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Financial Inclusion for Women: Impact Evaluation on Islamic Microfinance to Women's Empowerment in Indonesia

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Abstract This chapter evaluates the impact of the Islamic microfinance institution toward the women empowerment. We surveyed approximately two hundred and forty women who had been involved in the microfinance of the Misykat program in the Dompet Peduli Ummat of Daarut Tauhid and BAZNAS in Bandung. The primary data collection was held in two sessions, starting from June to December 2014. The causal effect of the credit on empowerment was identified using quasi-experimental setting with proxy controls for latent heterogeneity between the control and the treatment groups. The study suggests that women involvement in the microfinance improves their position within the household through (i) access to independent income; (ii) control over savings and credit use; and

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(iii) ability to bring productive asset to household economy. In addition, using the matching propensity score and the instrumental variable methods helps address the bias selection in a cross-sectional setting.

Keywords Islamic microfinance · Women empowerment · Zakah management · Poverty alleviation · Propensity score matching

3.1   Introduction

3.1.1   Background and Rationale

Indonesia's poverty rate has returned to a level similar to what it was prior to the financial crisis of 1997–1998. It has not fallen further partly because of slow economic growth. The higher rates of poverty continued for considerable periods. By 2005, the poverty rate has fallen to 16%, but has risen in 2006 to 17.7% (Yaumidin 2010). Various ways and financial resources have been deployed to accelerate the elimination of poverty in Indonesia. As a result, the number of poor started decline significantly, but in contrary, inequality has increased slightly in Indonesia, a country with abundant natural resources (Yaumidin 2013). Indonesia's government continues its efforts to reduce the gap by increasing inter-regional connectivity, infrastructure development, and human resource development through various programs.

Transformation of poverty alleviation program in Indonesia has begun by implementing conditional and unconditional cash transfers. These programs have been tested to empower the poor and vulnerable groups as well as to prevent the poor from falling below the poverty line. However, the result is very slow in reducing the number of poor people, which Indonesia not able to reach the goal of MDGs in reducing half of the poverty rate by 2015.

As a country with majority Muslim population, Indonesia leverages the potential of the Islamic financial system in its economic development. Islamic financial system development is inextricably associated with the interest of the government and development agencies to reduce poverty and improve welfare for a more balanced economic growth. Transformation also occurs in the utilization of *Zakat*, *Sadaqa*, and

Infaq, forms of charity to the needy Muslims—to revive the economy for groups of small and medium enterprises (SMEs). In Islam, utilization of social protection was initiated further in the form of microfinance for the poor. The purpose of this initiative is to integrate Islamic finance in advancing social condition and reaching the unbankable group of people. For instance, the potential collection of *Zakat* in 2009 was Rp111,064 billion, while according to BAZNAS[1], the potential of *Zakat* collection should reach Rp100,000 billion each year. However, BAZNAS only successfully collected Rp1.2 billion of *Zakat* fund, or only 1.1% of the potential *Zakat* collection (Yaumidin 2011).[2]

BAZ and LAZ as institutions for *Zakat* management in Indonesia have implemented ideas to empower women. According to Mannan (2000), *Zakat* revenue can be spent for raising the productivity of the poor, such as financing various development projects in education, health care, safe water, and other social welfare activities that are designed exclusively for the benefit of the poor. It is expected that such programs can have a multiplier effect on welfare of the poor. However, it is intuitively plausible that an increase in income from *Zakat* investment might be expected to have a multiplier effect larger than an increase in income from non-*Zakat* funds investment. In addition to the leakage into saving, some portion of income over the successive rounds of income and spending would be siphoned off by other leakages such as taxes and imports, mostly in case of the income of the rich. Many economists agree that alleviating poverty in Indonesia using *Zakat* funds is limited. Recently, the distribution of *Zakat* for economically productive programs has been sporadic, inconsistent, subjective, as well as less coordination and comprehensive planning between *Zakat* institutions and the local governments.

Women's empowerment is not well defined. This terminology has different understanding from countries to countries and societies to societies. Conceptually, women empowerment is influenced by the gender system in the countries. For Indonesia, which have mixed education system (Islamic and conventional), it is believed that women have been becoming disempowered. However, some would argue that the rules of classical Islamic law could leave a woman financially better off (Landes 2013; Wee and Shaheed 2008).

According to the statistics, the number of women poverty is about 51% at national level (women poverty or a person who are categorized as

mustahik) which is slightly higher than men poverty which is about 49% (Purwakananta and Abilawa 2010). It was argued that *Zakat* institutions of *Zakat* from government (BAZNAS) operate in all provinces, while institutions of *Zakat* from private sector (LAZNAS) are more concentrated in Java. It is more likely to utilize *zakat* fund to empower women through microcredit in order to improve their economic conditions along with the man.

Therefore, the purpose of this chapter is to examine the impact of Islamic microfinance on women's empowerment. To gain a comprehensive understanding of the concept of women's empowerment in Islam, this chapter delves deeper into the understanding of this concept on groups of Muslim women. The information is gathered through focus groups' discussion, which are divided into two different stratified groups by economic strata and level of education. Having a clear understanding of women empowerment, further studies look at the impact of granting credit from *Zakat* fund, *infaq*, and alms resources to access to independent income; control over savings and credit use; and ability to bring productive asset to household's economy.

This study took sample in the city of Bandung, West Java province, Indonesia, with 200 respondents involving Muslim women who participated in the microfinance of Misykat program in DPU Daarut Tauhid and Bandung's BAZNAS into stratified random sampling. Primary data collection was held from June to December 2014. Propensity score matching and instrumental variable methods were used to convince us to address the selection bias in cross-sectional setting. The methodology used in this study follows Asim (2008), which provides more reliably estimates treatment effects within the constraints imposed by the data. The proposed methodology is both resource efficient and cost-effective, and easily to replicate. We modified some questions in the questionnaire section to capture Indonesia Muslim women characteristics.

3.1.2 Research Statement

This research examines a number of Muslim women to see the impact of Islamic microfinance on empowering them. Islamic finance offers comprehensive approach to the poor to get access of finance through

redistributive instruments such as *Zakat*, *Sadaqa*, *Waqf*, and *Qard Hassan*. However, Islam puts women in the highest place and protects them from slavery and sexual harassment in the workplace. Islam permits women to work for their actualization, but they have no responsibility to fulfill households' expenses. Thus, in the majority Muslim countries, women participation in the workforce is less than in the non-Muslim countries. Currently, Muslim women in Indonesia are actively involved in microfinance programs in order to make their life better. This study intended to answer some questions regarding the impact of Islamic microfinance to influence women (Muslim) participation in the economy as well as in household decision. Therefore, the research statements of this study are as follows:

1. How does Muslim women perception on women empowerment through microfinance.
2. What are the impact of Islamic microfinance to their ability to get independence income, controlling the use of credit and saving usages, and their ability to bring productive asset in their household?
3. Is there any different impact of private microfinance and government microfinance women's empowerment?

3.1.3 Objectives

Women empowerment is one of the alternatives to raise poverty. Numbers of women believe that they may become an economic driver in their families as well as in nation. Some studies found that microfinance (microcredit) in Indonesia, to some extent, leads to women empowerment, but it also impedes women as women have more responsibilities to do reproductive, production, and social function. Indonesia has majority of Muslim women who restricted to Islamic lesson that women should not involve in production network or have more responsibilities to fulfill basic household necessities than men. However, there is limited study to see the influence of Islamic microfinance to empower Muslim women in Indonesia. Therefore, the purposes of this study are as follows:

1. Determine to what extent Muslim women understanding of women empowerments and Islam microfinance.
2. Measuring the impact of Islamic microfinance toward the ability of women to access independent income, controlling the use of saving and credit; and their ability to bring productive asset to household economy.
3. Comparing the performance of Islamic microfinance between government and private to influence women's empowerment.

3.2   Literature Review

3.2.1 Islamic Views on Poverty

Islam does not define a fixed criterion for poverty that applies to all; the concept of poverty in Islam is broader and covers more than just food and services. However, Islam has a key principle in achieving its ideal of redistributive justice that is the support and empowerment of the weak. This can be achieved most significantly through the financial empowerment of family units in the lowest classes of the society.

Moreover, numerous studies on the linkage of financial development with economic development suggest that degree of financial development is not related to the poverty features in the country (Mohieldin et al. 2011). Meanwhile, small and medium enterprises (SMEs) are believed as agents of economic development in most emerging market. However, development of SMEs faces many constraints, lack of access to credit, inadequate collateral, insufficient legal status, and high transaction costs, which are among the reasons why such enterprises experienced exclusion from the formal financial system. It is the reason why SMEs less participate in development program (Obaidullah and Latiff 2007). Therefore, enhancing the access to and the quality of basic financial services such as availability of credit, mobilization of savings, insurance, and risk management can facilitate sustainable growth and productivity, especially for small and medium scale enterprises (SMEs). In the global context, building financial inclusion systems, on the view

of microfinance to combat poverty in developing countries, is important agenda that has to be implemented worldwide.

World Bank report on financial access shows that almost 60% of adult populations in emerging market still have no access to basic financial services, and great part of them come from countries with predominantly Muslim population (World Bank 2012). Meanwhile, Islam puts equal emphasis on spiritual and on worldly affairs (Chapra 1980). Social justice, inclusion, and sharing of resources between the haves and the have not are essential for economic development in Islamic economics system. Islam recognizes claims based on equality of liberty and opportunity, which are reflected in the degree of access to resources, the degree and extent of the ability of persons to actualize their potential liberty and opportunity, and the right of prior ownership. The right that the less able has in the wealth of those who have greater ability and opportunity to produce greater wealth is redeemed through the various levies (*Zakat*, *Khums*, *Sadaqa*, *Nafaqa*, and so on), the payment of which is not beneficence but a contractual obligation that must be met. *Zakat,* for instance, is one of the fundamentals of the social transfer payment in Islamic lesson that has direct economic implications.[3] *Zakat* requires Muslims to distribute part of their wealth to alleviate poverty and achieve economic emancipation for the poor (Ahmed 2004). However, Ahmad (2000) states that *Zakat* contributions by Muslims are neither part of the state's public revenues nor part of the sovereign revenue from taxes in the state budget.

3.2.2 Islamic Views on Women Empowerment

According to WEMC, the definition of women's empowerment should entail some analyses on power dynamics. In general, it has been defined as an increase ability to question, challenge, and eventually transform unfavorable gendered power relations, often legitimized in the name of 'culture' (Wee and Shaheed 2008). This study focused on Muslim context in the view of women empowerments and found that the imposition of the Islamists' monolithic vision promotes (1) a misconception that the aspiration and struggle for women's rights are aliens to Muslim

contexts and (2) a cultural impoverishment that deprives women of alternative reference points for exercising agency and autonomy. Thus, this condition caused disempowerment of women in different form of multiple levels: (1) At the macro-level, national politico-religious groups, often allied with groups in other countries or with international networks, may seek to reshape laws and policies to conform with gender-inequitable notions; (2) at the meso-level, local politico-religious groups may also seek to do the same with local laws and policies, often in alliance with national and international groups and networks. In addition, patriarchal kinship-based groups may seek to perpetuate disempowering values and practices, in convergence with the politico-religious groups; and (3) at the micro-level, individuals may assert disempowering values and practices in interpersonal relationships to a greater degree, often encouraged by trends at meso- and macro-levels.

3.2.3 Microfinance and Women Empowerment

Current thinking on microfinance has broadened its definition from microcredit to provision of an array of financial services, such as savings, insurance, and remittances. It emphasizes that access to microfinance and not cost of microfinance should be under focus in designing and implementing poverty alleviation strategy. The strategy should aim at sustainability through a shift from a charity-based donor-dependent approach to a market-based for-profits approach emphasizing systemic efficiency, transparency, and restricting use of donor funds to capacity building. It also underscores inclusiveness and integration of microfinance with the formal financial system. While there is a consensus among thinkers and practitioners, the same does not imply or advocate a single and uniform approach to microfinance. Arguably, diverse channels are needed to get diverse financial services into the hands of a diverse range of people who are currently excluded. In the context of Muslim societies, building inclusive financial systems would most certainly require integration of microfinance with Islamic finance (Obaidullah and Latiff 2007).

The form of microfinance in Islamic finance is not limited to the form of rural or small banks. Current consensus among Islamic

economists agreed that the feature of microfinance for the poor should utilize any Islamic levies as source of funds rather than collecting funds from third party. However, the product of financing that is used for microfinance may be the same as product financing from Islamic banks. It is because many elements of microfinance are consistent with the broader goals of Islamic finance. Both advocate entrepreneurship and risk sharing and believe that the poor should take part in such activities, focus on developmental and social goals as well as advocate financial inclusion, entrepreneurship, and risk sharing through partnership finance (Obaidullah and Latiff 2007). However, most of favorite products are based on *Mudarabah*, *Murabahah*, *Qard Hassan*, *Musharakah*, *Bay-al Salam*, and *Ijarah* financing (Kaleem 2007; Kholis 2008).

In the case of empowering the poor, there are number of studies conclude that microfinance is related to women's empowerment (Asim 2008). However, defining women's empowerment is debatable since the term 'empowerment' has related to gender system in the country (Wee and Shaheed 2008). A gender system is a system of constructing and regulating specific standards for males and females, as well as relations between them, in terms of relative hierarchy or relative equality. Intersecting with other forms of power relations and diverse gender systems produces varied spaces for women's initiatives and empowerment, accompanied by distinctive constraints, diverse sources of support, and dissimilar access to a range of resources.

Empowering women becomes important agenda for developing countries to catch up their economic development. However, such empowerment terms should be defined clearly and apt to with ideology, culture, and norm of society. As discussed above, financial inclusion should involve women participation, so that developing microfinance is the one way to empower women. There were numerous studies to estimate and predict the impact of microfinance to improve women's position in the household as well as in the societies (Table 3.1).

The successful performance of microfinance institution is largely associated with the utilization and the function of social networks of poor clients including the existence of trust (Chavez and Vega 1996; Robinson 2002; Martowijoyo 2007; Sanrego and Antonio 2013). Islamic microfinance is another institutional innovation being designed

to have soundness of lending technology (based on Islamic teachings) of group lending model (GLM) that could ascertain the poor to have an access to the financial services (Sanrego and Antonio 2013).

In Indonesia, Grameen Bank model has been replicated and modified in many of Islamic microfinance programs. Most of the Islamic microfinance has been designed in the form of cooperative model. Such program in the cooperative organization has certain characteristic as community-based empowerment, microfinance services, participatory, or group-based lending and addressed particularly for women of the poor or low-income families.

Finally, we conclude that the literature surveyed suffices to provide theoretical foundations for empirically testing the link between microcredit and women's empowerment as figured out in Fig. 3.1. According to Asim (2008), microcredit is expected to improve the position of women within the household through (1) empowerment brought about by increases in independent income; (2) empowerment through 'control' over credit and savings decisions; and (3) increased worth of women within the family, stemming from their ability to bring a 'valuable' asset to the household economy. The focus on any one of these mechanism alone will fail to provide a complete perspective on women's empowerment. For empirical study that aims to evaluate the empowerment potential of credit, it is necessary to look at the 'outcomes' associated with the empowerment effect rather than looking only at the 'processes' through which those empowerment effects were generated.

3.3   Methodology

3.3.1 Methodological Framework

The research design was set up to carry out a quasi-experimental framework. Prospective or new client is used as a comparison or control group. The mature client (old participants whether active or inactive) was compared with the control group to ascertain impact of credit. Questionnaire design based on the conceptualization of women's empowerment is outlined in the conceptual framework.

Table 3.1 Previous study on the impact of microfinance microcredit to Women Empowerment. *Source* Author's own compilation

Title	Author	Year	Finding
Evaluating the impact of microcredit on women's empowerment in Pakistan	Salman Asim	October 2008	No difference between the levels of empowerment of treated and control units. Participation in the microcreditprogram is found to be insignificant in explaining all the outcome indicators of empowerment for the sampled households
Female empowerment: impact of a commitment savings product in the Philippines	Nava Ashraf, Dean Karlan, Wesley Yin	March, 2008	Positive impacts, particularly for women who have below median decision-making power in the baseline, and this leads to a shift toward female-oriented durables goods purchased in the household
The impact of group-based credit programs on poor households in Bangladesh: does the gender of participants matter?	Mark M. Pitt, Shahidur R. Khandker	October 1998	Program credit has a larger effect on the behavior of poor household in Bangladesh when the women are the program participants. Women borrower had annual household consumption expenditure increase higher than men borrower
Women's empowerment through microcredit: a case study of district Gujrat, Pakistan	Sarfraz Khan, Mirza Rizwan Sajid, Hafeez-ur-Rehman	September 2011	Positive impact of microcreditprogram introduced by PRSP in the rural Gujarat on women'swomen empowerment.

(continued)

Table 3.1 (continued)

| Title	Author	Year	Finding
Effect of microfinance operations on poor rural households and the status of women	Asian Development Bank	September 2007	Project design can be improved further by including more gender-disaggregated targets and indicators in the project framework, and by providing explicit discussion of the participation of women in the design and implementation process
Pact's women's empowerment program In Nepal a savings and literacy led alternative to financial institution building	Jeffrey Ashe, Lisa Parrot	October 2001	Economic aspects of the program are for women, at fifth stage (micro-finance plus saving and access to loans) in the development of their groups the empowerment variables ranked much higher
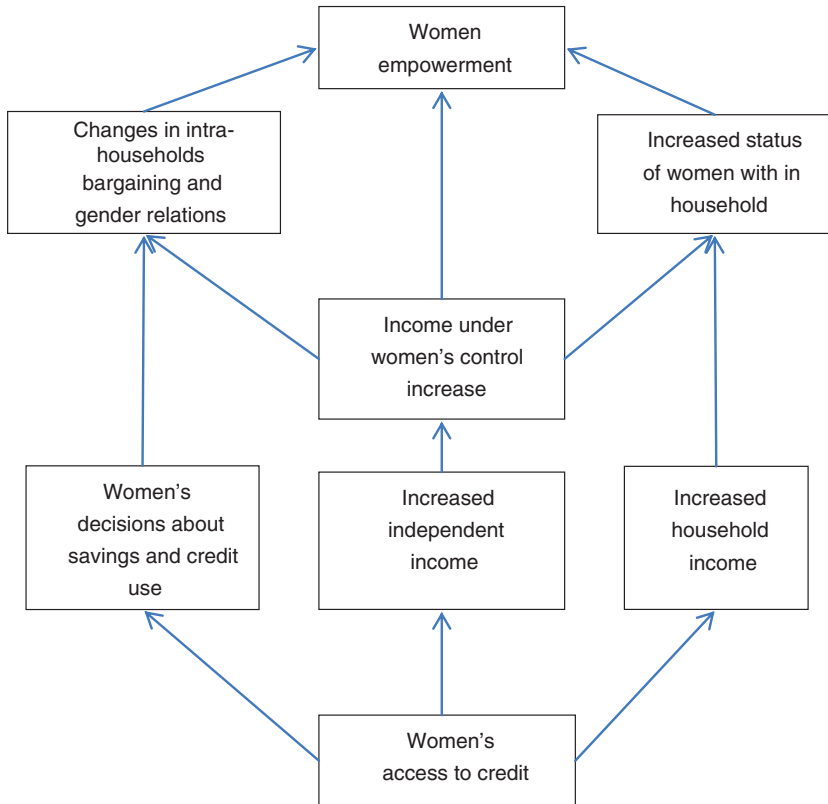
Fig. 3.1 Framework of women's empowerment through microcredit. *Source* Asim (2008)

Before we conduct experimental survey, we redefined the terms of 'women empowerment' through the exploratory evidence obtained from focus group discussion sessions and subsequent in-depth interviews to have the sense of 'women's empowerment' from Indonesia's Muslim women (see annexes for list of questions). We conducted FGD for two groups that classified based on level of education and economic strata. We divided women groups of MFI recipients into lower-medium education (from no graduate from elementary school to junior high school) and medium-higher education (graduated from senior high school to higher level). Based on the level of economic condition, we divided group as the recipients, who used MFI credit for consumption

and have no business, and other group is MFI clients who use their loan for working capital and they have business. We also conducted participatory methods using focus group discussion to know how MFI management board perceives women empowerment. In addition, we also investigate how they manage their institutions.

3.3.2 Sample Design and Selection Procedures

Primary data are collected from 240 households in the south Bandung district (Fig. 3.2). The target population comprised all women registered with the Misykat program Dompet Peduli Ummat Daarut Tauhid (DPU-DT), Bandung, and Badan Amil *Zakat* Nasional (BAZNAS), West Java Province in the area of Bandung city.

A stratified random sample of 240 households was drawn from the population of 1800 female clients, with approximately 1000 DPU-DT and 800 BAZNAS clients. The sample of 240 clients with 192 clients
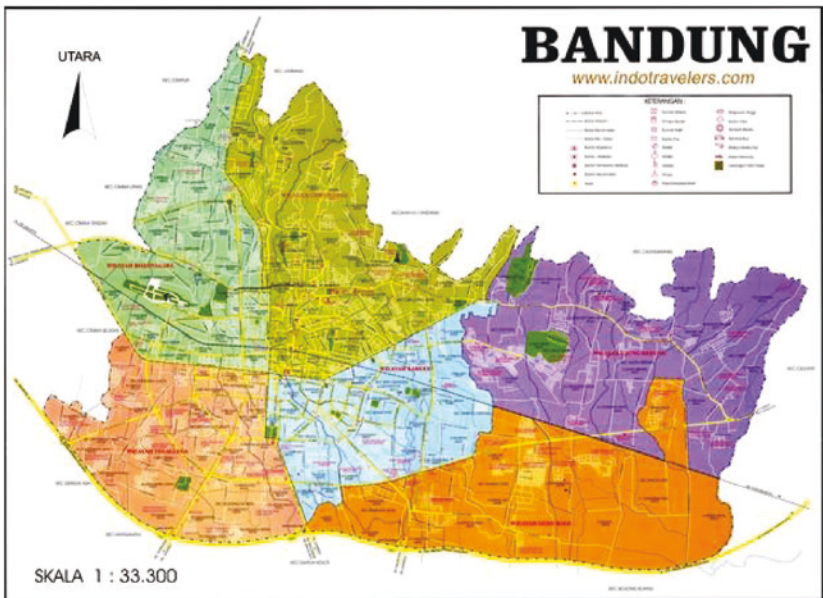

Fig. 3.2 Area of study. *Source* www.indotravelers.com

of DPU-DT and 84 BAZNAS clients represented the proportion of DPU-DT and BAZNAS clients in the population. The sample has further been divided into two groups.

1. The treatment groups are the mature clients: the minimum criteria for being counted as mature clients are that the respondents must have completed at least one loan cycle with the MFI.
2. The control groups are the prospective clients registered with the MFI in the month of the data collected (around May and June 2014), and/or they only receipt a loan for once a year as charity (without repay back the loan). The reason to select the prospective clients rather than non-clients as controller group is that there may be initial differences between clients and non-clients such as household income, entrepreneurial ability, and degree of female empowerment.

For about every two people in the treatment group, we have one person in the control group; thus, we have 144 treatment group respondent and 96 control group respondents in total. We assumed that treatment and control groups come from similar types of communities and have similar characteristic particularly in economic background and status.

3.3.3 Questionnaire Design

The questionnaire is designed to answer underlying research objective: how the impact of Islamic microfinance on indicators of women empowerment. It is designed to follow Asim (2008) with modification on the indicators of women empowerment, within the particular context of Indonesia.

The questionnaire captured series of questions relating to variables which indicate empower for women based on the theoretical views, i.e., children concerning, social mobility, and economic empowerment. Therefore, the questionnaire consisted of sections as follows;

1. Household Information (Adult).
2. Household Information (Children).

3. Household Information (Labor).
4. Credit profile of household.
5. Income/Expenditure/Saving/Debt/Asset Profile of HH.
6. Female Enterprise.
7. Attitude toward female enterprise/empowerment.

The questionnaire was designed to be generate qualitative information to reinforce the validity of research findings.

3.3.4 Method of Data Analysis

This study estimates the conditional demands for empowerment indicators *conditioned* on the individual's participation in the credit program. The reduced form systems of equations that we want to estimate are as follows:

$$C_t = \propto_c X_i + \pi Z_i + \varepsilon_i \qquad (3.1)$$

$$Y_t = \propto_y X_i + \delta_y Z_i + \varepsilon_j \qquad (3.2)$$

where C_i is the binary treatment measuring participation in the program, X_i is a vector of household and borrower's characteristics (age, education, children, etc.), Y_i is the conditional demand for women's empowerment outcomes (such as level of involvement in the decision making or ability to make decisions without someone's permission), Z_i is the set of exogenous instruments distinct from X's that affect C_i but not household behavior Y_i conditional on C_i, α_c, π, α_y, and δy are the parameters to be estimated, and ε_I and μ_I are errors representing unmeasured household level characteristics that determine participation in the program and outcomes, respectively. 'δy' is the parameter of interest that measures the impact of participation in the program on the outcome. The estimation problem arises because of the possible correlation between ε_I and ε_j due to the endogeneity of treatment. In the absence of exogenous instrument vector Z_i, strong assumptions are required to address concerns regarding endogeneity.

To measure and quantify the outcome variable Y, we quantify how decisions in the household are arrived. We allow our respondent to

rank, in an ordinal manner, the extent to which her preferences are taken into account in intra household decisions. In the context of the urban women of Bandung city area, there are certain structural in equalities and prescribed social norms that reinforce the subservient position of women within the household. As this condition, we expect that access to credit will help women in contesting those prescribed gender rules. It can be measured by changes in the degree of female participation brought about by credit decision concerning household and women's welfare. We use ordered probit framework to capture these ordinal preferences in our estimation strategy as follows:

3.3.5 Regression Methods

To estimates and test hypothesis 1, we use the class of probit and bivariate probit models. The endogeneity of treatment in our specification necessitates making the following assumption:

Assumption 1: Ignorability treatment

Conditional on observed individual characteristic Xi, outcomes (Y^0, Y^1) are independent of the treatment T. This assumption implies conditional mean independence of outcomes:

$$\left[E\left(Y^0|X,T\right) = E\left(Y^0|X\right)\right] and \left[E\left(Y^1|X,T\right) = E\left(Y^1|X\right)\right] \quad (3.3)$$

Assumption 2: Stable unit treatment value assumptions

Estimation strategy by imposing a linear relationship for conditional mean independence

$$E\left(Y^0|X\right) = \gamma_0 + \beta_0(X - \overline{X})$$

$$E\left(Y^1|X\right) = \gamma_1 + \beta_1(X - \overline{X}) \quad (3.4)$$

where X is the vector of covariates with the average value X in the treated population.

In this generic heterogeneous treatment effects model, we allow both the parameters of slope (β_0, β_1) and intercept term (γ_o, γ_1) to vary across the outcome regimes. This switching regression model can be reduced to a single equation giving the expected empowerment outcome Y conditional on X, T:

$$E(Y|X, T) = \mu_0 + \alpha T + \beta X + T(X - \overline{X})\delta \qquad (3.5)$$

where $Y = (1 - T)Y^0 + TY^1$ is the observed outcome (equal to Y^1 for participants in the treatment group and Y^0 for participants in the control group).

3.3.6 Propensity Score Matching

Propensity score matching has to ensure that the conditional probability of participation in the program is uniform between participants and matched comparators, Whereas in a randomized trial, the participants and non-participants are identical in terms of the distribution of all the characteristics, whether observed or not. Using a pooled sample of control and treatment groups, we estimate a flexible probit model by regressing treatment T_i on covariates Z_i and functions of covariates. The estimated parameters from this regression are used to predict $\widehat{P}(Z_i)$ the propensity score for treatment assignment.

$$\widehat{P}(Z_i) \equiv F\left(Z; \widehat{\gamma}\right) \qquad (3.6)$$

where $\widehat{\gamma}$ is obtained from a probit regression of T_i on Z_i.

Propensity score matching uses the values of $\widehat{P}(Z_i)$ to select matching comparison units. The estimates of the program impact are highly sensitive to the choice of matching method used to construct comparison group (Smith and Todd 2005). However, Smith and Todd (2005) go on to demonstrate that the robustness of estimators can be enhanced by restricting the matches only to those units in the control and treatment group who have a common support in the distribution of propensity scores. We eliminate all the cases in the control and treatment group that lie outside the common support condition. We further check

robustness of our estimates by using both kernel and radius matching methods.

3.3.7   Hypothesis

Hypotheses 1: Preference-Based Indicators of Empowerment
There are five different dimensions of empowerment: children-related decisions; health decisions; economic decisions; social mobility decisions; and major household purchases. This hypothesis empirically tests the immediate changes in gender relation brought about by participation in a microcredit program. If the position of the women within the household has improved after taking the loan, then the distribution power should change across some domains of decision making within the household.

Hypotheses 2: Autonomy-Based Indicators of Empowerment
This hypothesis tests whether microcredit is enabling women in contesting their way out of the prescribed norms of gender inequality embedded in the society. Intuitively, we would like to test whether microcredit will only empower women within the constraints of patriarchy imposed by the society and religions. We use another set of empowerment indicators where we ask the respondents whether they require someone's permission to make decision related to household purchase and children. We generate a dummy variable capturing their independence in decision making whenever they do not require someone's permission to make such decisions.

3.4   Result and Analysis

3.4.1   Development of Microfinance in Indonesia

Indonesia was one of the first countries to develop commercial microfinance in Asia, with regulated financial institutions providing the bulk of microfinance services throughout the archipelago. In addition to the

success of commercial microfinance providers, Indonesia has also been a favorable ground for the development of numerous subsidized government programs, local- and community-based financial institutions, cooperatives, and NGOs (Citi Foundation 2009).

Indonesian microfinance is supported by a diverse set of institutions, originating from government, from voluntary sector agencies (both national and international), from the private sector, and from bi- and multi-lateral agencies. These institutions may be called as one of the initiators for setting up microfinance in Indonesia such as Pro-FI (the promotion of small financial institutions) project is supported by bank Indonesia and the German technical assistance agency, GTZ. It aims to improve the operations of two categories of microfinance providers: the 'People's Credit Banks' (BPR) and some non-bank microfinance institutions, especially the 'Village Credit Boards' (LPDs) in Bali. PERBARINDO, Permodalan Nasional Madani (PNM), Gerakan Bersama Pengembangan Keuangan Mikro Indonesia (GEMA PKM), Global Innovation Consulting (GIC), and many others gave high contribution to the development of microfinance, which operated by rural banks as well as non-bank financial institutions (Table 3.2).

In terms of numbers, BPR Shari'ah and Cooperative Shari'ah, which are operated based on Islamic lesson, are less than that of conventional. PNM as state-owned enterprises has mandate from government to engage in serving SMEs than micro-enterprises. PNM supports linkage program between commercial banks and BPRs, and between commercial banks and non-bank microfinance providers. PNM provides loans to non-bank microfinance providers through regional development

Table 3.2 Formed of microfinance in Indonesia. *Source* Bank of Indonesia (2013); Ministry of Cooperative and SMEs (2007)

	Number of bank	Number of worker	Total financing (Credit)	Note
BPR Syariah	160	4826	4,354,183	Oct. 2013
BPR conventional	1634		74,531,494	Oct. 2013
Cooperative conventional	203,701	438,541	8,118,959	Oct. 2013
Cooperative Syariah	3038		157,000	2007

banks (BPD), with saving mobilized by retail microfinance institution as a unique from of collateral. It has a special brief for the support of Shari'ah (Islamic) microfinance. Islamic banking is a significant force in the microfinance and financial sectors in Indonesia, in terms of volume of financial services provided and the number of outlets providing them.

Despite this proliferation of microfinance service providers, several studies have demonstrated that there is still an unmet demand for microfinance services, as a majority of rural households still do not have access to a source of funds from a semi-formal or formal institution. Non-access to funds may be due to regulations, or the limited revolving funds itself. Sometimes the lack of a well-managed financing institution also limits the access.

In the case of empowering the poor, there are number of studies concluded that microfinance is related to women's empowerment (Asim 2008). However, defining women's empowerment is debatable since the term 'empowerment' is related to gender system in the country (Wee and Shaheed 2008). A gender system is a system of constructing and regulating specific standards for males and females, as well as relations between them, in terms of relative hierarchy or relative equality. Intersecting with other forms of power relations, diverse gender systems produce varied spaces for women's initiatives and empowerment, accompanied by distinctive constraints, diverse sources of support, and dissimilar access to a range of resources.

3.4.2 Women Empowerment in the View of Women's Muslim

In this study, we conducted exploratory approach to obtain women perception on the terminology of women empowerment. We conducted focus group discussion for three times: First, we discussed with group of facilitator who have higher level of education and economic level; second, we discussed with members of microcredit who are less educated and have low level of economy; third, we discussed with the policy maker on the top level of management of *Zakat* management organization.

In the first discussion, we got impression that women in the view of Muslim should follow the Islamic laws. The taskforce and position between men and women are different, so they might not be the same in regard to implement responsibilities. However, they agree that women should have the same right in terms of conveying their opinion and as decision makers in their families.

Mrs. Aisyah from Amanah group stated that, '*women as a mother hold important role not only working in "the kitchen, toilet and bedroom", we should also include in the democratic processes in the household, particularly for educational aspect of our children. Although, my husband will pay the entire school tuition fee, but as a mother, I should take point on the right track.*'[4]

Similar to Mrs. Aisyah, Mr. Dasep who is the leader and senior mentor of the group declared that women are stronger to see future dimension of their children as well as control their husband's decision.

All of the FGD participants agreed that women can voice their opinion to their husband if they can make brilliant decision to solve their family problems. If they make wrong decision, their suggestion may not be followed in the future. To make women give brilliant suggestion, there are few aspects to be completed such as they must be educated. Education can be achieved not only from formal education but also from religious education, which can drive their morality to be good and apt to Islamic law that their husbands respect on it. In other word, women should have widely horizon in any matters of life. Educated them will not end up only in formal education, but they should be more active in their social live such as following religious or social organization in their communities. All of the participants in the focus group discussion tend to value empowerment similar to equality between men and women. However, they understand the process of empowerment. Equality post between wife and husband in their families is a result of this process.

One of the purposes of microfinance is reducing number of the poor by providing more access to financial institution, so they can empower themselves. Self-empowerment is the interaction that is able to assume an attitude of empowering herself by making good use of 'personal potential' in dealing with problems they faced (Charon 1979).

According to Sumardjo ([1999](#)), the characteristic of an empowered individual are:

1. Being able to comprehend herself and her potentials, being able to make planning (to anticipate the future change of condition);
2. Being able to direct herself;
3. Having power to negotiate;
4. Having bargaining power in doing a mutual cooperation and
5. Being responsible of her own action.

This indicates that an empowered individual is one who knows, understands, and has good motivation and opportunity, makes good use of the opportunity, has the energy, can cooperate, knows various alternatives, can make a decision, dares to take risk, can search for information, as well as having the ability to act in accordance with the situation. The process of empowerment should be done persistently and continuously so that it can lead them to prosperity.

In the case of mentors, most of the participants agreed that regardless of any rupiahs given by their husbands, the money should be able to supply all their household needs. They did not ask and push their husband to fulfill all their desires on something precious goods. However, *they emphasized that they may get full empowerment if they can control their husband's income over their own money. In other words, all husband's money should go as a wife's money, but if wife can earn some money from their own activities, this money should be as their own money and their husband could not control it.*

Some of them also argued that this thought may not be accepted by all men. Ms. Alifah stated that '*there is a time when my husband needs some of my money to pay the bill, it will be counted as a loan, and I always remain him to pay his loans.*' It is debatable to divide between wife's and husband's money. As mentioned by Ms. Ai who run her business together with her husband, '*If I have some more money from my own business, I always spent it for household needs, and never think that my husband has loan from me.*'

Mr. Dasep, one of the mentors of Misykat program, has different views: '*as a husband I have two income resources, my main income as a teacher is given to my wife, but secondary income from my band*

performance is used to my own necessities. However, I support my wife to have her own saving from her own income.'

Compare to another Muslim women group who are not joined with Islamic microfinance, we got different views. This group has characteristic of low educated and income. They felt so afraid to speak out and share their opinion on women empowerment. They tend to ask their husband's permission before making their own decision. Some of them mentioned that their husband's families particularly their mother-in-law are always interfering their internal household. It seems that to define women empowerment is hard as they hold Islamic law partially. In the holy Quran, it was stated that 'Men is women leader' so that women shall be behind the men and seek approval from her husband in every decision making. This condition based on their story let them to be cheater and have problem with moneylenders who charge high interest rate for debt. In Bandung city, there are many money lenders that plunge the poor into deeper poverty.

It can be concluded that the group mentored and trained by *Misykat* program have affected the view on self-empowerment. The model of self-empowerment through a strong social capital, which is maintained well in togetherness, is able to grow personal spirit and make individual more productive; therefore, it improves individual competence. Self-empowerment gives positive values for individual, namely (a) promoting self-confidence; (b) opening and developing individual's entrepreneur; (c) opening job vacancies; (d) facilitating obtaining raw materials; (e) facilitating obtaining loans; (f) facilitating marketing because of the wide network; (g) improving work ethos; (h) improving skills/competence; and (i) having creative and innovative trait to reform.

3.4.3 Review on Islamic Microfinance

3.4.3.1 Misykat Program of DPU-DT (Dompet Peduli Ummat Daarut Tauhid)

Misykat (Microfinance Masyarakat—community-based microfinance) is one of the programs from Dompet Peduli Ummat Daarut Tauhid

Foundation.[5] This program was set up in 2004 but established four years later. This foundation developed the concept of channeling *Zakat* funds as revolving loan fund rather than charity program. However, some Islamic scholars do not agree to use this fund for loan as the function of *Zakat* as social protection and should be directly given to the beneficiaries as stated in the Qur'an.

In regard to reduce poverty rate, this foundation thought that the important thing to *Zakat* utilizations is not only put across funds to the beneficiaries, but also how to empower them so that they can come out from poverty. Thus, utilizing *Zakat* needs high skill, patient, and have to be serious. Basic concepts that this foundation implemented to its microfinance in regard to reduce poverty rate are as follows:

1. Capital is not everything. Islamic law thought that for Muslim there is no *Zakat* fund for people who is capable of working; thus, to anticipate the vulnerable people to under poverty line group, they need assessment to improve their business. According to this foundation, *Zakat* funds can be used for this purpose.
2. No charity, charity only helps the poor in short time, and they still be poor in the long time if there is no effort to empower them to be more active in the economy.
3. Awareness of their potentials, the first thing to do to help the poor is to beat their potential and developed it into optimum.
4. Access to wide market and networking.
5. Managing their household in terms of economics flow.
6. Mentoring and empowering need long process for planning, monitoring, and evaluation, so the role of mentors/facilitators is important to determine successful program.
7. Urge for professional mentor.
8. Need process and time not instant.
9. Motivation to work.

The source of *Zakat* funds is limited, but the number of poor people is huge; therefore, appropriate strategies are needed to cope with this problem. Some implications for this condition are as follows:

1. Charity systems do not work properly for poverty reduction.
2. *Zakat* Management Organization (ZMO) institutions have their own systematically strategy to combat poverty. They do not have to trap into populist program.
3. All empowerment programs are impossible to capture all poor people directly in the short time. Therefore, it could be involved in gradual program by conducting pilot project in priority region.
4. Empowering program should be only a trigger that does not use it as charity. Then, it should be counselled in management system from planning, organizing, and staffing to controlling.
5. Empowering program should be stimulated to open greater access to formal financial institution for the poor.

This shifting paradigm is not easy to be accepted for other Muslim. Therefore, this foundation requires restricted in requirement step to select the new member. They need high commitment from the member to follow the rule, which they set up based on Islamic lessons.

DPU Daarut Tauhid held *Misykat* (community-based microfinance), which provides microcredit to merchants who cannot afford in order to get closer to Allah, the economic and spiritual prosperity. The terms and conditions to be a *Misykat*'s members as should follow these requirements:

1. Women age 17–55 years, grouped into at least five people.
2. Each member must live in an area that could reach on foot and has lived there at least for six months.
3. Mandatory responsibility of the member is following the guidance from Daarut Tauhid that was held in weekly meeting. It consists of attending lectures, installment loans, saving money, and paying dues group.
4. In a group, its business may be heterogeneous or not the same.
5. Preferred members who already have a business (not starting from zero).

Misykat's type of financing is imposed jointly and severally with the 2–2–1 pattern. Out of five people in one group, two people were

given first capital. If the first installment runs smoothly, then the next two newly will be given. It went on until the last person, who usually is the chairman of the group. This fee unsecured (non-physical) in the form of social cohesion or social tolerance. Therefore, when two people first loaned capital, three others learn to 'let go' and overseeing order not default installment so that they can later also directly loaned capital (Fig. 3.3).

Since its establishment in 2006, DT *Misykat* capital Jakarta has given nearly 300 people from a variety of sources of funding DPU-DT Jakarta, ranging from charity, and *Sadaqa/Infaq*. Friends who want to join so 'investors' can transfer funds to the account of productive.

Mrs. Alifah, one of the mentors told her story when she was joined microfinance. '*For the first time, I joined this microfinance as a member of a lending group from 2007 to 2010. The group chose me to manage our financial report. When our leader had a problem that caused her get a sack, I replaced her to be a leader as well as a mentor. Before I joined this MFI, I did not have a job, but after I got some entrepreneurship training from this MFI for more than four times then I tried to open a stall. After four years,*
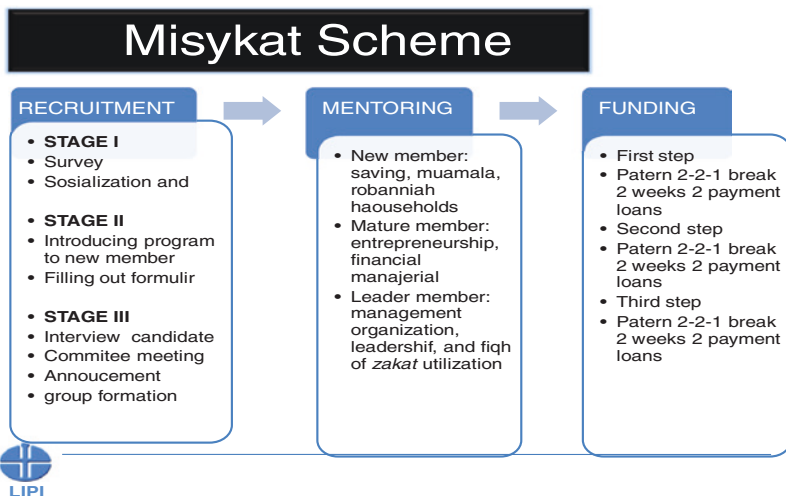

Fig. 3.3 Misykat scheme. *Sources* Dompet Peduli Ummat – Daarut Tauhid 2014

I have my own PAUD (Pendidikan Anak Usia Dini—pre-school building) for all children who their parents are clients of MFI.'

Another story has been told by Ms. Ai, she mentioned that before joined *Miyskat*, she was one of the board of 'Warna Sari' group, which is funded by the Indonesian Government Institution under BKKBN (National Board for Family Planning). The government gave them fund for 30 members. This program only lent money, and they have regular meeting about once in two or three month. In fact, the members were indiscipline in terms of paying the loan and following the group's rules. If there is a margin or profit from their business, they used it to develop their own organization. This model is difference with Misykat program. According to her, in Misykat, each member has responsibilities to attend weekly meeting and recitation. They also have two types of saving, mandatory saving and voluntary saving. This program also offers saving plan, which is useful to cover any unexpected expenses or large expenses such as for house leasing, paying school tuition fee, or other big plans for their own investments. The mentor should encourage the member to save their money before spending it to their necessary daily life.

In addition Ms. Lia also adds some information on how Misykat program can empower them through microcredit. '*There are some differences of lending process between other microfinance and Misykat program— DPU-DT. If we lend from cooperative (other microfinance), we just pay the installment and interest rate. In Misykat program, there is gathering in a week, mentoring program for the lender to manage their income so that they can saving the money and use the money appropriately. Members also learn much to understanding of contract.*'

3.4.3.2 *Zakat* Utilizations Program of BAZNAS

Relying on government budget without holding the private partner to alleviate poverty is hardly working to reach the MDG's goal. Poverty eradication should not only government in charge, but also all elements and entities in the countries. BAZNAS is one of the alternatives to get funding for poverty alleviation from privates as well as communities.

Zakat management has undergone significant change since enactment of Act No. 23 of 2011. This new Act mandated stronger integration of *Zakat* management in the country. In accordance with this Act, *Badan Amil Zakat Nasional (BAZNAS)* comprises three elements: Islamic scholars, professional, and Islamic communities leader. Eight of them should be from communities and 3 of them come from government. Presidential Decree no 14/2014 has completed this law to be implemented. However, the enactment of this law has caused controversy since it has stipulated *Zakat* management is the authority of the government and the public is only allowed to participate with a government authorization. This stipulation seemed to limit the number of *Zakat* management organizations. It can be said that through this law, government needs to strengthen *Zakat* management in order to mobilize its full potential, but on the other side government intends to control the *Zakat* management.

Zakat fund has been collected by BAZNAS in West Java Province in 2013, which is about 88% and the rest (12%) is from non-*Zakat* fund (alms) such as infaq and *Sadaqa*. This fund was increased dramatically from previous year. According to the board, they have just collected '*Zakat* Profession' rather than '*Zakat Maal*' from the civil servants. In every month, more than US$40,000 has been collected (Fig. 3.4).
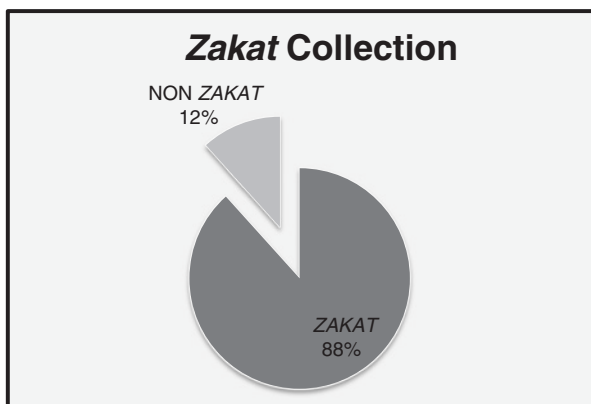
Fig. 3.4 Collected *Zakat* fund by BAZNAS West Java Province 2013. *Source* BAZNAS West Java, 2013

In its operation, *Zakat* disbursement is allocated for any activities, which support an economic program such as small enterprise empowerment. This disbursement can be done directly by the *Unit Pengumpulan Zakat (UPZ-Zakat Distribution Unit)*, which is available in every counter of *BAZNAS* or *UPZ* partner. This economic program has been planned systematically in order to ensure that the benefits of this empowerment are not only for individual but also for their community. Therefore, it can encourage community development between *BAZNAS* partners and their community (Fig. 3.5).

In terms of disbursement *Zakat* system, *BAZNAS* have used three models to achieve the economic goals. The zero-level channel aims at direct empowerment through *mustahik*. The two-level channel uses coordinators to oversee the *mustahik* turnover; the three-level channel involves third parties and other coordinators.

Even when the recipient of *Zakat* is an individual, the usage of the money should not only be for consumption. Prophet Muhamad (pbuh) teaches us to distribute *Zakat* for productive activities would be advantageous not only for the *mustahik* but also for their community. Thus, the main purpose of *Zakat* allocation is that for poverty eradication.
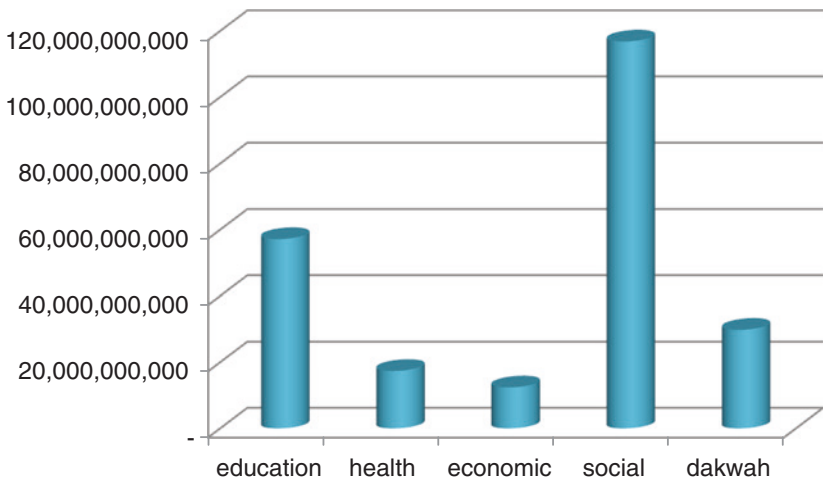
Fig. 3.5 *Zakat* disbursement and Utilization from BAZNAS West Java province 2013. *Source* BAZNAS West Java province, 2013

There have been some success stories in generating funds to alleviate poverty using *Zakat* fund through empowering the small-scale enterprises based on local initiative.[6] For Indonesia case, the disbursement of *Zakat* more likely follows some patterns.

3.4.4 Descriptive Analysis

The survey was carried out by a team of four female surveyors and was headed by the author for supervision during the implementation phase. This research was conducted in west and south city of Bandung. Surveyors were located from local areas and given one-day training to be familiarized with the questionnaire.

The surveyors had prior experience of field work and known the terrain of fieldwork. Their knowledge of the location helped us in hunting down the sampled clients including the dropout ones. If any problems were identified, the questionnaire was dropped and feedback was given to the surveyor to ensure quality control. Once the data collection was completed, the data were processed into the computer by team of four individuals including the author herself. Data consistency was checked at all three stages including collecting, processing, and analyzing.

Table 3.3 presents the characteristic of respondents; most of them are married women with age between 41 and above 50 years old. In terms

Table 3.3 Characteristic of respondents. *Source* Survey, 2014

Characteristic	Proportion (%)
Marital status	a. Married=91.67
	b. Widowed=8.33
Education	a. Elementary school=49.30
	b. Junior high school=25.35
	c. Senior high school=25.35
Age	a. 21–30 years old=2.78
	b. 31–40 years old=27.78
	c. 41–50 years old=34.72
	d. >50 years old=34.72
Income	a. <US$ 100/month=21.13
	b. >US$ 100—US$ 200=36.62
	c. >US$ 200—US$ 300=29.57
	d. >US$ 300—US$ 1000=12.68

of the highest education level, the proportion of all respondents is less educated, more than 70% of respondent has graduated from elementary and junior high schools. Their average monthly earning is only less than US$300.

Table 3.4 summarizes the entire exogenous and endogenous variable used in the o-probit and bi-probit regressions. Table 3.4 provides summary statistic for the preference-related indicator of empowerment. Table 3.5 summarizes the autonomy-based indicators of empowerment.

Most of the variables are self-explanatory; few need further explanation. In Table 3.4, the two exogenous variables—'working female before loan' and 'first utilization by respondent'—need some clarification. Working female before loan is a dummy variable constructed by assigning '1' to all the women who had a working status; before taking the loan will not be influenced by intervention, this variable serves as an exogenous proxy for initial endowment of empowerment. The choice of this proxy is motivated from economic theory, where one of the routes identified for empowerment earlier is through access to independent income.[7] As a natural extension, we argued that by controlling the women who were working prior to taking a loan, we can capture most of the unobserved heterogeneity between the incoming borrowers and those who took the loan at an earlier date. Likewise, the dummy for the 'first loan utilized by the respondents' captures whether they were already empowered at the time of taking the loan and acts as another exogenous proxy for controlling the levels of initial empowerment.

There is significant drop in the number of observations available for each indicator both in the treatment and in the control group (Table 3.5). Observations on widowed women who are household heads are dropped from the analysis (it is about 30 respondents). Also, some of the questions were inapplicable to those women who have not yet been required to make such a decision. For instance, women having young children did not know whether their preferences would be reflected in their children marriages. In such cases, the observation is dropped. Nevertheless, for most of the variables, there are enough observations in the control and treatment groups to allow for a meaningful estimation, except for the decision regarding children marriages.

Table 3.4 Summary statistic: Explanatory variable from household data set. *Source* Survey, 2014

Variable name	Definition	Treatment group mean and SD	Control group mean and SD
Endogenous variable			
Treatment dummy	0–1 Dummy variable: =1 if the client registered with MFI before December 2013; =0 for clients registering in/after January 2014	0.554 (0.498)	
Exogenous variables			
Age of respondent	Reported age of respondent confirmed by observation	46.395 (10.916)	43.550 (9.535)
Schooling of respondent	Number of years of schooling completed by the respondent	8.058 (2.536)	7.594 (2.528)
Children	Number of total children of the respondent	2.081 (1.356)	2.086 (1.094)
Age difference	Difference between the reported ages of husband and wife	3.965 (3.63)	4.449 (4.009)
Number of family	Number of people who live in the same house at the time of observation	4.860 (1.915)	4.839 (1.560)
Joint family	0–1 Dummy Variable, =1 if the respondent lives with the parents of her husband; = 0 otherwise	0.337 (0.475)	0.304 (0.463)
First utilization by respondent	0–1 Dummy Variable, =1 if the first loan taken from MFI was utilized by respondent herself; = 0 otherwise	0.581 (0.496)	0.376 (0.488)
Working female before loan	0–1 Dummy Variable, =1 if the respondent was a working womenwomen prior to taking loan; = 0 otherwise	0.627 (0.486)	0.333 (0.474)
Interaction term			
Institution[a]treatment	0–1 Dummy Variable, =1 if the respondent is a member of DPU-DT; = 0 if the respondent is a member of BAZ	0.860 (0.348)	0.681 (0.469)
Number of observation		144	96

Note [a]standard deviations are reported in the parenthesis

Hence, the question regarding children marriage is dropped from the final analysis.

Moreover, it is important to note that the difference in unconditional mean across control and treatment group comes out to be negative for some variable such as family planning, purchase household, and social mobility decision as reported in Table 3.5 and Table 3.6. The differences, however, are positive and significant for financial decision and child-related schooling decision.

The pattern in the data gives some credence to our earlier conjecture that power distribution is difference across various domains of household decision. In other word, the basic statistics suggest that microcredit might be important to reduce or increase the level of power coefficient in the household decision making.

3.4.5 Estimation Results

This section uses nine ordinal dependent variables as summarized in Table 3.4 to test whether participation in the microcredit program has increased the extent to which women's preference is taken into consideration in various domains of household decision. The ordinal dependent variables take a value on an increasing scale of 1–5 where the lower end of scale indicates virtually no 'say' in decision making while higher end values indicate full recognition of her 'voice' in household decisions. The dependent variables span five broad categories of household decisions regarding children, economic, health, social mobility, and resources allocation sufficient to indicate the extent of women's centrality within the household.

3.4.5.1 Hypotheses 1: Preference-Based Indicators of Empowerment

The results from ordered probit regression are reported in Table 3.7, 3.8, 3.9 and 3.10. The results are grouped on five different dimensions

Table 3.5 Summary statistic: Outcome indicators—'Say' in HH decision making: Ordinal development variable (1–5). *Source* Authors' own calculation

Dependent variable	Treatment group mean and SD	N	Control group mean and SD	N	t-stat for difference in means
Boy's schooling decision	4.9531 (0.2122)	128	4.5432 (1.0845)	81	3.06[a]
Girl's schooling decision	4.9457 (0.2595)	129	4.4074 (1.1914)	81	4.24[b]
Children marriage decision	4.3178 (1.4306)	129	3.9506 (1.5483)	81	−0.17
Respondent medical care	4.9302 (0.3350)	129	4.7407 (0.6078)	81	1.60
Children medical care n	4.9457 (0.2274)	129	4.7530 (0.5369)	81	2.55[a]
Family planning decision	4.8449 (0.5652)	129	4.7625 (0.6212)	80	−0.95
Social visits to women's women families	4.8372 (0.5122)	129	4.7283 (0.5480)	81	0.93
Social visit in husband's families	4.7984 (0.5502)	129	4.7283 (0.5703)	81	−1.91[a]
Work for earned income	4.7441 (0.7733)	129	4.5555 (0.9354)	81	−0.13
Borrow money from MFI	4.8682 (0.5913)	129	4.6049 (0.8467)	81	2.79[b]
Purchase of HH assets	4.7751 (0.6026)	129	4.7530 (0.5369)	81	−2.92[b]
Decision about house repair	4.6434 (0.8996)	129	4.6419 (0.7954)	81	−0.25
Sale/purchase house	4.7054 (0.8043)	129	4.4444 (1.1832)	81	0.72
Social visit in neighborhood	4.7829 (0.7066)	129	4.4074 (1.2427)	81	−0.65

[a]All the dependent ordinal variables measure the extent to which women's womenpreferences are reflected in decision-making process; 1 indicates that her preferences are never reflected in these decisions, while 5 indicates that her preferences are always taken into account
[b]Standard deviations are reported in the parenthesis

of empowerment: children-related decision; health decision; economic decision[8]; social mobility decision; and major household purchases.

The preferred regression is regression (1) in Table 3.7, 3.8, 3.9 and 3.10. It uses proxies including a dummy for 'working women before taking a loan' and a dummy for self-utilization of first loan by

Table 3.6 Summary statistic: Outcome indicators—'Autonomy' in HH decision making: Dichotomous dependent variable (0/1). *Source* Authors' own calculation

Dependent variable	Treatment group mean and SD	N	Control group mean and SD	N	t-stat for difference in means
Purchasing ice cream for children	0.9922 (0.8804)	129	0.9753 (0.1561)	81	0.29
Purchasing grocery/fruits	0.9689 (0.1740)	129	0.9135 (0.2827)	81	−1.24
Purchasing medicine for herself	0.9844 (0.1240)	129	0.8271 (0.3804)	81	2.47
Purchasing clothes/cosmetics for herself	0.9534 (0.2114)	129	0.7037 (0.4594)	81	1.04
Purchasing books/uniform for children	0.8837 (0.3218)	129	0.6666 (0.4748)	81	2.01
Taking a child to a doctor	0.7209 (0.4502	129	0.5432 (.4993)	81	−0.50
Purchasing furniture	0.3255 (0.4704)	129	0.2469 (0.4339)	81	−0.41
Purchasing refrigerator/TV	0.3798 (0.4872)	129	0.2345 (0.4263)	81	1.29
Sale/purchase of personal assets (jewelry)	0.2248 (0.4190)	129	0.1604 (0.3693)	81	0.27

Note *all the dependent binary variables measure whether the women women-requires someone's permission in making the decision. '0' indicates that she does require someone's permission in the HH, while '1' indicates complete autonomyautonomy in decision making. ** standard deviations are reported in the parenthesis

respondent. Both these proxies seek to control for potential endogeneity stemming from initial differences between control and treatment group. The first regression is preferred since it assumed that all types of microcredit from any institution will influence women empowerment. Regression (2) adds an interaction term of institution dummy interacted with treatment dummy to control for any unobserved institutional differences between the treated units of participating institution.[9]

The estimated effect of treatment on indicators of empowerment based on first specification shows that all three dimensions relating child decision are statistically significant at 95% confidence level. On the contrary, the treatment effect has no impact on child-relating decision as indicated by second specification. Moreover, variable interaction term is significant for 'girl's schooling' dimensions as shown in

Table 3.7 Ordered probit estimates of women's empowerment 'Say' in child-related decision Women's opinion taken into consideration in household decisions on. *Source* Authors' own calculation

Independent variables	Boy's schooling oprobit coefficients		Girl's schooling oprobit coefficients		Child's medical care oprobit coefficients	
	1	2	1	2	1	2
Treatment dummy	0.9631***	0.4694	1.203***	0.5903	0.8545***	0.3662
	(0.2728)	(0.4580)	(0.2635)	(0.4465)	(0.2700)	(0.4605)
Age difference with husband	0.0256	0.0208	−0.0102	−0.0161	0.0010	0.0002
	(0.0256)	(0.0314)	(0.0277)	(0.0282)	(0.0295)	(0.0296)
Age of respondent	0.0079	0.0039	0.0054	0.0006	0.0112	0.0077
	(0.0120)	(0.0125)	(0.0118)	(0.0123)	(0.0124)	(0.0128)
Education	0.0110	0.0130(0.0532)	0.0194	0.0182	0.0028	0.0065
	(0.0521)		(0.05058)	(0.0517)	(0.0525)	(0.0535)
Number of children	−0.0106	−0.0320	−0.1601	−0.1939	−0.2352	−0.2673
	(0.1520)	(0.1569)	(0.1500)	(0.1561)	(0.1696)	(0.1774)
Number of HH member	0.0795	0.0990	0.1201	0.1432	0.2341*	0.2598*
	(0.1319)	(0.1386)	(0.1311)	(0.1377)	(0.1501)	(0.1597)
Joint family	0.0984	0.0966	0.0878	0.0836	−0.3917	−0.3787
	(0.3138)	(0.3168)	(0.2994)	(0.3032)	(0.2944)	(0.2981)
Working female before loan	−0.1015	−0.1322	−0.2081	−0.2588	−0.0722	−0.1064
	(0.2635)	(0.2689)	(0.2471)	(0.2538)	(0.2611)	(0.2656)
First utilization by respondent	0.0797	0.0679	−0.1219	−0.1137	0.1306	0.1014
	(0.3277)	(0.3284)	(0.3136)	(0.3127)	(0.3121)	(0.3149)
Interaction term		0.6372		0.7893*		0.6126
		(0.4968)		(0.4900)		(0.4891)
Number of observation	209	209	210	210	210	210
Pseudo R−squared	0.0966	0.1048	0.1269	0.1376	0.1002	0.1091
Chi−square statistic	18.25	19.81	28.68	31.10	16.62	18.09
Log likelihood	−85.377	−84.601	−98.679	−97.470	−74.591	−73.858

Note Standard deviations are reported in the parenthesis
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Table 3.8 Ordered probit estimates of women's empowerment 'Say' in health and economic decision Women's opinion taken into consideration in household decisions on. *Source* Authors' own calculation

Independent variables	Medical checkup oprobit coefficients		Family planning oprobit coefficients		Working for earned income oprobit coefficients		Borrowing money from MFI oprobit coefficients	
	1	2	1	2	1	2	1	2
Treatment dummy	0.7122***	0.2161	0.1331	−0.4669	0.4727**	0.3554	0.6802**	0.2462
	(0.2679)	(0.4700)	(0.2418)	(0.3882)	(0.2131)	(0.4261)	(0.2326)	(0.4396)
Age difference with husband	0.0000	−0.0023	0.0314	0.0257	−0.0078	−0.0081	−0.0223	−0.0233
	(0.0292)	(0.0294)	(0.0289)	(0.0293)	(0.0245)	(0.0245)	(0.0265)	(0.0266)
Age of respondent	0.0086	0.0054	0.0246**	0.0199*	0.0068	0.0060	0.0002	−0.0014
	(0.0131)	(0.0134)	(0.0120)	(0.0123)	(0.0100)	(0.0103)	(0.0109)	(0.0110)
Education	0.0710	0.0715	0.1093**	0.1103**	0.0271	0.0278	0.0869*	0.0897*
	(0.0582)	(0.0592)	(0.0538)	(0.0547)	(0.0448)	(0.0450)	(0.0517)	(0.0522)
Number of children	−0.5992**	−0.6068**	−0.4647***	−0.4552***	−0.1953	−0.2000	−0.0368	−0.0295
	(0.2434)	(0.2447)	(0.1762)	(0.1746)	(0.1404)	(0.1418)	(0.1384)	(0.1388)
Number of HH member	0.4873**	0.5022**	0.2673*	0.2627	0.2563**	0.2604**	0.0525	0.0512
	(0.2128)	(0.2158)	(0.1446)	(0.1455)	(0.1268)	(0.1283)	(0.1111)	(0.1120)
Joint family	−0.5961**	−0.6131**	−0.4806*	−0.5177	−0.1954	−0.1921	−0.0951	−0.0925
	(0.2891)	(0.2921)	(0.2791)	(0.2829)	(0.2444)	(0.2448)	(0.2794)	(0.2817)
Working female before loan	0.2627	0.2198	0.2557	0.2430	−0.0421	−0.0467	0.3367	0.3382
	(0.2718)	(0.2756)	(0.2403)	(0.2429)	(0.2104)	(0.2110)	(0.2342)	(0.2356)
First utilization by respondent	−0.0670	−0.1167	0.2775	0.2103	−0.2355	−0.2446	0.0688	0.0405
	(0.3482)	(0.3542)	(0.2982)	(0.3049)	(0.2870)	(0.2887)	(0.2946)	(0.2969)
Interaction term		0.6287		0.7695**		0.1364		0.5194
		(0.5065)		(0.3971)		(0.4315)		(0.4589)
Number of observation		210		209		210		210
Pseudo R²	0.1341	0.1425	0.0993	0.1177	0.0423	0.0427	0.0950	0.1004
Chi-square statistic	22.91	24.35	19.63	23.26	11.85	11.95	20.90	22.10
Log likelihood	−73.98	−73.25	−89.00	−87.19	−134.05	−134.00	−99.58	−98.97

Note Standard deviations are reported in the parenthesis

*p < 0.1, **p < 0.05, ***p < 0.01

Table 3.9 Ordered probit estimates of women's empowerment; 'Say' in HER social mobility decision Women's opinion taken into consideration in household decisions on. *Source* Authors' own calculation

Independent variables	Social visits to women's family oprobit coefficients		Social visits to man's family oprobit coefficients		Social visits in neighborhoods oprobit coefficients	
	1	2	1	2	1	2
Treatment dummy	0.4133** (0.2196)	-0.1391 (0.4031)	0.2918 (0.2155)	-0.3488 (0.3810)	0.5318*** (0.2128)	0.4706 (0.4481)
Age difference with husband	-0.0112 (0.0255)	-0.0144 (0.0257)	-0.0190 (0.0251)	-0.0243 (0.0254)	-0.0080 (0.0254)	-0.0083 (0.0255)
Age of respondent	-0.0061 (0.0105)	-0.0091 (0.0107)	-0.0095 (0.0102)	-0.0145 (0.0106)	0.0037 (0.0100)	0.0032 (0.0104)
Education	0.0504 (0.0471)	0.0496 (0.0476)	0.0070 (0.0445)	0.0048 (0.0453)	0.0446 (0.0464)	0.0451 (0.0465)
Number of children	-0.2375* (0.1280)	-0.2438** (0.1284)	-0.1517 (0.1199)	-0.1735 (0.1223)	0.0046 (0.1218)	0.0033 (0.1221)
Number of HH members	0.1523 (0.1014)	0.1597 (0.1029)	0.0942 (0.0969)	0.1075 (0.0997)	0.0370 (0.0976)	0.0377 (0.0979)
Joint family	-0.2159 (0.2479)	-0.2310 (0.2494)	-0.0045 (0.2483)	0.0041 (0.2507)	0.0079 (0.2602)	0.0085 (0.2602)
Working female before loan	-0.0359 (0.2177)	-0.0611 (0.2195)	-0.1333 (0.2124)	-0.1710 (0.2155)	0.0918 (0.2138)	0.0898 (0.2142)
First utilization by respondent	-0.2130 (0.3080)	-0.2570 (0.3120)	-0.2296 (0.3003)	-0.2780 (0.3047)	-0.4124 (0.3136)	-0.4138 (0.3136)
Interaction term		0.6566* (0.4101)		0.7702** (0.3852)		0.0706 (0.4562)
Number of Observation	210	210	210	210	210	210
Pseudo R-squared	0.0459	0.0566	0.0225	0.0382	0.0389	0.0390
Chi-square statistic	10.37	12.80	5.52	9.35	10.54	10.56
Log likelihood	-107.80	-106.59	-119.62	-117.70	-130.24	-130.23

Note Standard deviations are reported in the parenthesis
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Table 3.10 Ordered probit estimates of women's empowerment: 'Say' in sale/purchase of HH assets decision Women's opinion taken into consideration in household decisions on. *Source* Authors' own calculation

Independent variables	Purchase HH assets oprobit coefficients		House repair oprobit coefficients		Sale/purchase house oprobit coefficients	
	1	2	1	2	1	2
Treatment dummy	0.0597 (0.2145)	0.0566 (0.4181)	0.0542 (0.2061)	0.1317 (0.4108)	0.3316* (0.2040)	0.4836 (0.4431)
Age difference with husband	−0.0176 (0.0246)	−0.0176 (0.0247)	0.0299 (0.0262)	0.0308 (0.02663)	0.0152 (0.0247)	0.0169 (0.0252)
Age of respondent	0.0124 (0.0099)	0.0124 (0.0102)	0.0077 (0.0099)	0.0084 (0.0103)	−0.0017 (0.0098)	−0.0008 (0.0101)
Education	0.0539 (0.0451)	0.0539 (0.0452)	0.0410 (0.0422)	0.0409 (0.0421)	0.0400 (0.0426)	0.0407 (0.0426)
Number of children	0.0133 (0.1127)	0.0133 (0.1128)	−0.1720 (0.1137)	−0.1710 (0.1138)	−0.1550 (0.1147)	−0.1546 (0.1148)
Number of HH members	−0.0262 (0.0900)	−0.0262 (0.0900)	0.0632 (0.0922)	0.0630 (0.0921)	0.0998 (0.0915)	0.0994 (0.0914)
Joint family	−0.1154 (0.2517)	−0.1153 (0.2522)	−0.1750 (0.2405)	−0.1754 (0.2405)	0.0143 (0.2430)	0.0178 (0.2434)
Working female before loan	0.1461 (0.2125)	0.1459 (0.2130)	0.1047 (0.2040)	0.1076 (0.2046)	−0.0045 (0.2021)	−0.0007 (0.2024)
First utilization by respondent	−0.2065 (0.2980)	−0.2067 (0.2993)	−0.3491 (0.2970)	−0.3474 (0.2973)	−0.2428 (0.2854)	−0.2323 (0.2864)
Interaction term		0.0035 (0.4157)		−0.0891 (0.4075)		−0.1734 (0.4465)
Number of observation	210	210	210	210	210	210
Pseudo R-squared	0.0227	0.0227	0.0251	0.0253	0.0236	0.0242
Chi-square statistic	5.46	5.46	7.49	7.54	6.97	7.12
Log likelihood	−117.74	−117.74	−145.46	−145.44	−144.01	−143.93

Note Standard deviations are reported in the parenthesis
*p < 0.1, **p < 0.05, ***p < 0.01

the second regression. It can be explained that by joining microfinance institution, member can propose scholarship for their children particularly for their daughter; thus, it can be said that *Misykat* program has significant impact to persuade women to be more empower in 'girl schooling' decision. In contrast, although decision of boy's schooling is affected by treatment effect, there are no other variables which have affected significantly to support this decision as indicated by first and second specification.

Number of household families together with treatment variable had significant effect on women to decide children medical care for both specifications. It might say that in the big family, women have more support from other family member to make this decision. Therefore, it can be concluded that the preference empowerment related to child decision between the mature and new client is affected by their participation into the such microfinance.

Turning to health and economic decision, in Table 3.8, we find strong positive and significant effect of treatment for all variable for first specification, except for 'family planning decision,' but it is insignificant for the second specification. Other dependent variables, such as number of children, number of household member, and type of join family, also had significant effect to women decision on their medical checkup. The more number of their children, the less power of women to decide their own medical checkup. It is because they tend to give priority for their children health. However, for the women who live in bigger family, they tend to care on their own health. Similarly, for the women who live with other family (they still depend on other family assistances), their power to decide on medical checkup is reduced significantly.

In the second specification, interaction term variable for 'family planning decision' has significant impact at 95% confidence level. It seems that the more active the member, the more they understand to decide whether they take family planning program or not. The *Misykat* program, which has regular meeting for their clients, tends to educate them about 'family planning' in the perspective of Islam.[10] Meanwhile, BAZNAS does not have such program. Therefore, it has implication on the influence of the number of children in the family planning decisions. According to both specifications, it can be said that the lesser

the number of children, the more powerful women in making decision on their family planning. Other variables such as education and age of respondent have positive sign and significantly influence women decision on family planning. It means the more educated and mature women, the higher level of empowerment they have. Thus, it can be concluded that microfinance has good treatment to their client (specific program for empowerment) and could influence their client's perception on family planning, particularly for educated and mature age clients. It is supported by significant level of dependent variables such as education of respondent and the age of respondent.

Women also have preference decision for work to earn money in condition that the number of household members is increasing. This variable is significant for both specifications. The education level of women is significant to influence women in borrowing money from microfinance institution. The higher their education level, the more preference they borrow money from MFI. Therefore, it can be concluded that women participation in microcredit from such Islamic microfinance institution has significant effect on their empowerment in health and economic decision.

The effect of participation in microfinance is significant for 'say' her mobility decision (Table 3.11) for first specification, except for 'social visit man family' decision. The number of children has significant effect on 'social visit women family' decision. The lesser the number of children, the higher the power of women empowerment makes this decision. However, there is no significant for other dependent variables to support 'social visit man and neighborhoods' decision except treatment variable and interaction term. Thus, it can be concluded that participation in microcredit has effect on women mobility decision.

On the contrary, for major household decisions such as purchase household asset, households repairs, and sale or purchase of house, the treatment effect is only significant for sale or purchase of houses, but not for others variables. Therefore, participation in microcredit has no effect on major household decision. Although urban area of Bandung city consists of multicultural people, most of the dweller is Sundanese who hold patriarchy system. Thus, big decision regarding purchase household asset and households repair becomes the authority of men

rather than women. However, if the couple wants to buy or sale house, they should do it together as most of them usually take a loan that needs spouse's agreement. In this context, women's voice will be important to comply with the law.

Consider then the second test for robustness of our coefficients for treatment in the above regression: the propensity score matching (PSM) as outlined in methodology section. As a common knowledge, in the evaluation problems particularly for non-randomized observational studies like our study, there is a problem of bias estimation. Rosenbaum and Rubin (1983) proposed propensity score matching as a method to reduce bias in the estimation of treatment effects with observational data sets. Grilli and Rampichini (2011) argued that there are some reasons why matching could be better than OLS:

1. The additional common support condition focuses on comparison of comparable subjects.
2. Matching is a nonparametric technique:

   - It avoids potential misspecification of E (Y(0) I X)
   - It allows for arbitrary heterogeneity in causal effects E(Y(1)−Y(0) I X)

3. If OLS is correctly specified, it is more efficient and make OLS less parametric adding interactions.

The choice of variables used for participation regression is motivated by the potential determinants influencing the timing of participation. Table 3.11 reports the result of the first-stage probit regression. We found that participation in Islamic microfinance is influenced by age of respondent (at time of taking loan), education of respondent, and working women before taking loan from Islamic microfinance. Other variables such as, age difference with husband, number of children, number of household member, first loan utilization by respondent, and join family are not significant at 95% level of confidence. It shows the importance of the education of the respondent in influencing the timing of participation in the program. Based on our interview with some clients and it is supported by questionnaire data, we found

Table 3.11 Participation in Islamic microfinance program probit regression
Dependent variable treatment (0/1). *Source* Authors' own calculation

Independent Variables	Probit coefficients	P-value
Age of respondent (at time of taking loan-TTL)	−0.1245	0.040**
Age of respondent—TTL-squared	0.0016	0.022**
Education of respondent	0.4923	0.003**
Education of respondent square	−0.0208	0.004**
Age difference with husband	0.0125	0.476
Number of children	0.1227	0.279
Number of HH members	−0.0530	0.545
Working women	0.6807	0.001***
First loan utilized by respondent	0.1927	0.702
Join family	0.3102	0.220
Number of observations	210	
Pseudo R-squared	0.2959	
Chi-square statistic	27.97	
Log likelihood	−29.2948	

Note *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

that clients with higher education (9–12 year of schooling) tend to be longer as clients of microfinance, especially for DPU-DT case, which gave an opportunity for potential clients to be mentor and future mentor. This mentor can arrange their own group without any influences from DPU-DT Board. The model has been over parameterized, using squared terms of observable covariates to improve predicted probability of assignment to the treated group (Godtland et al. 2004) and (Rubin and Thomas, 1996).

The key assumption in estimating average treatment effect (ATE)[11] requires that the propensity score satisfies the common support condition. The idea for testing this assumption is to inspect the multivariate covariate distribution of propensity scores for both control and treatment group. We assessed the common support condition by plotting the propensity scores estimated for both the treatment and control group. If there is considerable overlap in the covariate distribution, then both the groups are similar in terms of observed characteristics.

We tested systematic differences between treatment and comparison groups constructed by propensity score matching. We used the balancing test developed by Smith and Todd (2005) for this purpose. The 'balancing test' reveals whether the comparison group constructed

with PSM sufficiently resemble the treatment group, by testing whether the means of observable variables are significantly different (Smith and Todd 2005). Within each block of treated and control matches constructed by PSM, a t-test of equality of means is conducted for each variable included in the probit for participation equation.

A non-rejection of the null implies that there are no significant differences between treated and comparison units in their observed characteristics. This predicted probability of participation in the program or propensity score then used it to match treated units with observationally similar control units. A number of different matching algorithms can be used to match the treated and control units based on propensity scores. All these methods include nearest neighbor, kernel, radius and stratification matching yield similar results asymptotically. Typically, one treatment case is matched to several control cases, but one-to-one matching is also common and may be preferred (Glazerman et al. 2003). Moreover, Smith and Todd (2005) demonstrated that estimates are highly sensitive to matching methods in case of small samples.

Table 3.12 reports the result for the balancing test on difference in means of observables covariate. The balancing property is satisfied with statistically insignificant difference in means between all the observed covariates of propensity scores. The results with bootstrapped standard errors for all five categories of dependent variables are reported in

Table 3.12 Balancing test T-stat for equality of means for observed variables in the treated and control groups. *Source* Authors' own calculation

Independent variables	t-stat
Age of respondent	−0.9867
Age difference with husband	0.0106
Education	−1.6045
Number of children	0.4270
Number of HH member	−0.0827
Join family	−1.1244
First utilization by respondent	−2.2477
Working female before loan	−3.5907
Number of Observation	
Controls	81
Treated	129

Table 3.13. For three specifications, we find different result to the ones reported for ordered probit regressions. The decision relating to child decision only for schooling Kernel and radius matching but nearest neighbor matching yield tends to reduce the power of empowerment.[12] Negative sign indicates significant reduction of power coefficient of empowerment indicator; meanwhile, positive sign indicates

Table 3.13 Treatment effect estimates of women's empowerment propensity score matching method Women's opinion taken into consideration in decision regarding. *Source* Authors' own calculation

Independent variables	ATT (Nearest neighbor matching) (1)	ATT (Kernel) (2)	ATT (Radius) (3)	NT	NC
Boy's schooling decisions	−0.124	0.036*	−0.001	125	69
Girl's schooling decisions	0.062*	0.098*	0.044*	129	58
Children medical care	−0.039	−0.002	0.037*	129	58
Family planning decision	0.085*	0.094*	0.181*	129	69
Respondent's medical care	0.047*	0.054*	0.046*	129	69
Social visit to women's family	0.016*	0.067*	0.137*	129	81
Social visits to husband's family	0.031*	0.087*	0.159*	125	69
Social visits in neighborhood	0.093*	0.077*	0.399*	129	69
Work for earned income	0.047*	0.056*	0.112*	129	69
Borrow money from MFI	0.000	0.035*	0.094*	129	58
Purchase of HH assets	0.016*	0.084*	0.105*	129	58
Decision about house repair	0.062*	0.140*	0.197*	129	69
Sale/purchase of house	0.000	0.037*	0.124*	129	58

Note Standard deviations are reported in the parenthesis
*p < 0.1, **p < 0.05, ***p < 0.01

improvement in the power of empowerment coefficient. Girls schooling decisions for instance the empowerment of women engaged in microfinance increase significantly for all matching methods. This result is similar to that of both ordered regression specifications. This shows that PSM results confirm OLS result where all treated clients have positive ATT value, except for boys schooling decision and child medical care decisions.

The validity of our estimates both for the simple ordered probit regressions and propensity score matching relies critically on the conditional mean independence assumption or selection on observables. Even after controlling for initial levels of empowerment through proxies and making the control units resemble treated units as closely as possible, through propensity score matching, we still fear for endogeneity or selection on un-observables. So that why, for future studies, we need some test such as (1) instrumental variable techniques (IV regression); (2) Bounding. The drawback is they often give (if we are not willing to impose strong assumptions) quite wide uninformative bounds; and (3) sensitivity analysis: to assess the bias of causal effect estimates when the uncounfoundedness assumption is assumed to fail in some specific and meaningful ways.

3.4.5.2 Hypotheses 2: Autonomy-Based Indicators of Empowerment

In this section, we use another set of empowerment indicators. We asked respondents whether they require someone's permission to make decisions related to household's purchases and children. We generate dummy variable to capture their independence in decision making whenever they do not require someone's permission to make such decisions.

We divided our indicators into three group categories: 'small' purchases like grocery, medicine, and clothes/cosmetic for herself. Second category includes children-related decisions like buying sweets/ice cream, book/uniforms and taking child to the doctors. We dropped variable 'purchase ice cream for a children' because this variable is perfectly

success predicted and has multicollinearity with variable 'first utilization' and treatment. The multicollinearity happened since all respondents say perfectly 'empowered' (1) for 'purchase ice cream for children.' To all women who have earned their income and treated as mature clients of MFI (which is indicated with '1'), this variable is small decision that needs someone's permissions. Third category includes purchasing household assets, sale/purchase of personal assets like jewelry, and purchase/sale of house.

The results are presented in Tables 3.14, 3.15 and 3.16 for the same specification used to test the earlier hypothesis. The estimated coefficient of treatment dummy is statistically significant across both categories at 95% of level of confidence. We introduce institutional level fixed effects in the second specification; the significance of the coefficient on this particular question is also significant for 'purchasing refrigerator' only. One possible explanation for the strong fixed effect could be their participation in microfinance programs which capacitated them to run a small business (i.e., particularly for those who had a loan with DPU-DT where clients are given education). Thus, for working respondent, they are more independence to decide any purchase of major household that could support their business. Nevertheless, most of the findings presented in this section are consistent with our earlier results. It is obvious that if there are first-order changes in the extent to which women's preference is reflected in decision-making process, then there will be higher order changes in the 'autonomy' or independence in decision making for the female partner.

In Table 3.17, we present results for the propensity score matching. The covariate used for propensity score matching is identical to the ones used earlier. The table reports result for kernel matching which has positive sign for all empowerment indicators by participating in microfinance. To all decisions regarding major households such as purchase and sale houses, the power of empowerment increases significantly. This finding is similar to previous PSM test for ordered regressions. However, for marginal significant of 'purchase clothes/cosmetics' and 'purchase uniform or book for children' have negative effect for all matching estimates. The role of MFI on treated clients (mature) in DPU-DT tends

Table 3.14 Probit estimates of 'Autonomy' in HH decisions Women do not require someone's permission to purchase. *Source* Authors' own calculation

Independent variables	Grocery/fruits probit coefficients		Medicine for herself probit coefficients		Personal clothes/ cosmetics probit coefficients	
	1	2	1	2	1	2
Treatment dummy	2.1726***	2.1861***	3.2055***	3.0371***	2.0551***	1.9984***
	(0.6229)	(0.6858)	(0.8620)	(0.8980)	(0.3750)	(0.3860)
Age difference with husband	0.0327	0.0330	0.0298	0.0254	−0.0315	−0.0303
	(0.0740)	(0.0741)	(0.0775)	(0.0759)	(0.0438)	(0.0439)
Age of respondent	0.0159	0.0169	−0.0112	−0.0156	0.0134	0.0101
	(0.0278)	(0.0344)	(0.0328)	(0.0335)	(0.0204)	(0.0208)
Education	0.2102	0.2088*	0.1401	0.1486	0.0726	0.0817
	(0.1384)	(0.1411)	(0.1158)	(0.1170)	(0.0783)	(0.0804)
Number of children	1.3649***	1.3632***	0.6545**	0.6377**	0.0283	0.0440
	(0.4359)	(0.4366)	(0.3310)	(0.3352)	(0.1916)	(0.1943)
Total number of family	−0.0097	−0.0091	0.2680	0.2773	0.0859	0.0814
	(0.1910)	(0.1911)	(0.3374)	(0.3405)	(0.1375)	(0.1395)
Joint family	1.9905**	2.0054**	–	–	−0.1985	−0.2137
	(1.0712)	(1.1174)			(0.4920)	(0.4964)
First utilization by respondent	0.0909	0.0967	−1.2696	−1.3295*	0.06017	−0.0162
	(0.6533)	(0.6643)	(1.017601)	(1.0239)	(0.4397)	(0.4512)
Working female before loan	–	–	1.2213	1.1396*	0.9163**	0.9043**
			(0.7345)	(0.7361)	(0.4551)	(0.4636)
Institution*Treatment	–	−.0409		0.3738		0.3614
		(.8513935)		(0.7749)		(0.3957)
Number of observation	**108**	**108**	**138**	**138**	**210**	**210**
Pseudo R-squared	0.5606	0.5606	0.6004	0.6030	0.4278	0.4344
Chi-square statistic	39.85	39.86	51.72	51.96	56.51	57.38
Log likelihood	−15.61	−15.61	−17.21	−17.09	−37.78	−37.35

Note Standard deviations are reported in the parenthesis
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

to be more understood how they utilize their money, as they got some guidance to utilize their loan and income by their mentor in the regular meeting. Thus, it can be concluded that participation on microcredit program has significant effect to improve women empowerment and their position in their family. It is also obvious that if there are changes in ordered decision-making process, it is likely that there will be higher order changes in the autonomy decision making for the female partner.

Table 3.15 Probit estimates of 'Autonomy' in HH decisions Women do not require someone's permission to purchase. *Source* Authors' own calculation

Independent variables	Buy book/uniform for children probit coefficients		Take a child to the doctor probit coefficients	
	1	2	1	2
Treatment dummy	2.7077***	2.6104***	3.1054***	3.0506***
	(0.3390)	(0.3445)	(0.4932)	(0.4970)
Age difference with husband	0.0054	0.0027	0.0645**	0.0616***
	(0.0407)	(0.0412)	(0.0305)	(0.0307)
Age of respondent	−0.0224	−0.0271*	−0.0226**	−0.0246***
	(0.0189)	(0.0197)	(0.0117)	(0.0122)
Education	0.1147*	0.1171*	−0.0039	−0.0073
	(0.0721)	(0.0740)	(0.0478)	(0.0482)
Number of children	−0.3599**	−0.3450**	−0.2043*	−0.2054*
	(0.1589)	(0.1602)	(0.1206)	(0.1207)
Total number of family	0.0123	−0.0012	0.1632**	0.1620**
	(0.1188)	(0.1192)	(0.08554)	(0.0855)
Joint family	−0.2902	−0.2763	−0.6581**	−0.6552**
	(0.4231)	(0.4269)	(0.2890)	(0.2889)
Working female before loan	0.4069	0.3414	−0.1273	−0.1579
	(0.3380)	(0.3488)	(0.2293)	(0.2348)
First utilization by respondent	0.3236	0.2759	0.3202	0.2867
	(0.4426)	(0.4506)	(0.2945)	(0.2994)
Institution * Treatment		0.4209		0.1523
		(0.3372)		(0.2441)
Number of observation	210	210	210	210
Pseudo R-squared	0.5640	0.5718	0.3694	0.3708
Chi-square statistic	113.69	115.27	100.22	100.61
Log likelihood	−43.94	−43.15	−85.54	−85.34

Note Standard deviations are reported in the parenthesis
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

3.4.6 Summary of Empirical Results

The empirical result presented in the last section can be concluded for our testable hypotheses as follows:

Hypothesis 1:
Impact of participation in microcredit program on preference-based indicators of women's empowerment:

Table 3.16 Probit estimates of 'Autonomy' in HH decisions Women do not require someone's permission to purchase. *Source* Authors' own calculation

Independent variables	Purchasing furniture Probit coefficients		Purchasing refrigerator Probit coefficients		Sale/purchase of house Probit coefficients	
	1	2	1	2	1	2
Treatment dummy	1.2760***	1.2626***	1.4683***	1.2922***	1.2731***	1.2540**
	(0.3728)	(0.3805)	(0.3694)	(0.3729)	(0.4959	(0.5039)
Age difference with husband	0.0159	0.0154	0.0394*	0.0345**	0.0617**	0.0611**
	(0.0245)	(0.0246)	(0.0245)	(0.0247)	(0.0266)	(0.0268)
Age of respondent	−0.0241**	−0.0245**	−0.0145*	−0.0204**	−0.0312***	−0.0317
	(0.0101)	(0.0104)	(0.0098)	(0.0102)	(0.0113)	(0.0116)
Education	−0.0717*	−0.0729*	−0.0440	−0.0565	−0.0409	−0.0428
	(0.0430)	(0.0436)	(0.0416)	(0.0429)	(0.0475)	(0.0484)
Number of children	−0.0409	−0.0414	−0.1186	−0.1287	0.0395	0.0385
	(0.1044)	(0.1045)	(0.1063)	(0.1085)	(0.1253)	(0.1254)
Total number of family	0.0601	0.0603	0.0421	0.0410	−0.0212	−0.0208
	(0.0738)	(0.0738)	(0.0739)	(0.0742)	(0.0911)	(0.0911)
Joint family	−0.5045**	−0.5059**	−0.4861**	−0.5000*	−0.2315	−0.2331
	(0.2663)	(0.2667)	(0.2664)	(0.2724)	(0.3118)	(0.3121)
Working female before loan	0.2888*	0.2830*	−0.1495	−0.2460	0.5453**	0.5344
	(0.203)	(0.2059)	(0.1994)	(0.2067)	(0.2344)	(0.2401)
First utilization by respondent	0.2511	0.2411	0.1480	0.0040	−0.3757**	−0.3896
	(0.2812)	(0.2867)	(0.2673)	(0.2718)	(0.2834)	(0.2911)
Institution*Treatment		0.0373		0.5467***		0.0512
		(0.2166)		(0.2176)		(0.2486)
Number of observation	210	210	210	210	210	210
Pseudo *R*-squared	0.1212	0.1213	0.1134	0.1377	0.1780	0.1782
Chi-square statistic	30.89	30.92	30.00	36.43	37.41	37.46
Log likelihood	−111.9	−111.9	−117.2	−114.0	−86.3	−86.3

Note Standard deviations are reported in the parenthesis
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

1.1: Upon 'say' in child-related decisions: Reject the null hypothesis: Microcredit has no effect on power coefficient 'θ_1'

1.2: Upon 'say' in health-related decisions: Reject the null hypothesis: Microcredit has no effect on power coefficient 'θ_1'

1.3: Upon 'say' in economic decisions: Reject the null hypothesis: Microcredit has no effect on power coefficient 'θ_1'

1.4: Upon 'say' in social mobility decisions: Reject the null hypothesis: Microcredit has no effect on power coefficient 'θ_1'

1.5: Upon 'say' in sale or purchase of major household items decisions: Do not reject the null hypothesis: Microcredit has no effect on power coefficient 'θ_1'

Table 3.17 Treatment effect estimates of women's empowerment propensity score matching method Women's opinion taken into consideration in decision regarding. *Source* Authors' own calculation

Independent Variables	ATT (Nearest matching) (1)	ATT (Kernel) (2)	ATT (Radius) (3)	NT	NC
Purchase grocery/fruits	−0.023	0.003*	−0.003	129	62
Purchase medicine for herself	−0.008	0.002*	−0.012	129	77
Purchase personal clothes/cosmetics	−0.008	−0.009	−0.035	129	62
Purchase book/uniform for children	0.000	−0.000	−0.045	129	77
Take a child to the doctor	0.000	0.022*	0.022*	129	77
Purchasing furniture	0.008*	0.058*	0.079*	129	77
Purchasing refrigerator	−0.008	0.088*	0.113*	129	77
Sale/purchase of house	0.023*	0.050*	0.089*	129	77

Note Standard deviations are reported in the parenthesis *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Hypothesis 2:

Impact of participation in microcredit program on 'autonomy'-based indicators of women's empowerment:

2.1:   Upon 'independence' in small personal purchase: Do not reject the null hypothesis: Microcredit has effect on power coefficient 'θ_1'

2.2:   Upon 'independence' in child-related decisions: Do not reject the null hypothesis: Microcredit has effect on power coefficient 'θ_1'

2.3:   Upon 'independence' in purchasing household assets: Do not reject the null hypothesis: Microcredit has effect on power coefficient 'θ_1'

3.4.7 Discussion of Results

Our empirical findings suggest that microcredit intervention in the urban area of the Bandung city in Indonesia has impact on child-related, health, economics, and social mobility decisions, except for

'purchase/sale major households' decision. The results using proxy controls and matching methods clearly demonstrated the robustness of our findings for these five dimensions of empowerment. However, we are unable to find convincing evidence for the set of indicators relating to child-related decisions. It seems that women have more power related to their daughter rather than their son, particularly to decide about child schooling and medical care.

The results under maintained assumptions of selections on observables are well aligned with the dynamics on the ground. The results suggest that women are gaining more 'say' when it comes to lesser order decisions regarding purchase/sale of household assets, while both control and treated enjoy the same level of participation in decisions relating to children, health, social mobility, and paid work.

Within the framework of patriarchy, we believe that this is the best that women can score on these outcomes and hence an intervention like microcredit will have marginal effects if any for these indicators. In the framework of the 'perpetual dependency,' hypothesis means that women have reached level of maturity in their relationship with their spouses. They have been given the bargaining power in these decisions commensurate with the prescribed gender norms of the society.

When it comes to decisions relating to major household decisions like purchase of assets, house repairs, and sale/purchase of house, women do not have much 'say.' The unconditional mean values for those decisions have a value of about 2 on scale of 5 suggesting that female preferences are rarely or never considered for these household decisions. It seems reasonable that once women have gotten more involved in economic and financial matters by borrowing money from MFI, they enjoy greater confidence of their husbands, and hence, we see their participation increasing in decisions making which initially fell under the prescribed domain of 'male only' decisions. The result from our ordered probit and matching estimators reinforced this finding that microcredit intervention empowers women by giving her more 'say' in decisions where she had limited or no participation before this intervention.

Our results are consistent with autonomy-based indicators reported in Table 3.14. These results also serve as an informal check for the

patriarchy framework proposed in this chapter. Critics might be argued that if microcredit is not increasing women's 'say' in the decisions-making process beyond a societal threshold level, it is still possible that they may have greater independence in making decisions. Our results suggest that on average women in the treatment group are more independent or autonomous than the control units, even when it comes to decisions relating to small household purchases. This further reinforces our earlier findings that women have reached a certain threshold level of independence within the structural norms of the society and microcredit has marginal effect on all such indicators.

3.5   Conclusion

Empirically, this chapter has sought to contribute the first econometric impact assessment of Islamic microfinance on women's empowerment in Indonesia. First, our results suggest that microcredit program proposed by Islamic microfinance institution has effect on the bargaining power of women within the household for a broad range of decisions including child related, health and economic, and social mobility decisions, except on 'purchase/sale major households' decision. Second, our results suggest that Islamic microcredit intervention is empowering women in the domains of household decisions where they are the least empowered to begin with. These include decisions relating to purchase of TV/refrigerator and house repair and 'sale/purchase of house.' The decisions generally fall within the domain of 'man-only' decisions in patriarchal societies.

Our results show that all testable estimators using ordered probit regression, simple probit regression, and propensity score matching are robust. We also have shown that most of the concern raised in the literature regarding biased estimates of impact can be controlled through careful design and better understanding of ground dynamics and this methodology is proved and supported the previous methodological framework that is designed by Asim (2008). Therefore, this methodology can be applied to other setting for further research.

The findings of this chapter have implications for policy makers and future research. First, we confidence that model of microcredit program that proposed by Islamic microfinance with close assistance and well design program for empowering women economically have significant effect on different aspect of intra-households decisions. All estimators are robust across all econometric specification. Therefore, we can pursue recommendation to policy maker to set up any regulation that supports *Zakat*, *Infaq*, and *Sadaqa* utilization as resources fund for microcredit program under special specification and indicators.

One very important finding is that official *Zakat* management organization under government institution tends to be careful to utilize *Zakat* fund for economic empowerment. They tend to distribute this fund only for charity program without the impact to empowering the poor to be more independent in economic aspect. Educating clients through regular training will improve their performance and increase their independent to make their own decision. The *Misykat* program has good experience to set up some educating program, not only to run their own businesses but also to support their clients with beneficial information for the entire life regarding women and their family. In this case, we also found that the more educated women who joined microfinance, the longer they affiliate with the institution. Thus, formal as well as informal education should be considered by Microfinance Board to design their program, so it can work more properly to improve women empowerment and eliminate poverty.

In addition, this chapter provides gender-specific approach for microcredit services, which may be over-rated in the context of urban people in Bandung. Future research with richer data sets could compare the results from this quasi-experimental framework with randomized intervention. Research in this direction will provide a good comparative analysis for the robustness of the estimates reported in this study.

Notes

1. BAZNAS is Amil *Zakat* National Agency, the agency that manage, collect and distribute *Zakat* nationally.

2. *Zakat* collection can be direct or indirect. Direct collection is where *muzaki* (one who is obliged to pay *zakat*) come to an operational unit of BAZ or LAZ, whereas indirect collection is where the *muzaki* pay their *zakat* at a post office, by bank transfer, or salary deduction. Although, the *Zakat* law has led to an increase in *Zakat* institutions, it has been challenging to improve coordination, consultation and information dissemination among institutions.

3. *Zakat* is defined as 'a determined portion taken from wealth and allocated to those deserving it, by a Qur'anic injunction'.

4. FGD with mentor of Myskat program in Bandung, 24 April 2014. It was attended by 13 mentor, 7 women and 6 men mentors.

5. Wallet Caring Ummah (DPU-DT) is a community-owned non-profit organization engaged in raising (fundraising) and utilization of *Zakat* (*Zakat*, Infaq, and Charity) and other funds from the lawful and legal individual, group, company or institution. It is founded on June 16, 1999 by KH. Abdullah Gymnastiar (Aa Gym) as part of the Foundation Daarut-Tauhid with LAZ determination be trustful, professional and accountable. DPU-DT effectively carrying out its activities on June 16, 2000, on the basis of a database, where each donor has the number and membership card so caring and donor commitment can be measured. From the formal legal aspects, DPU-DT confirmed as *Zakat* Institution by the Governor of West Java, dated August 19, 2002. By Decree No.: 451.12/Kep. 846 - YANSOS/2002. DPU-DT foundation also got the attention of the central government, in a short amount of time since the days of standing DPU-DT, and became LAZDA, has managed to become the National Institute of Amil *Zakat,* LAZNAS, in accordance with the Decree of the Minister of Religious Affairs No. 410 of 2004 on October 13, 2004. After becoming LAZNAS, DPU-DT develop a network of up to eight cities, namely Jakarta, Bogor, Tasikmalaya, Garut, Semarang, Yogyakarta, Lampung and Palembang. Besides, it has hundreds of network utilization program from Sabang to Papua.

6. *Zakat* revenue can be spent for raising the productivity of the poor. Such as financing various development projects in education, health care, safe water and other social welfare activities, designed exclusively for the benefit of the poor. It is expected that this program can create multiplier effect for the poor welfare. However, it is intuitively plausible that an increase in income from *Zakat* investment is expected to have

a multiplier larger in size than an increase in income from *non-Zakat* funds investment. It is due to the fact that in addition to the leakage into saving, some portion of income at the successive rounds of income and spending would be siphoned off by other leakages such as taxes, and imports, mostly in case of the income of the rich (Mannan, 2000).

7. To some extent, it is presumed that if working women (with or without her husband permission) would like to spend her income, her husband will not forbid or intervene it. However, they tend to inform their husband on how they spent their income.

8. Household and economic decisions are both reported in Table 8 for spatial convenience.

9. Note that the experiment design constrained by dynamics on the ground as outlined in the sampling framework precludes the use of simple institutional dummy to capture fixed effect.

10. Indonesia is known for its successful family planning program, which has roughly halved the total fertility rate for the country since the 1970s and increased the contraceptive prevalence to almost 60%. Part of this success has been due to the development of strategic partnerships with Muslim leaders, who have supported uptake of the program among their communities (UNFPA 2014).

11. The ATE=E [Y(1)–Y(0)] is useful to evaluate what is the expected effect on the outcome if individuals in the population were randomly assigned to treatment. However, Heckman (1997) notes that ATE might not be relevance to policy makers because it includes the effect on persons whom the program was never intended.

12. Nearest Neighbor match treated and control units taking each treated unit and searching for the control unit with the closest propensity score. Although it is not necessary, the method is usually applied with replacement, in the sense that a control unit can be a best match for more than one-treated units and the outcome of the matched control units is computed. The ATT (Average Treatment Effect on the Treated) of interest is then obtained by averaging these differences. Thus, according to Grilli and Rampichini (2011) it is better to use other matching methods that have better result for ATT.

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