rural areas are not statistically significant. Among the new and old respondents, a relatively high proportion of old clients live in houses with more than

Table 2. Size of the houses and number of storeys.

Size of the houses		Location of the clients		Membership status	
		Urban	Rural	New	Old
Small	N	18	30	20	28
	%	7.4	10.7	19.6	6.7
Medium	N	204	211	72	343
	%	84.3	75.1	70.6	81.5
Big	N	20	40	10	50
	%	8.3	14.2	9.8	11.9
Total	N	242	281	102	421
	%	100	100	100	100
Pearson chi-square test	Value	6.915		1.553	
	p-value	0.032 < 0.05		0.000 < 0.05	
Descriptive analysis	Mean	0.7521	0.7589	0.7255	0.7631
	SD	0.0992	0.1247	0.1340	0.1069
Shapiro-Wilk test	*p*-value	0.000	0.000	0.000	0.000
Mann-Whitney	M. Rank	243.00	278.36	233.89	268.81
	p-value	0.475 > 0.05		0.003 < 0.05	

Mean difference in house size before and after participation			
		Before	After
Mean		0.7357	0.7557
Standard deviation		0.1277	0.1136
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive Difference		40 out of 523	
Wilcoxon Signed Ranks Test	Z	-6.186	
	p-value	0.000 < 0.05	

Number of storeys					
One	N	202	241	86	357
	%	83.5	85.8	84.3	84.8
Two	N	25	38	12	51
	%	10.3	13.5	11.8	12.1
More than two	N	15	2	4	13
	%	6.2	0.7	3.9	3.1
Total	N	242	281	102	421
	%	100	100	100	100
Pearson chi-square test	Value	13.222		0.186	
	p-value	0.001 < 0.05		0.911 > 0.05	
Descriptive analysis	Mean	0.5568	0.5374	0.5490	0.5457
	SD	0.1371	0.0942	0.1221	0.1150

Table 2. Contd.

Shapiro-Wilk test of normality	*p*-value	0.000	0.000	0.000	0.001
Mann-Whitney	M. Rank	266.3	258.3	263.3	261.7
	p-value	0.334 > 0.05		0.881 > 0.05	

Mean difference in number of storey in respondents house, before and after participation			
		Before	**After**
Mean		0.5354	0.5464
Standard deviation		0.0976	0.1162
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive difference		25 out 523	
Wilcoxon Signed Ranks Test	Z	-4.131	
	p-value	0.000 < 0.05	

Table 3. Number of rooms and structural condition of the house.

Number of rooms		**Location of the clients**		**Membership status**	
		Urban	**Rural**	**New**	**Old**
One	N	7	19	6	11
	%	2.9	6.8	5.9	2.6
Two	N	44	86	24	103
	%	18.2	30.6	23.5	24.5
Three	N	160	110	56	224
	%	66.1	39.1	54.9	53.2
More than three	N	31	66	16	83
	%	12.8	23.5	15.7	19.7
Total	N	242	281	102	421
	%	100	100	100	100
Pearson chi-square test	Value	38.301		3.478	
	p-value	0.000 < 0.05		0.324 > 0.05	
Descriptive analysis	Mean	0.7324	0.7100	0.7011	0.7251
	SD	0.1543	0.2080	0.1928	0.1833
Shapiro-Wilk test of normality	*p*-value	0.000	0.000	0.000	0.000
Mann-Whitney	M. Rank	271.01	254.24	250.14	264.87
	p-value	0.164 > 0.05		0.331 > 0.05	

Mean difference in number of rooms in respondents house before and after participation			
		Before	**After**
Mean		0.7204	0.7094
Standard deviation		0.1852	0.1949
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive difference		22 out of 523	

Table 3. Contd.

Wilcoxon Signed Ranks Test	Z	-3.984			
	p-value	0.000 < 0.05			
Structural condition of the houses					
Poor	N	8	11	2	17
	%	3.3	3.9	2.0	4.0
Moderate	N	188	198	84	302
	%	77.7	70.5	82.4	71.7
Good	N	46	72	1	102
	%	19.0	25.6	15.7	24.2
Total	N	242	281	102	421
	%	100	100	100	100
Pearson chi-square test	Value	3.573		4.885	
	p-value	0.168 > 0.05		0.087 > 0.05	
Descriptive analysis	Mean	0.7893	0.8043	0.7843	0.8005
	SD	0.1116	0.1248	0.0997	0.1231
Shapiro-Wilk test of normality	*p*-value	0.000	0.000	0.000	0.000
Mann-Whitney	M.Rank	259.27	264.14	248.06	265.38
	p-value	0.128 > 0.05		0.175 > 0.05	

Mean difference structural condition of the house before and after participation			
		Before	**After**
Mean		0.7873	0.7973
Standard deviation		0.1180	0.1190
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive difference		21 out of 523	
Wilcoxon Signed Ranks Test	Z	-4.583	
	p-value	0.000 < 0.05	

three rooms. The *p*-value for Pearson's chi-square tests indicates that there is no association between respondents membership status – new and old, with the number of rooms in the houses they live in (*p*-value = 0.324 > 0.05).

The mean number of rooms in the old respondents houses is also not significantly higher than that of new respondents (Mann-Whitney test, *p*-value = 0.331 < 0.05). Twenty (22) out of 523 respondents reported that they are currently living in better houses with more rooms than before participation. The mean number of rooms in the houses after participation is also significantly higher than that of before participation (Wilcoxon Signed Ranks test, *p*-value = 0.000 < 0.05).

On the structural condition of the houses as presented in Table 3 shows that a relatively higher proportion of urban households live in houses with better structural conditions than rural households. The *p*-value for Pearson's chi-square tests indicates there is no association between respondents location - urban and rural, with the structural condition of the house they live in (*p*-value = 0.168 > 0.05). The *p*-value for Mann-Whitney test is more than the chosen 5% level of significance, indicating that the difference in mean structural condition of clients houses in urban and rural areas are not statistically significant. Among the new and old respondents, a relatively higher proportion of old clients live in houses with good structural condition than that of

new clients. The *p*-value for Pearson's chi-square tests indicates that there is no association between respondents membership status – new and old, with the structural condition of the houses they live in (*p*-value = 0.087 > 0.05). The mean structural condition of the old respondents houses is also not significantly better compared to the new respondents houses (Mann-Whitney test, *p*-value = 0.175 > 0.05). Twenty one (21) out of 523 respondents reported that they are currently living in better houses than before participation. The mean structural condition of the houses after participation is also significantly higher than before participation (Wilcoxon Signed Ranks test, *p*-value = 0.000 < 0.05). It is therefore concluded that participation in AIM's microcredit program does lead to better housing for the clients in Peninsular Malaysia.

Housing materials

To grade the materials used for the walls, floor and roofs of the houses, respondents were asked to choose from eight options which include the most common housing materials, such as cement/stone, wooden boards, plastics or cardboard, zinc/tin, bamboo and others. Materials used were then divided into two groups, namely, permanent materials and temporary materials. The types of housing materials used to construct walls, floor and roofs of the houses of new and old respondents in urban and rurals before and after participating in AIM's microcredit program are presented are presented in Table 4.

One hundred and ninety nine (199) out of 242 (82.2%) of the total urban respondents reported that they used permanent material (cement/stone) for the walls of their houses. On the other hand, 226 out of 181 (80.4%) of the total rural respondents reported that they used temporary material for the walls of their houses. The *p*-value for Pearson's chi-square tests indicates that respondent's location – urban and rural, is associated with the materials used to construct walls of their houses. Among new and old respondents, a relatively higher proportion of new respondents reported using permanent housing materials for the walls of their houses. The *p*-value for Pearson's chi-square tests indicates that respondent's membership status – new and old, is associated with the materials used to construct walls of their houses. A total of 17 out of 523 respondents reported changing from temporary to permanent housing materials for the walls of their houses after participation. It is noted that the *p*-value for the Wilcoxon Signed Ranks is less than the chosen 5% level of significance, indicating that the mean value for materials used for walls of respondents' houses before and after participation in AIM's microcredit program is significantly different.

On the materials used for the floors of the houses, all urban respondents reported using permanent housing materials for the floors of their houses. On the other hand, 237 out of 181 (84.3%) of the total rural respondents reported that they used temporary material for the floors of their houses. The *p*-value for Pearson's chi-square tests indicates that respondent's location – urban and rural, is associated with the materials used to construct floors of their houses. Among new and old respondents, a relatively higher proportion of new respondents reported using permanent housing materials for the floors of their houses. The *p*-value for Pearson's chi-square tests indicates that respondent's membership status – new and old, is associated with the materials used to construct floors of their houses. A total of 19 out of 523 respondents reported changing from temporary to permanent housing materials for the floors of their houses after participation. It is noted that the *p*-value for the Wilcoxon Signed Ranks is less than the chosen 5% level of significance, indicating that the mean value for materials used for floors of respondents' houses before and after participation in AIM's microcredit program is significantly different.

With regard to the materials used in the roofs of the house, 237 out of 242 (97.9%) of the total urban respondents reported that they used permanent material (cement/stone) for the roofs of their houses. On the other hand, 278 out of 181 (98.9%) of the total rural respondents reported that they used temporary material for the roofs of their houses. The *p*-value for Pearson's chi-square tests indicates that respondent's location – urban and rural, is associated with the materials used to construct roofs of their houses. Among new and old respondents, a relatively higher proportion of new respondents reported using permanent housing materials for the roofs of their houses. The *p*-value for Pearson's chi-square tests indicates that respondent's membership status – new and old, is associated with the materials used to construct roofs of their houses. A total of 7 out of 523 respondents reported changing from temporary to permanent housing materials for the roofs of their houses after participation. It is noted that the *p*-value for the Wilcoxon Signed Ranks is less than the chosen 5% level of significance, indicating that the mean value for materials used for roofs of respondents' houses before and after participation in AIM's microcredit program is significantly different.

Other welfare indicators

Other household welfare variables include household's toilet facilities, cooking fuel, sources of light and sources of drinking water. Findings from this study indicate that in urban and rural Peninsular Malaysia, all respondents are reported to have access to legal electric supply. The number and percentage of urban and rural as well as new and old respondents having access to safe sources of drinking water, cooking fuel and toilet facilities are presented in Table 5. 99.6% of total urban respondents

Table 4. Materials used in the walls, floors and roofs.

Materials used for the walls		Location of the clients		Membership status	
		Urban	Rural	New	Old
Temporary materials (0) (Wood/Plastic/Zinc/Bamboo)	N	43	226	35	234
	%	17.8	80.4	34.3	55.6
Permanent materials (1) (Cement/Stone)	N	199	55	67	187
	%	82.2	19.6	65.7	44.4
Pearson chi-square test	Value	204.42		14.868	
	p-value	0.000 < 0.05		0.000 < 0.05	
Descriptive analysis	Mean	0.8223	0.1957	0.6569	0.4444
	SD	0.3830	0.3974	0.4741	0.4974
Shapiro-Wilk test of Normality	*p*-value	0.000	0.000	0.000	0.000
Mann-Whitney	M. Rank	350.04	186.18	306.77	249.00
	p-value	0.000 < 0.05		0.000 < 0.05	

Mean difference materials used in walls of the house before and after participation			
		Before	After
Mean		0.4532	0.4857
Standard deviation		0.4983	0.5003
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive difference		17 out of 523	
Wilcoxon Signed Ranks Test	Z	-4.123	
	p-value	0.000 < 0.05	

Materials used for the floors of the house					
Temporary Materials (0) (Wood/Plastic/Zinc/Bamboo)	N	0	237	26	211
	%	0.0	84.3	25.5	50.1
Permanent Materials (1) (Cement/Stone)	N	242	44	76	210
	%	100.0	15.7	74.5	49.9
Pearson Chi-Square Test	Value	373.22		20.098	
	p-value	0.000 < 0.05		0.000 < 0.05	
Descriptive Analysis	Mean	0.9215	0.1566	0.7451	0.4988
	SD	0.2695	0.3641	0.4379	0.5005
Shapiro-Wilk test of normality	*p*-value	0.000	0.000	0.000	0.000
Mann-Whitney	M.Rank	380.50	159.95	313.84	249.44
	p-value	0.000 < 0.05		0.000 < 0.05	

Mean difference materials used in floor of the house before and after participation		
	Before	After
Mean	0.5105	0.5468
Standard deviation	0.5004	0.4982

Table 4. Contd.

Shapiro-Wilk test of normality	*p*-value	0.000		0.000	
Positive Difference		19 out of 523			
	Z	-4.359			
Wilcoxon Signed Ranks Test	*p*-value	0.000 < 0.05			
Materials used for the roofs of the houses					
Temporary Materials (0) (Wood/Plastic/Zinc/Bamboo)	N	5	278	34	249
	%	2.1	98.9	33.3	59.1
Permanent Materials (1) (Cement/Stone)	N	237	3	68	172
	%	97.9	1.1	66.7	40.9
Total	N	242	281	102	421
	%	100	100	100	100
Pearson chi-square test	Value	491.32		22.030	
	p-value	0.000 < 0.05		0.000 < 0.05	
Descriptive analysis	Mean	0.9793	0.0107	0.667	0.4086
	SD	0.1425	0.1029	0.4737	0.4922
Shapiro-Wilk test of normality	*p*-value	0.000	0.000	0.000	0.000
Mann-Whitney	M. Rank	398.10	144.79	316.33	248.84
	p-value	0.000 < 0.05		0.000 < 0.05	

Mean difference materials used in roof of the house before and after participation			
		Before	**After**
Mean		0.4455	0.4589
Standard deviation		0.4975	0.4987
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive difference		7 out of 523	
	Z	-2.646	
Wilcoxon Signed Ranks Test	*p*-value	0.008 < 0.05	

Table 5. Sources of drinking water, cooking fuel and toilet facilities.

Sources of drinking water		**Location of the clients**		**Membership status**	
		Urban	**Rural**	**New**	**Old**
Unsafe (0) (River/rain/pond water)	N	1	19	2	18
	%	0.4	6.8	2.0	4.3
Safe Sources (1) (Tap/Bottled Water)	N	241	262	100	403
	%	99.6	93.2	98	95.7
Pearson chi-square test	Value	14.248		1.196	
	p-value	0.000 < 0.05		0.274 > 0.05	

Table 5. Contd.

	Mean	0.9959	0.9324	0.9804	0.9572
Descriptive analysis	SD	0.0643	0.2515	0.1393	0.2025
Shapiro-Wilk test of normality	*p*-value	0.000	0.000	0.000	0.000
	M.Rank	270.92	254.32	266.87	260.82
Mann-Whitney	*p*-value	0.000 < 0.05		0.275 > 0.05	

Sources of drinking water - before and after participation			
		Before	**After**
Mean		0.9579	0.9618
Standard deviation		0.3189	0.1919
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive difference		9 out of 523	
	Z	-1.136	
Wilcoxon Signed Ranks Test	*p*-value	0.256 > 0.05	

Sources of cooking fuel					
Environmentally more distractive sources (0) (Wood/Coal/Dung)	N	0	8	2	6
	%	0.0	2.8	2.0	1.4
Environmentally less distractive Sources (1) (Gas/Electricity)	N	242	273	100	415
	%	100	97.2	98.0	98.6
	Value	6.997		0.156	
Pearson chi-square test	*p*-value	0.008 < 0.05		0.693 > 0.05	
	Mean	1	0.9715	0.9804	0.9857
Descriptive Analysis	SD	0	0.1661	0.1393	0.1187
Shapiro-Wilk test of normality	*p*-value	0.000	0.000	0.000	0.000
	M.Rank	266.00	258.56	263.87	261.55
Mann-Whitney	*p*-value	0.008 < 0.05		0.693 > 0.05	

Sources of cooking fuel - before and after participation			
		Before	**After**
Mean		0.9732	0.9847
Standard deviation		0.161	0.1228
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive difference		6 out of 523	
	Z	-2.449	
Wilcoxon Signed Ranks Test	*p*-value	0.014 < 0.05	

Toilet Facilities					
Environmentally Unsafe (0) (Tradition Open Toilet)	N	0	8	2	6
	%	0.0	2.8	2.0	1.4
Environmentally Safe (1) (Flash / Cement Toilet)	N	242	272	100	414
	%	100	96.8	98.0	98.3

Table 5. Contd.

	N	242	281	102	421
Total	%	100	100	100	100
	Value	7.887		0.397	
Pearson chi-square test	*p*-value	0.019 < 0.05		0.820 > 0.05	
	Mean	1	0.9751	0.9804	0.9881
Descriptive analysis	SD	0	0.1775	0.1393	0.1285
Shapiro-Wilk test of normality	*p*-value	0.000	0.000	0.000	0.000
	M.Rank	265.50	256.99	260.38	262.39
Mann-Whitney	*p*-value	0.029 < 0.05		0.593 > 0.05	

Sources of toilet facilities - before and after participation

		Before	**After**
Mean		0.9809	0.9866
Standard deviation		0.1371	0.1306
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive difference		3 out of 523	
	Z	-1.732	
Wilcoxon Signed Ranks Test	*p*-value	0.83 < 0.05	

and 93.2% of total rural respondents reported that they have access to safe sources of drinking water. The *p*-value for Pearson's chi-square tests indicates that respondent's location – urban and rural, is associated with their sources of drinking water. Among new and old respondents, the *p*-value for Pearson's chi-square tests indicates that respondent's membership status – new and old, is associated with the sources of drinking water. A total of 9 out of 523 respondents reported changing from unsafe to safe sources of drinking water after participation. It is noted that the *p*-value for the Wilcoxon Signed Ranks is more than the chosen 5% level of significance, indicating that the mean value for sources of drinking water before and after participation in AIM's microcredit program is not significantly different.

On the sources of cooking fuel, 100% of urban respondents and 97.2% of rural respondents reported that they use environmentally less distractive cooking fuel. The *p*-value for Pearson's chi-square tests indicates that respondent's location – urban and rural, is associated with their use of cooking fuel. Among new and old respondents, the *p*-value for Pearson's chi-square tests indicates that respondent's membership status – new and old, is not associated with the use of environmentally less distractive cooking fuel. A total of 6 out of 523 respondents reported to change from using environmentally more distractive cooking fuel to using environmentally less distractive cooking fuel after participation. It is noted that the *p*-value for the Wilcoxon Signed Ranks is less than the chosen 5% level of significance, indicating that the mean uses of cooking fuel before and after participation in AIM's microcredit program differed significantly.

In regard to the toilet facilities, only 8 rural respondents reported that they use environmentally unsafe toilet facilities. The *p*-value for Pearson's chi-square tests indicates that respondent's location – urban and rural, is associated with their toilet facilities. For new and old respondents, the *p*-value for Pearson's chi-square tests indicates that respondent's membership status – new and old, is not associated with the toilet facilities. A total of 3 out of 523 respondents reported changing from unsafe to safe toilet facilities after participation. It is noted that the *p*-value for the Wilcoxon Signed Ranks is more than the chosen 5% level of significance, indicating that the mean value for toilet facilities before and after participation in AIM's microcredit program is not significantly different.

Reliability of quality of life index indicators

Replicability of results of quality of life index can only be ascertained with a good reliability measure Table 6. Cronbach's alpha for the quality of life index score is

Table 6. Reliability statistics.

No of Items	Cronbach's alpha	Spearman-Brown coefficient (equal length)	Spearman-Brown coefficient (unequal length)	Guttman Split-Half coefficient
10	0.615	0.838	0.843	0.821

Table 7. Impact on quality of life.

Variable		Before	After
Mean		8.0889	8.2443
Standard deviation		1.4841	1.4129
Shapiro-Wilk test of normality	*p*-value	0.000	0.000
Positive difference		130 out of 523 respondents	
	Z	-9.484	
Wilcoxon Signed Ranks Test	*p*-value	0.00	

0.615, which is higher than 0.60, indicating that the questionnaire items produce an acceptable measure of construct. The Spearman-Brown prophecy coefficient for equal length is 0.838 and for unequal length is 0.843, both of which are higher than 0.80, indicating an adequate reliability. Guttman split-half reliability coefficient does not require equal variances between the two split forms. The Guttman split-half reliability coefficient is 0.821, which is higher than 0.80, indicating adequate reliability. Findings of the Spearman-Brown prophecy coefficient and the Guttman split-half reliability coefficient indicate that the 11 – item quality of life indexscale is reliable.

Testing research hypothesis 1 (H_1)

The mean quality of life index score for 523 urban and rural clients before and after participation in AIM's microcredit program are presented in Table 7. The mean quality of life score after participation is relatively higher than that of before participation. The standard deviation of quality of life score also decreased after participation. The quality of life index score of a total of 130 respondents out of 523 respondents increased after participation. The *p*-value for Wilcoxon Signed Ranks test is 0.000, which is less than chosen 5% level of significance, indicates that the mean difference in quality of life index score is statistically significant. It is therefore concluded that participation in AIM's microcredit program does leads to an improvement in client's quality of life in Peninsular Malaysia.

Testing research hypothesis 2 (H_2)

The mean quality of life index score for 523 urban and rural clients are presented in Table 8. The mean quality of life score of urban respondents is relatively higher than that of rural respondents. The standard deviation of quality of life score for urban respondents is also lower than that of rural respondents. The *p*-value for Mann-Whitney test is 0.000, which is less than chosen 5% level of significance, indicates that the mean difference in quality of life index score is statistically significant. It is therefore concluded that quality of life among the urban clients is significantly higher than that of rural clients.

CONCLUSION AND RECOMMENDATION

Among the proactive initiatives and strategies taken by the Malaysia government under the 9th Malaysia Plan to address the existing poverty issue is to develop new and improved institutional mechanism and specific welfare programs. These are combined with better access to credit facilities such as Amanah Ikhtiar Malaysia (AIM), TEKUN and other microcredit schemes from commercial banks (Mid-term Review of The Ninth Malaysia Plan, 2008). Aiming to be a developed nation in 2020, Malaysia is expected to fully eradicate its poverty rate thus, raising the national standard of living to become comparable with that of other developed nations. In order to assess the impact of AIM's microcredit program on the quality of life of poor client's households in Peninsular Malaysia, this study measures the effectiveness of the current programs aimed at raising the standard of living of poor households. Another objective of AIM is to improve socio-economic condition of poor households in Malaysia and findings of this study therefore improve AIM's knowledge and understanding about the usefulness of current microcredit program in raising household's quality of life.

Based on the findings presented previously, this study

Table 8. Difference in level of quality of life between urban and rural Malaysia.

Variable		Urban	Rural
Mean		9.6281	7.0525
Standard deviation		0.3785	0.7197
Shapiro-Wilk test of Normality	*p*-value	0.000	0.000
Mann-Whitney Test	M.Rank	401.40	141.95
	Z	-19.706	
	p-value	0.000 < 0.05	

concludes that participation in AIM's microcredit program leads to an improvement in poor household's quality of life in Peninsular Malaysia. it is also noted that urban households enjoy a relatively higher standard of living compared to rural poor households. These findings are consistent with earlier research findings conducted to measure the impact of AIMs microfinance schemes on their client's quality of life as well as studies conducted around the world. These studies include SERU (1990) impact study; the Third Internal Impact Study (1994); Snodgrass and Sebstad (2002) in India, Peru and Zimbabwe; Uotila (2005) in Rwanda; and Latifee (2003) in Bangladesh.

The findings of this study have vital implications for academics, AIM, poor rural households, as well as development economists and policy makers. For academicians and AIM policy makers, these findings confirm the effectiveness of the program they implemented since 1987. For development policy makers, these findings indicate that participation in AIM's microcredit program can be a useful mechanism to improve the quality of life of rural poor households in Peninsular Malaysia. However, there are still areas for improvement. AIM has to intensify its efforts in order to increase the number of poor as well as less poor or low income group by offering them well-diversified products and services. It is therefore proposed that AIM should review current microfinance products and method of distribution and organize them in a way which can benefit their clients most.

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