



The Impact of Access to Islamic microfinance Institutions (Islamic MFI) on Poverty Alleviation in Rural Bogor West Java, Indonesia: A Propensity Score Matching Approach

Yani Mulyaningsih¹, Nunung Nuryartono², Rina Oktaviani³, & Carunia M. Firdausy⁴

¹Economic Research Center-The Indonesian Institute of Sciences, Jakarta, Indonesia 12710

²Department of Economics Faculty of Economics and Management, Bogor Agricultural University, Indonesia 16680

³Department of Economics Faculty of Economics and Management, Bogor Agricultural University, Indonesia 16680

⁴Economic Research Center-The Indonesian Institute of Sciences, Jakarta, Indonesia 12710

Abstract

In general, microfinance institutions focus their outreach on the poor, thus it is hoped that Islamic microfinance institutions do to. Currently, the operation of Islamic MFI is headed towards commercialization, signified by the fact that most of the funds originate from public fund mobilization instead of originating from the government. Will the commercialization of Islamic MFI be aligned with the purpose of microfinance institutions in general, which is to help alleviate poverty? The Propensity score matching will be used to estimate the impact of access to Islamic MFI towards poverty. The issue that often arises in studies assessing impact is the presence of selection bias, especially in observational studies. To avoid this issue, propensity score matching is applied. The results of this study demonstrate the absence of impact of access to Islamic MFI towards poverty alleviation in rural areas in Bogor, Indonesia, if the Islamic MFI operates commercially.

Keywords: Islamic MFI, poverty alleviation, propensity score matching.

1. Introduction

1.1 Background

The number of poor in Indonesia is still relatively high. In 2013, there were 28,066,560 people living in poverty and most of them were residing in rural areas, 17,740,000 people (BPS, 2014). The poor, especially those in rural areas face several obstacles, one of them being denied access to formal financial services such as banks. According to the global financial inclusion data of 2011 from the World Bank, there are still many Indonesian citizens above 15 years old who had no access to loans from financial institutions (42%). These people have been relying on loans from relatives or friends. Some studies have declared that rural households in developing countries lack access to bank credit (Nuryartono, 2007; Mpuga, P., 2010; Saptono *et al.*, 2010; Thoha, *et al.*, 2010). The 2011 global financial inclusion data from the World Bank states that only 26.03% of the rural population in countries with medium to low incomes (including Indonesia) has accounts in formal financial institutions.

To deal with this issue, numerous microfinance institution were founded, especially in rural areas, providing more access to financial services for rural households, specifically poor households (Navajaset *et al.*, 2000). Many studies state that access to microfinance institutions is able to reduce poverty (Khandker, 2005; Imai *et al.*, 2010; Rahman, 2010; Li *et al.*, 2011).

1.2 Issues

As a new generation of microfinance institutions, the presence of Islamic MFI is relatively new in Indonesia's financial industry, but it is quite significant. Islamic MFI known as *BaitulMaalwaTamwil* or BMT have existed in Indonesia before the economic crisis of 1997. Even though these institutions were a novelty, they had relatively rapid growth and had operations in rural and remote areas as untouched by banks (Buchori, 2012). Based on the studies by the Bank of Indonesia and several universities (UNDIP, UNPAD, and UNAIR) that mapped the potentials and profiles of Islamic MFI/BMT in West Java, Central Java and East Java (Buchori, 2012) it was declared that the fact that these institutions were readily available to the population was the reason that made BMTs develop in addition to other factors such as their location in religious strongholds (26.24%), their simple procedures (22.38%), the presence of many small and medium businesses (11.60%), the local culture (5.80%) and the absence or the rareness of other microfinance institutions (5.2%)

According to Sakai *et al.* (2009), Islamic MFI as providers of micro financing (small business) in Indonesia are developing quite well. The BMT is a grass root empowerment effort supported by funds from members of Islamic communities.

This small business financing institution usually operates based on the principles of profit (and loss) sharing and utilize Islamic moral values and group solidarity as social capital to encourage loan repayment. Group solidarity is built through periodic meetings and consultations. This means that the initiative to form BMT is not from the government to channel subsidized credit, but is based on community funds (66-75%) and in its development utilizes various other commercial funds through linkage with banks. Funds from the government are relatively small, only 2.08%. The relatively small amount of government funds compared to the relatively large mobilization of community funds indicate that Islamic MFI operate commercially. If a microfinance institution leans towards commercialization in its operations, how will it be able to fulfill its social mission pertaining to poverty?

1.3 Study Aims

Based on the aforementioned background and issues, this study aims to analyze the impact of access to Islamic MFI towards rural poverty.

2. Theoretic Framework

2.1 Outreach

Paxton and Cuevas (2002) stated that in measuring outreach, there needs to be segregation between the extent/breadth and the depth of outreach. Extent is the absolute number of target households or companies (relative market penetration) that could be reached by the institution. Depth of the outreach indicates the size of the group untouched by service that could be touched by this institution's service. The depth of the outreach is explained as follows:

2.1.1 Depth of Outreach Index (DOI).

In developing countries, most financial institutions, both formal and semiformal consistently do not serve several categories in the population, namely the poor, women, rural communities and the uneducated. The explanation is: The poor. Based on the financial intermediary institutions, serving the poor has a relatively high transaction cost because of the minute size of each financial transaction. For example, the cost offered to clients for saving accounts is very high because of the very low depositing frequency. This is also found in the loaning service; it requires the support of administration fees, similar to those of large accounts in formal financial institutions, but they generate a very small income, and even causing loss.

Women. Women are not included in the formal financial outreach targets due to several reasons; one of them is related to culture. At the household level, most financial decisions are made by the heads of the household, who are men; however, this culture has slowly begun to change. In addition, most of the poor in developing countries are women and the businesses they own are in the relatively small scale, causing formal financial institutions to be indifferent. Filling in financing application forms is also another problem because many of these women are illiterate. Another reason why formal financial institutions do not serve women is because a larger percentage of household income is spent by women compared to that spent by men, for example food, children's' clothing and health expenses.

Rural community. Formal financial institutions avoid rural areas because of the high transaction cost due to the dispersed population and the high risk involved in the agricultural sector. Many programs that the government has proffered, offering rural credit, are disappointing in relation to the interest rate subsidy, the incompatibility with the planting season, and the enforcement of regulations about re-payment and corruption.

Uneducated people. Illiterates are faced with obstacles in obtaining financial service when they are filling in application forms. Many MFI serve the illiterates by adopting innovative techniques, including for training programs and oral screening, training using figures, the availability of collateral groups and the usage of thumbprints as signatures. Based on the explanation above, it apparent that the poor is one of the categories of the population that is untouched by formal financial services such as banks. The poor and micro businesses have been served by MFI (Miyashita, Y., 2000; Godquin, M., 2004; Aubert *et al.*, 2009; El-Komi&Croson, 2010; Mersland and Strom, 2010; Islam &Maitra, 2011; Hartarska *et al.*, 2013).

2.2 The Impact of Access to MFI towards Poverty Alleviation

Zeller *et al.* (1997) stated that access to credit affects household welfare through three channels. The first channel is through the reduction of the obstacle of household capital. Access to credit could significantly improve poor households' ability to obtain agricultural production input. Reducing the capital obstacle through providing credit reduces opportunity cost of capital-intensive asset relative to family labor, encouraging the adoption of technology that produces higher yield and thus increasing land and labor productivity. The second channel is through improving households' risk-bearing household ability and their risk-mitigating strategy. The third channel is consumption smoothing

In detail, the relationship between micro credit programs and poverty alleviation is (Rahman, 2010): Borrowers without collateral could invest using micro credit because the investment increases financial ability and thus generates income. In addition, micro credit also provides an opportunity for people to work. Participating in micro credit would generate income so that the poor would have income from their activities that would directly increase their income. The increased income would in the end increase buying power. More buying power enables them to spend more for food, and in the end improves the quality of their life. Another factor that is related to welfare is human capital improvement. The micro credit programs that also conduct training and educational programs would improve people's skills pertaining to performance in generating income.

2.3 The Commercialization of MFI

In various sources it is stated that MFI commercialization is approached based on market principles in its operations. These pro-market principles mean that the expansion of MFI requires its operation to be more profit-oriented than subsidy-oriented. As a commercially oriented entity, a few phases are required to be undergone (Charitonenko *et al.*, 2004).

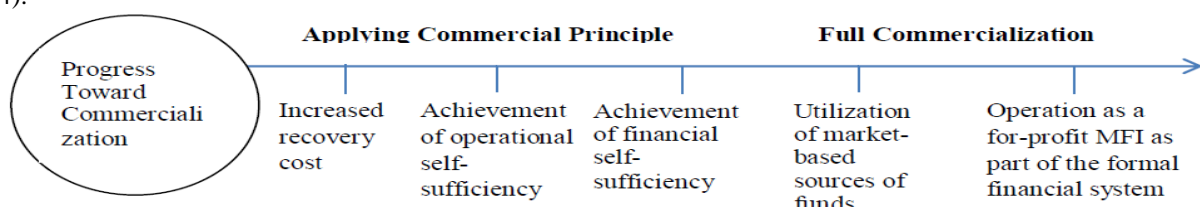


Figure 1. An Illustration of the Attributes of MFI Commercialization

The first phase is adopting and banking operations, for example in developing financial products and implementing the market interest rate to cover all operational costs. The second phase is the MFI's development in financial self-sufficiency through increased efficiency and profitability. The condition in this phase is the stepping stone for the third phase, the commercialization phase where in public funds could be mobilized. And in this phase MFI conducts investment activities. In the fourth phase, MFI is a profitable entity whose financial operations are conducted under the principles of caution and are regulated. In practice, this phase is the commercialization phase which is achieved by transforming the MFI into a commercial bank. This needs to be done by MFI to ensure the sustainability of its business.

3. Study Methodology

3.1 Location, Types of Data, Data Collection Method

This study was conducted in Bogor Regency, West Java Province, Indonesia. Bogor Regency was selected on purpose (purposive) because it is one of the regencies in West Java Province with the largest number of BMTs and had the largest number of poor in 2012 (BPS, 2013). The study employed cross section data by utilizing primary data obtained using a structured list of questions (a questionnaire) on Islamic MFI clients and in-depth interviews with Islamic MFI.

Using the snowballing technique, several Islamic MFI with clients whose livelihoods were in the agricultural sector, namely related to food crops and horticulture, were discovered. The control group was non-client whose livelihoods were within the agricultural sector and have similar environments, similar socio-economic characteristics, and similar infrastructure and facilities. For this, a comparative ratio was used. The ratio between non-clients and clients was 1:1.50. This ratio was chosen because there were many Islamic microfinance institutions operating in the study location, so the proportion of households which had access to Islamic MFI was higher.

3.2 Data Analysis Method

Assessment of the impact of Islamic MFI requires output that could be compared between output when the household participates in the program and simultaneously output when one does not participate (Li *et al.*, 2011a). The output used pertaining to poverty is defined as the relative poverty index. The calculation of this method is taken from the CGAP model (Henry *et al.*, 2000, Zeller *et al.*, 2006). The use of the relative poverty index can explain the poverty phenomenon as a multi-dimensional phenomenon from various aspects such as human resources, food security, housing, and asset ownership.

Table 1. Various dimensions related to poverty

Human resources	Housing	Food Security and Vulnerability	Assets
<ul style="list-style-type: none"> • The average age of the adult household members • Percentage of literate adults • Percentage of adult household members' education level • Percentage of employed adults • Number of children below 15 • Ratio between the number of children above 15 and the number of adults • Ratio between the employed and the unemployed • Household members' expenditure for clothing 	<ul style="list-style-type: none"> • House ownership status • Number of rooms • Roofing material • Wall type • Flooring type • Condition of the house • Type of electricity connection • Type of fuel used for cooking • Type of toilet used 	<ul style="list-style-type: none"> • Amount of food on the table in the last two days • Frequency of serving luxury foods (chicken and beef) in a week • Frequency of serving inferior foods (salted fish) in a week • Starvations in the last month • Starvations in the last year • Frequency of buying staple foods • Size of staple food stock • Additional foods if there is an increase in income 	<ul style="list-style-type: none"> • Size and value of land owned • Number and value of livestock owned • Ownership and value of transportation-related assets • Ownership and value of electronic devices used • Ownership of other assets such as gas cookers, cash, and gold

Source: CGAP model (2000)

Based on Table 1, using the PCA (Principal Component Analysis) technique, a number of indicators to build the relative poverty index were selected. The component of the comparison between the employed and unemployed in one household represents the human resource variable. The component of roofing material quality represents the housing variable. The food security and vulnerability variable is represented by the staple food stock, frequency of buying rice, cooking oil and sugar, the amount of food served in the last two days, additional consumption due to an increase in income, and whether anyone went hungry in the last month components. The asset ownership variable is represented by the price and size of agricultural land owned and the value of goats owned. Then the index value which is a sum of the weighed values is obtained.

After the output in the form of relative poverty index is discovered, an analysis pertaining to the impact of households which have access to Islamic MFI financing have on poverty alleviation is conducted. The Model Treatment

Evaluation was used for this purpose. The Model Treatment Evaluation estimates the average impact of a program or treatment on the impact desired, which in this case is poverty alleviation. For this purpose, a comparison between those exposed to the treatment and the controls will be made, and because this is an observational study with cross-section data, self-selection bias will arise.

The conclusion suggests that the hypothesis that improvement of individual welfare is due to the participation in Islamic MFI needs further analysis and it is not possible to do using standard analysis because of the self-selection bias. When an individual begins to participate in Islamic MFI, he/she will have a better welfare than other individuals. In addition, the decision to participate in an Islamic MFI depends on a number of background factors that are unobservable such as a higher entrepreneurship drive, ability to recognize opportunities, and other critical aspects which propel households towards participation in a certain group (Swain & Floro, 2012). To overcome bias in observational studies, a propensity score (Rosenbaum and Rubin, 1984) is employed.

According to Hulme (2000), selection bias could be caused by:

1. A difference in determining a location where the control group matches the treatment group economically, physically, and socially.
2. The treatment group systematically has invisible attributes that the control group does not have (generally identified such as the entrepreneurship and ability factors)
3. Receiving other forms of intervention which might induce short-term responses from the treatment group
4. The control group is contaminated by contact with the treatment group (even though this might be the long term goal)
5. The fungibility of treatment (for example when the loan is transferred from the borrower to another person or when the loan is not used as stated in the plans)

Therefore, the treatment effect model will be employed. The treatment effect model will be constructed by estimating the average treatment on treated (ATT) impact. The average impact parameter estimation between the individuals participating in the Islamic MFI is as follows:

$$\Delta = E[Y_1|T_1 = 1, P(X)] - E[Y_0|T_0 = 0, P(X)]$$

Where

Δ = The estimated average treatment on treated effect

$P(X)$ = the probability for being chosen in the Islamic MFI program which is determined using a probit equation and then the propensity score probability is used on the matching household

Y_1 = outcome indicator for those participating in the Islamic MFI program T_1

Y_0 = outcome indicator for those not participating in the Islamic MFI program T_0

Because there is outcome which is contrafactual from the treatment group $-E[Y_0|T_0 = 0, P(X)]$ which is unobservable, relevant substitution is employed to estimate ATT. If the condition $E[Y_1|T_1 = 1, P(X)] = E[Y_0|T_0 = 0, P(X)]$ could be fulfilled, those not participating in Islamic MFI programs could be used as the control group. Nevertheless, due to the self-selection bias, this condition was not fulfilled and the propensity score distribution was used to predict the unobserved components (Setboonsarg & Parviev, 2008).

4. Results and Discussion

4.1 Commercialization of Islamic MFI

As stated by Charitonenko *et al.* (2004) pertaining to the MFI commercialization phases, the interview results revealed that Islamic MFIs in the study location have started to progress to MFI commercialization because the source of their financing is not the government.

Islamic MFI operate using banking procedures in developing their financial products and implement an additional margin to the financing they channel. Most of the financing uses murabahah aqad (a contract based on trade financing) with an additional margin instead of an interest rate. This is done to cover the institution's operational costs so that Islamic MFIs could be sustainable financially by implementing the principles of efficiency and profitability.

Islamic MFIs have also mobilized public funds in the form of account collections, and some have even utilized commercial funds through linkage with public banks (sharia banks) and Islamic financing banks (BPRS) and other institutions under market principles. This is done as an effort to widen their outreach.

4.2 Islamic MFI's Outreach Profile

The relative poverty index value calculations from CGAP resulted in a range cut off between -0.910411 and 0.16785. Then the relative poverty indexes were categorized into client and non-client following these categories:

1. If the index is less than -0.91041 (a low index value), it means that the households within this category are poor households.
2. If the index is between -0.91041 and 0.16785 (a medium index value), it means that the households within this category are medium prosperity households.
3. If the index is above 0.16785 (a high index value), it means that the households within this category are prosperous households.

Table 2 Islamic MFI outreach profile based on Relative Poverty Index calculations

		Respondents		Total
		Non Client	Client	
Relative poverty index groups	Low	17 32.7%	17 21.5%	34 26%
	Medium	18 34.6%	19 24.1%	37 28.2%
	High	17 32.7%	43 54.4%	60 45.8%
Total		52 100%	79 100%	131 100%

Source: Processed primary data (2015)

Table 2 shows that Islamic MFIs in the study location provided more financial service to the more prosperous households in the agricultural sector, 54.5%, than those which are not Islamic MFI client.

4.3 The Impact of Access to Islamic MFI for Poverty Alleviation

The early phases for assessing impact is by determining the variables which affect the possibility of someone to participate as an Islamic MFI client. These variables will be used as the basis for matching characteristics between those who participate as client and those who do not so that there is a similarity of the characteristics compared, and those which do not match are discarded.

Table 3. The Probit Regression Model

Likelihood log= -62.839022

Number of observations = 126
 LR chi²(9) = 40.79
 Prob .> chi² = 0.0000
 Pseudo R² = 0.2450

No	Model	Coef.	Std.Err	z	P> z
1	Age of head of household	-.03696	.01339	-2.76	0.006*
2	Education of head of household	.14344	.19004	0.75	0.450
3	Head of household's main occupation	.21210	.10377	2.04	0.041**
4	Head of household's side occupation	.03726	.05003	0.74	0.456
5	Agricultural business experience	-.18203	.09769	-1.86	0.062
6	Land working	.16376	.29554	0.55	0.580
7	Have made transactions with a bank	1.11871	.54319	2.06	0.039**
8	Number of household members	-.22256	.11346	-1.96	0.050**
9	Dependency ratio	.78280	.69430	1.13	0.260
	Constant	2.56177	1.1468	2.23	0.025

Source: Processed primary data (2015)

Notes

** = significantly different from zero at the level of $\alpha = 1\%$

* = significantly different from zero at a level of $\alpha = 5\%$

Table 3 shows the likelihood ratio (LR) of 40.78 with a degree of freedom of 9 or with a p-value of 0.000, much lower than the significance level ($\alpha = 5\%$); therefore, it can be concluded that the probit model above as a whole is able to explain or predict a farmer household's decision to participate as Islamic MFI client. The factors that influence the possibility of participating as Islamic MFI client are the young age of the head of the household, the head of the household's main occupation in the agricultural sector, the fact that it has made transactions with a bank before, and the small number of household members. With the common support analysis, characteristic matching is done between those who receive treatment (those participating) and those who do not. This is conducted by discarding individuals who do not receive treatment and those who receive matched treatment whose propensity score is not within the range.

Table4 A description of estimated propensity score in the common support area

Estimated propensity score					
Percentiles		Smallest			
1%	.1786108	.1008987			
5%	.2382668	.1786108			
10%	.2984837	.1902128	Obs		125
25%	.4074612	.2073531	Sum of Wgt.		125
50%	.6385269		Mean		.6288848
		Largest	Std. Dev.		.2477558
75%	.858322	.9960398			
90%	.9584976	.9984275	Variance		.0613829
95%	.9928105	.9991746	Skewness		-.0992187
99%	.9991746	.9999103	Kurtosis		1.766969

Source: Processed primary data (2015)

In table 4, it is shown that the value ranges between 0.1008987 and 0.9999103. After using the common support, the total number of individuals left is 125 people. This block number confirms that the average propensity score is not dissimilar between those given treatment and the control in each block. The balancing property also gave satisfactory results. Next, the inferior-bound, the number of those given the treatment with the number of controls in each block is shown.

Table 5 Distribution of clients and non-clients based on the propensity score

Inferior of block of pscore	Respondents		
	Non Client	Client	Total
0.11008989	3	1	3
.3	19	6	35
.4	17	13	30
.6	5	31	36
..8	3	38	41
Total	46	79	135

Source: Processed primary data (2015)

Table 5 shows that the distribution between Islamic MFIs client and non-client based on propensity scores is not dissimilar. The control group, the non-client, slightly overlapped in the propensity score between 0.2 and 0.4. On the other hand, the propensity score overlap in the treatment group was between 0.6 and 0.8. This implies that the two groups divide the same characteristics in the block. A high propensity score means that there is a high possibility of becoming Islamic MFI client.

After all the phases required by the common support were fulfilled, matching analysis was done. There are a number of methods for analyzing propensity score matching in identifying the groups compared, namely the nearest-neighbor method (matching one by one), kernel and stratification matching (Setboonsarg & Parviev, 2008).

Table 6. The estimation results of the average treatment on treated (ATT) as the impact of access to Islamic MFI on poverty alleviation

Matching Algorithm	Treatment	Control	ATT	Std. Error	t-stat
Nearest Neighbor	79	20	0.222	0.378	0.587
Radius	79	45	0.253	0.273	0.926
Kernel	79	46	0.188	0.334	0.564
Stratification	79	46	0.186	0.483	0.386

Source: Processed primary data (2015)

Table 6 presents the comparison between Islamic MFI client (treated) and non-client (control) which are matched using four methods (Nearest-Neighbor, Radius, Kernel and Stratification matching). The simultaneous use of all four methods in this study is also to assess the robustness of the results. The results of the four matching methods for the number of those given treatment (Islamic MFI client) matched to those not given treatment (control/non-client) were different. The Nearest Neighbor method demonstrated that those treated/client which numbered 79 could only be matched up with 20 non-client. The non-client that did not match were then eliminated. On the other hand, the Kernel and Stratification method demonstrated that there were many more non-client that could be matched, 46 non-client. The next phase was ATT estimation using the four matching methods. The results demonstrated similar results, positive but statistically insignificant. This means that after the calculation of the selection bias of Islamic MFI client, the impact of Islamic MFI financing is not significant for poverty alleviation.

Islamic MFI that operate based on commercial principles, indicated by their source of funds which is not from the government or donor institutions, force Islamic MFI to be more discriminating in selecting their client. Only households which fulfill certain criteria will receive financing from Islamic MFI. Focusing their outreach more on households that are relatively prosperous than those which are less prosperous will affect their initial purpose related to poverty alleviation. This is in line with the characteristics of second generation MFIs, aiming for business sustainability to avoid ties with donor institutions (Montgomery & Weiss, 2011). The earlier generation of MFI focused more on providing credit for the poor who do not have access to commercial banks as an effort in poverty alleviation by setting up businesses that generate income (Mersland and Strom, 2010). Many studies have questioned the fact that the goal to achieve sustainability and the goal to help alleviation cannot be hand-in-hand (Nugroho AE. 2009; Hermes *et al.*, 2011; Hartarskaet *al.*, 2013).

The results of this study are supported by study results using the PSM method (NN matching) by Setboonsarg & Parviev (2008) who stated there are several indicators related to the Millennium Development Goals in Pakistan, namely household consumption, long-lasting assets, non-agricultural businesses, savings, and education that are not significant for SHG (self-help groups) members. In their study using the PSM method (NN & LLR matching method), Swain & Floro (2012) stated that the households of SHG members were neither more nor less vulnerable as compare to the non-member.

Conclusion

Operation of Islamic MFIs is moving towards commercialization in line with the development phases described Charitonenko *et al.* (2004). If Islamic MFIs are already operating based on commercial principles, will the Islamic MFI play a role in poverty alleviation, as the purpose of other MFI in general? For this reason, the profile of the client' needs to be known. The use of relative poverty index of the CGAP model as a proxy to explain Islamic MFI outreach is able to explain the poverty phenomenon between Islamic MFI client and non-client as a multi-dimensional phenomenon (human

resources, food security, housing and asset ownership aspects). Then, using the PCA technique, these aspects were summarized and the relative poverty index was discovered. The index distribution demonstrated that Islamic MFI's outreach is more aimed to relatively more prosperous households than to non-client.

Afterwards, an assessment of the impact of Islamic MFI financing on poverty was conducted using the PSM method. This method was selected to overcome selection bias which arises from observational studies. The co variants need to be synchronized using four matching methods. The simultaneous use of these four methods is also aimed to assess the robustness of the results. The estimation results suggest that the impact of Islamic MFI financing is not significant to poverty alleviation in the study location. This could be because The Islamic MFI operation is moving towards commercialization, and of course they would be more selective in choosing their client. Not everybody can access financing from Islamic MFI; only relatively prosperous ones would receive financing. Commercially operated Islamic MFI do not work hand-in-hand with poverty alleviation efforts, especially in rural areas.

Recommendation

Poverty alleviation is still the government's responsibility and cannot be completely handed over to the market entities, in this case Islamic MFIs.

References

- Aubert C, De Janvry A, Sadoulet E. 2009. Designing Credit Agent Incentives to prevent Mission Drift in Pro-Poor Microfinance Institutions. *Journal of Development Economics* (90): 153-162
- [BPS] Badan Pusat Statistik. November 2013. *Perkembangan Beberapa Indikator Utama Sosial Ekonomi Indonesia*
- Buchori A. 2012. *Linkage Program Bank Syariah-BMT Solusi Financial Inclusion* bagi UMK. Unpublished article, Bank Indonesia.
- Charitonenko S, Campion A, Fernando NA. (2004). Commercialization of Microfinance: Perspectives from South and Southeast Asia. Asian Development Bank.
- El-Komi M, Croson Rachel. 2012. Experiments in Islamic Microfinance. *Journal of Economic Behavior & Organization*:1-53
- Godquin M. 2004. Microfinance Repayment Performance in Bangladesh: How to Improve the Allocation of Loans by MFIs. *World Development* (32): 1909-1926.
- Hartarska V, Shen X, Mersland R. 2013. Scale Economies and Input Price Elasticities in Microfinance Institutions. *J of Banking & Finance* (37) 118-131.
- Henry, C. Sharma, M. Lapenu, C. and Zeller, M. 2000. *Assessing the Relative Poverty of Microfinance Clients.A CGAP Operational Tool*.IFRI, Washington DC.
- Hermes N, Lensink R, Meesters A. 2011.Outreach and Efficiency of Microfinance Institutions. *World Development* 39 (6): 938-918
- Hulme D. 2000. Impact Assessment Methodologies for Microfinance: Theory, Experience and Better Practice. *World Development* 28 (1): 79-98
- Imai KS., T. Arun., S.K. Annim. 2010. Microfinance and Household Poverty Reduction: New Evidence from India. *World Development* 38(12)1760-1774
- Islam A., P. Maitra, 2011. Health Shocks and Consumption Smoothing in Rural Households: Does Microcredit Have a Role to Play? *J of Development Economics*.
- Khandker SR. 2005. Microfinance and Poverty: Evidence Using Panel Data from Bangladesh. *The World Bank Economic Review* 19 (2): 263-286
- Li X, Gan C, Hu B. 2011(a). The Welfare Impact of Microcredit on Rural Household in China. *The Journal of Socio-Economics* 40: 404-411.
- Li X, Gan, C, Hu, B. 2011(b). Accessibility to Microcredit by Chinese Rural Households. *Journal of Asian Economics* 2, 235-246
- Mersland R, Strom RO. 2010. Microfinance Mission Drift? *World Development* 38(1) 28-36.
- Miyashita Y., 2000. Microfinance and Poverty Alleviation: Lesson from Indonesia's Village Banking System. *Pacific Rim Law & Policy Journal* 10(1):147-189
- Miyashita Y., 2000. Microfinance and Poverty Alleviation: Lesson from Indonesia's Village Banking System. *Pacific Rim Law & Policy Journal* 10(1):147-189
- Montgomery H, Weiss J. 2011. Can Commercially-oriented Microfinance Help Meet the Millenium Development Goals? Evidence from Pakistan. *World Development* 39 (1): 87-109
- Mpuga P. 2010. *Constraints in Access to Demand for Rural Credit*. African Development Review 22 (1) 115-148
- Nugroho AE. 2009. The Commercialization-Outreach Nexus of Microfinance in Indonesia: The Case Study of Microfinance Industry in Boyolali, Central Java. *Jurnal Ekonomi dan Pembangunan* 17 (2)
- Nuryartono N. 2007. Credit Rationing of Farm Households and Agricultural Production; Empirical Evidence in The Rural Areas of Central Sulawesi, Indonesia. *Journal of Management & Agribusiness* 4 (1).
- Rahman MM. 2010. Islamic Micro-Finance Programme and Its Impact on Rural Poverty Alleviation. *International Journal of Banking and Finance* 7(1): 119-138
- Rosenbaum PR, RubinDB. 1984. Reducing Bias in Observational Studies Using Subclassification on the Propensity Score. *Journal of the American Statistical Association* 79 (387): 516-524
- Sakai M, Marijan K. 2008. Mendayagunakan Micro financing Islami. Policy Brief 9. Australia Indonesia Partnership. The Australian National University.
- Saptono IT, Marimin, Tambunan M, Oktaviani R. 2010. Desain Lembaga Pembiayaan Pertanian Nasional Subsektor Tanaman Pangan Menggunakan Pendekatan Interpretative Structural Modeling (ISM). *Journal of Management & Agribusiness* 7(2)
- Setboonsarg S, Parviev Z. 2008. Microfinance and the Millenium Development Goals in Pakistan: Impact Assessment Using Propensity Score Matching. ADB Institute Discussion Paper No.14
- Swain RA & Floro M. 2012. Assessing the Effect of Microfinance on Vulnerability and Poverty among Low Income Households. *Journal of Development Studies* 48(5): 605-618

World Bank. 2011. Global Financial Inclusion Database. <http://databank.worldbank.org/data/views/reports/tableview.aspx>

Zeller M, Schrieder G, Von Braun J, Heidhues F. 1997. Rural Finance for Food Security for the Poor: Implication for Research and Policy. International Food Policy Research Institute

Zeller, M., Sharma, M., Henry, C., and Lapenu, C. 2006. *An Operational Method for Assessing the Poverty Outreach Performance of Development Policies and Project: Result of Case Studies in Africa, Asia and Latin America*