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Impact of Qard-al-Hasan (interest-free loan) program in reducing multidimensional poverty: an evidence from the southwest Bangladesh

Received 9 March 2021
Revised 5 September 2021
8 December 2021
Accepted 17 January 2022

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Abstract

Purpose – This paper aims to investigate the effectiveness of Qard-al-Hasan (QH) or interest-free loan in reducing multidimensional poverty through examining Fael Khair Waqf (FKW) program as a case.

Design/methodology/approach – A Multidimensional Poverty Index (MPI) approach has been used in this study, which was conducted over 1,600 households including 1,200 program households in 40 villages and 400 control households in 20 villages of 8 districts in the south-western region of Bangladesh.

Findings – It is found that 38.5% of sample population was multidimensional poor with deprivation of above the cutoff score. However, FKW participants were relatively less multidimensional poor. It was 35.3%. Hence, it is argued that the FKW is an effective program in terms of poverty reduction as it has contributed to higher economic outcomes for their participating households. The econometric result also suggests that the likelihood of the participants of FKW to be MPI poor is around 1.5 times lower than the nonparticipants, and the result is significant at 1% level. This indicates that program has a positive impact in reducing multidimensional poverty.

Practical implications – The analysis in this paper would fill the literature gap by investigating the link between application of QH and poverty alleviation. It will also guide academicians, researchers and decision-makers to design evidence-based policy to alleviate poverty.

Originality/value – To the best of the authors' knowledge, there has been no empirical work in Bangladesh on the effectiveness of QH in poverty reduction considering an MPI approach. Hence, this study is a unique contribution to the literature of Islamic social finance.

Keywords Qard-al-Hasan, Poverty alleviation, Fael Khair Waqf (FKW) program, Multidimensional Poverty Index (MPI), Logistic analysis

Paper type Research paper

JEL classification – D31, G21, I32

The authors are grateful to the IDB for entrusting Institute for Inclusive Finance and Development (InM) to evaluate the FKWP in Bangladesh. The study is based on the data collected during the evaluation period.

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1753-8394
DOI 10.1108/IMEFM-03-2021-0101

1. Introduction

1.1 Background

Bangladesh is a densely populated, low-lying, deltaic country located in South Asia with subtropical monsoon climate. This paper is based on the impact of an interest-free loan program (known as *Qard-Al-Hasan* [QH] program) on the livelihood of cyclone affected population in Bangladesh. For the implementation of the program with two components – livelihood component and construction of shelter-cum-school houses – 12 severely cyclone "cyclone sidr (SIDR)" affected districts had been selected.

This paper investigates the effectiveness of QH as a unique tool for reducing multidimensional poverty. History bears the witness that since the emergence of Islam as religion, it has offered several social financial institutions (FIs) and instruments i.e. *Zakat*, *Sadqah*, *Waqf* and QH for distribution and redistribution of wealth. These Islamic institutions had been used to ensure social justice, equity and peace by helping to fulfil the basic needs of society (Siddiqi, 2004 in Aslam Haneef *et al.*, 2015). The recent literature of Islamic social finance claims that these instruments can play an important role in poverty alleviation (Iqbal and Shafiq, 2015; Mohieldin *et al.*, 2011). Poverty can be alleviated through using these instruments by enhancing access to the financing for the unbanked poor people. (Mohieldin *et al.*, 2011). QH can reduce the gap between rich and poor populace in the society as low-income groups get QH (interest-free loan) that can be effectively used to improve their living standards (Mojtahed and Hassanzadeh, 2009).

1.2 Objective of this study

The general objective of this paper is to discuss the role of QH in the poverty alleviation. Specifically, this paper aims to evaluate the impact of FKW program, i.e. interest-free micro loan on poverty reduction of its beneficiaries among SIDR/cyclone aila affected households. This study uses a multidimensional approach of measuring poverty considering the multiple sources of deprivation that the people of southwest Bangladesh are facing.

1.3 Significance of this study

To the best of our knowledge, this is a unique study as no such study has measured the impact of QH on multidimensional poverty using large empirical data. By using multidimensional approach of poverty measurement, this study provides a better and clearer idea of poverty and impact of program. Thus, this study contributes to the emerging body of literature regarding multidimensional measurements of poverty from an Islamic perspective.

2. Literature review

The effects of QH in the economy can be seen from macro- and micro context. At macro level, Selim (2019) and Selim and Hassan (2020) study QH as a tool of monetary policy (MP) and discuss the role of the central bank. Selim (2019) argues that QH-based MP is more effective than conventional MP due to following reasons: first, QH-based MP positively influences real sectors of the economy. Second, it increases output and helps an economy return to full employment. Third, QH help maintain price stability by providing the lowest possible borrowing costs across the economy. Finally, QH-based MP also improves current account balance and foreign currency reserves with the Central Bank.

In the micro context, Islamic scholars and economists have contributed numerous intellectual documents to provide various perspectives to poverty alleviation. Sadeq (1997) provides a conducive poverty alleviation framework. His framework has three broad categories of poverty alleviation measures. First, the positive measures are expected to lead

to high level income and its equitable distribution which include income growth, functional distribution of income and equal opportunities to all. Second, the preventive measures are expected to limit concentration of wealth, which are control of ownership and prevention of malpractices in economics and business that lead to income concentration. Third, corrective measures are meant for correcting imbalances in the distribution of income and wealth and to upgrade economic conditions of the worse-off population in the society, which include compulsory transfer payments, recommended transfer payments and state responsibility. If these measures are applied, the problem of poverty could be solved quite substantially.

According to the Sadeq's poverty alleviation framework, *QH* (interest-free loan) can be treated as recommended transfer payments that falls under corrective measures. Mannan (2017) provides a model of cash-waqf as a new strategy for interest-free micro-credit (QH) to reduce human poverty. He emphasizes on creating a World Social Bank that will contribute to poverty alleviation through cash-waqf endowment to provide QH or micro-credit at zero rate interest to the poor.

Sadly, nowhere in the Muslim world, Sadeq's poverty alleviation framework is followed, and Mannan's idea of World Social Bank is not even discussed at global level. Rather in an interesting study, Mohseni-Cheraghlou (2017) stated that the current state of financial inclusion in the Muslim world is in dire state as one billion adults Muslims are not connected to a formal FI. He finds a positive correlation between overall access to Islamic financial products and levels of financial inclusion in Muslim majority countries. Based on this finding, he highlights that QH has theoretical potentials in reducing poverty and increasing shared prosperity.

Thus, QH can emerge as a tool for poverty alleviation and financial and social inclusion because it brings an opportunity for the poor to be engaged with economic activities in a dignified and cost-effective manner. Social capital acts as the only collateral for extending such credit because the practice of QH has also been associated with enhancing harmony among poor and rich segments of the society, which leads to more cooperative, collaborative and caring society (Iqbal and Shafiq, 2015). The institutionalization of QH is important to eradicate extreme poverty from the society so that poor people can create new jobs market and business ventures by using their merits, skills and expertise (Iqbal and Shafiq, 2015). As they come out of poverty, they are better integrated and included in the society. In this respect, QH is one of the tools to achieve economic and social justice as envisioned by Islamic economics (Iqbal and Shafiq, 2015). QH, alongside *Waqf* and *Zakat*, can be used as a tool for financial inclusion because the poor can have easier access to financial services at a reasonably lower cost if Islamic FIs can channel these effectively (Aslam Haneef *et al.*, 2015). Especially QH can be extended to support the need of poor, hard core poor, regular poor and vulnerable poor (Aslam Haneef *et al.*, 2015) because these groups are not ready to take funds for investments, and they need to meet their immediate basic needs.

Microfinance institutions (MFIs) can use *QH* as an instrument to provide fund for developing entrepreneurship by supporting small businesses and start-ups as it is less expensive compared to other source of Islamic finance. The term of repayment can be agreed by installment in the certain agreed period of time. The only extra charge for *QH* is the service charge fee that MFI is allowed to receive (Mirakhor and Iqbal, 2007 in Mansori *et al.*, 2015). QH can also be considered an excellent avenue for supporting small and medium enterprises and penetrating to lower income levels that are deprived of financial resources. QH can provide a reliable source of funding for economic development. The lending risk can be minimized if it is built on pooling and social collateral. In addition, it commends payback and therefore benefits from the potential recirculation of funds in poor and extremely low tiers of the economy. While the social cost of *QH* funds lies mainly in the opportunity cost of

using these funds in alternative projects, the social benefits of availing funding to MFIs at zero cost act as good catalyst for growth and provide an extremely high social benefits through creating jobs and generating incomes to the poor, deprived and unprivileged (Mohieldin *et al.*, 2011).

From a theoretical standpoint, Saqib *et al.* (2015) argue that interest-free loan (QH) financing can be beneficial for both farmers and FIs or Islamic banks (IBs). Despite this, they find that usage of QH as a mode of financing is rare and practically nonexistent when it comes to the application as an agricultural financing instrument. They argue that IB of FIs can adopt QH to support the much-needed financing for the small farmers in Muslim as well as non-Muslim countries. However, they could not substantiate their theatrical argument with any empirical evidence. In this case, the study of Hasan *et al.* (2021) may serve as empirical evidence to present QH as a tool for sustainable development. Based on an unbalanced panel consisting of 21 counties and data ranging from 2013 to 2018, they claim that QH can play a decisive role in ensuring sustainable development.

In recent times, there are studies which focus on blended Islamic financing model for poverty alleviation. An integration of Waqf-based Islamic microfinance (IWIM) model is proposed by Aslam Haneef *et al.* (2015) which highlights four critical components namely:

(1) Waqf;
(2) microfinance;
(3) human resource; and
(4) takaful.

Diniyya (2019) argues that even though the IWIM model discusses how to tackle the challenges related to the scarcity of capital, inadequate human resources, absence of proper Takaful programs and project financing in an integrated approach, it has not adequately may addressed some problems related to credit risk, moral hazard and economic viability. In a case study, Saiti *et al.* (2019) explores the potential of cash waqf in poverty reduction. They adopted the waqf shares scheme, which is appropriate for least developed countries like Somalia because of its relative easiness to raise funds from the public and the funds generated could be used to create employment opportunities. Hassanain (2016) investigates various multilateral development banks particularly International Development Association to develop a framework in the potential establishment of global-waqf fund. Armed with a purely qualitative research, he argues that developing a good governance system is important for the success of the global waqf funds.

2.1 Cyclone SIDR and Fael Khair Waqf program

In Bangladesh, as one of the foremost disaster-prone countries in the world, cyclones, storms, storm surges, floods, erosion, etc., are now the recurrent phenomena, especially in the coastal area of the country (Muneer and Khan (2019). In 2007, the south-west coast of Bangladesh was badly damaged by super cyclone SIDR, which caused extensive physical destruction. The death toll from the SIDR is estimated at 3,406. A total of 2.3 million people were affected at various magnitudes by it, while one million of them were affected severely. A study by IFRC accounts a total of Tk.115.6bn damage and loss caused by SIDR where the share of damage of physical assets Tk. was 79.9bn and rest were estimated as loss (IFRC, 2013).

In addition, the high winds and floods have caused extensive damage to housing, roads, bridges and other infrastructure. Sanitation infrastructure was destroyed, and drinking water was contaminated by debris. Within the southwest coast of Bangladesh, four districts

were classified as "severely affected" and eight more were classified as "moderately affected." These districts are characterized by high population density and higher poverty rates that the national average. Thus, the poor were the victims of the SIDR (Government of Bangladesh [GoB], 2008).

The Islamic Development Bank (IDB) came up with a program called Fael Khair Waqf Program (FKWP) to meet the urgent need for assistance to SIDR victims. The late King Abdullah of the Kingdom of Saudi Arabia gave a generous donation of US$130m to IDB for this program (Muneer and Khan, 2019; Institute for Inclusive Finance and Development [InM], 2016). The program was designed not only to restore the livelihoods of a large segment of victims of the cyclone SIDR but also to lift them out of poverty. Four non-governmental organizations, namely, Bangladesh Rural Advancement Committee (BRAC), Islamic Bank Foundation, Voluntary Organization for Social Development and Muslim Aid Bangladesh, initially started implementing the FKW program. Subsequently, BRAC is no longer implementing the program because they decided not to renew the contract after July 2012 (Muneer and Khan, 2019; InM, 2016).

The total Fael Khair Program (FKP) fund of US$130m was disbursed in two key areas: School-cum-Cyclone Shelters; and Rehabilitation Program. US$110m was allocated for the construction of several hundred School-cum Cyclone Shelters in the severely affected areas of SIDR. The remaining US$20m was allocated went to rehabilitation programs (Muneer and Khan, 2019; InM, 2016). The agriculture and livestock sector and rural non-farm economic activities were the prime target of the rehabilitation program. The program includes three components: first, organizing various training programs (vocational, motivational, capacity building, etc.); second, replacement of livestock (cows, calves and goats) and replacement of fishing equipment (boats and nets); and third, providing QH (interest-free loan). QH was given for buying agricultural inputs (seeds, fertilizers and insecticides) and agricultural machinery (tractor) and for running small business. (Muneer and Khan, 2019; InM, 2016).

Muneer and Khan (2019) claim that interest free (QH-based) microcredit was especially designed for the SIDR affected people, which may be considered one of the most prominent features of FKWP. It was a great opportunity for the SIDR affected poor to borrow from the MFIs operating FKWP without paying any interest and service charges. The borrower only had to repay the principal amount of the loan and there was no hidden cost in the loan agreement. Moreover, there was no obligation of compulsory saving as a condition of borrowing. Even, they got FKWP membership without any fee (Muneer and Khan, 2019; InM, 2016).

3. Methodology

3.1 Sampling design and data

The study uses household level data and information on program deepening. Four MFIs have implemented the program in 12 SIDR affected districts. At the time of this survey, only three MFIs had been implementing the programs.

Considering the impact methodology and conditions for a sound impact assessment, sampling frame was designed. To evaluate the impact, program and control group was considered. From each union of the sampling frame, two program and one control village were taken. While selecting the program and control villages, characteristically similar villages were taken in terms of socioeconomic indicators. It is important to note that, program and control households were not taken from the same village to control for spillover effect. As of 2015, the completion year of FKW program, the total number of borrowers of interest-free loan was around 200,000. From this population, data were

collected from randomly selected 1,200 participants (treatment) households who had been given QH and 400 control households from operating areas of 20 branches of the three participating MFIs in eight operating districts. They are Barguna, Barisal, Bagerhat, Jhalokathi, Madaripur, Patuakhali, Pirojpur and Satkhira. The treatment (participants) households were selected from 40 villages, and the control households were selected from 20 villages. A total of 60 villages was selected.

3.2 Method: Concept of multidimensional poverty index

This study uses multidimensional measurement method introduced by Alkire and Foster (2011), which is one of the effective tools to scrutinize multidimensional aspects of poverty and to evaluate the impact of a program with multiple objectives. Recently several studies have been conducted using the Alkire-Foster approach. For example, Alkire and Roche (2012) measure multidimensional child poverty; Adeoti (2014) discusses the trend and determinants of multidimensional poverty in rural Nigeria; and Vaz *et al.* (2019) evaluate the conditional cash transfer program (Progresa) in Mexico by using this method.

A Multidimensional Poverty Index (MPI) has been constructed using Alkire-Foster method to analyze different components of the measurement because this method is easily adaptable to various country or region-specific characteristics. Hence, it can be considered reliable as this method is a very standard and accepted globally as it follows a participatory and expert-based approaches and survey-based methods to directly elicit people's preferences. In this analysis, the MPI is calculated for the whole sample, program area (treatment and control), district and block.

We have applied a *dual cutoff* identification method as adopted by Alkire-Foster, where cutoff point would lie somewhere between two extremes 0 and 1. This is dual cutoff because in the first step, it is identified whether a person is deprived in a dimension; then, in the second step, it is to determine if that person is multidimensionally poor across dimensions.

3.3 Defining dimensions, indicators, cutoffs and weights

The different set and number of dimensions, indicators and cutoffs have been used to construct MPI. Building upon global MPI, two more dimensions are added, i.e. food poverty and access to social security, making it a total of five dimensions. Each dimension has several indicators which are mentioned below in the Table 1. Both dimension and indicator choices are based on characteristics of south-western region and availability in our data set. This analysis should reflect the condition of the population in the south-western Region of Bangladesh.

The deprivation cutoffs and justification of the indicators are described below:

- *Dimension: income (food poverty)*:

Food poverty line is the only indicator in this dimension, which means that it would bear full weight. The reason behind taking food poverty instead of upper poverty line is to reflect expenditure on food items, while indicators in other dimensions would reflect nonfood expenditures. The cutoff point here is if per capita income is below food poverty lines of respective districts. It is important to mention that the annual per capital income of our sample is around Tk.28000.

- *Dimension: health*:

There are maximum six indicators in this dimension. Protein intake is the indicator provides the minimum required protein for an adult person per week. If weekly protein intake per capita in a household is below 420 grams that household is considered deprived. The cutoff

Dimension (weight)	Indicators
Food poverty (1/5)	Food poverty line (1/5)
Health (1/5)	Protein intake (1/30)
	Iodized salt intake (1/30)
	Packet saline (1/30)
	Wearing sandal (1/30)
	Source of water for drinking, cooking and daily work (1/30)
	Maintenance of drinking water (1/30)
Education (1/5)	Years of schooling (1/10)
	School attendance (1/10)
Living standard (1/5)	Type of toilet (1/45)
	Tube well (1/45)
	Electricity (1/45)
	Type of house/building (1/45)
	Living space (1/45)
	Transport (1/45)
	Television (1/45)
	Mobile phone (1/45)
	Bed (1/45)
Access to social security(1/5)	Safety net (1/10)
	Stipends/scholarships or other private/public grants (1/10)

Table 1. Dimension and indicators of multidimensional poverty index

point of weekly 420 grams or daily 60 grams is set in accordance with the Food and Agriculture Organization recommended standard for South Asian countries. It is based on the idea of balanced diet according to the population age, sex and occupational composition (Ravallion and Sen, 1996).

Iodine is an essential in preventing goiter, cretinism and other health problems; hence, iodized salt is an important indicator for health. This indicator reflects if iodized salt is used during cooking, households that are deprived do not use iodized salt in cooked foods. Another indicator is access to packet saline and household with no or occasional access to packet saline during diarrhea is considered deprived. Household that uses or has access to packet saline to tackle diarrhea is considered non-deprived. Prevention of hookworms into one's body can be prevented by wearing sandals or shoes that is why wearing a sandal is also included. In this case if a member of household never wears sandals, implying it has no access to it is considered deprived. Households that reported wearing sandals sometimes or all the time are not deprived. A farmer is not likely to wear sandal while working in the field; hence, the cutoff in this case has been relaxed. Source of drinking water is an important factor, as it reflects how safe water is for usage. The source is defined safe if water is collected from either arsenic free tube well, deep tube well, rainwater or purified with chlorate. A household is considered deprived if water is never or occasionally collected from safe sources. The last indicator in this dimension is maintenance of drinking water, which is essential for health. A household is considered deprived if water is not kept in a clean and covered container all the time.

- *Dimension: education*:

There are two indicators in dimension, one is "years of schooling." A household is deprived if not even a single member of the family had five years of schooling or class 5 pass at the time of the data collection. But even if one member of the family had five years of schooling that household is not deprived.

The second indicator is "school attendance." The law dictates that any child between the ages 6 and 10 must attend school. In this case, children between ages 6 and 16 are considered. A household is considered deprived if there are children between the age range, who are neither currently enrolled in school nor have eight years of schooling. The required years to finish eight years of schooling is relaxed since it is a poverty-stricken area, and a child could temporarily drop out to work or due to financial constraints; thus, 10 years are considered to finish eight years of schooling. It is to be noted that households with no children between this age range or no children at all are not considered deprived.

- *Dimension: living standard*:

There are nine indicators in this dimension, which are type of toilet, tube well, electricity, type of house, transport, television, mobile phone and bed. A household is deprived if it has no toilet or if it uses paved or at least a slab. Owning a tube well is a sign of being well off; therefore, if a household does not own a tube well as part of its asset, then it is considered deprived. In case of electricity a household does not necessarily need to have access to national grid or rural electrification board for electricity to be considered non-deprived. Even if the source of electricity is battery, solar panel or generator, a household can be considered to be well off in this extreme poverty-stricken area. Hence, only households without any electricity are considered deprived.

In this analysis, any house made of tin, hay/bamboo and polythene will put a household below cutoff point. However, the price of tin varies, so this is kept under consideration. Any house made of tin that cost below BDT30,000 is deprived in this indicator. Having any means of transport should indicate a household being better off. So, if a household does not own either a bullock/ox cart, boat, rickshaw, bicycle, motorbike, baby taxi, nosimon/karimon, bus/truck, easy bike or other means of transport, it is considered deprived. Another sign of a household being well off is if it has a television. Therefore, households who do not own at least one television are considered deprived. Even though price of mobile phones has considerably dropped over years, a household suffering from extreme poverty would not find it easy to afford one. Therefore, mobile phone is included as an indicator, and any household that does not have at least one mobile phone is considered deprived.

Even though having a bed is a basic necessity, there are beds with different prices. This indicator shows if a household owns a bed and if it is more than BDT1,000 on current market price to reflect a decent quality bed. If a household does not own a bed or owns a bed priced below BDT1,000, then it is deprived.

- *Dimension: access to social security*:

"Safety net" is one of the two indicators in this dimension, which reveals the information if a household has access to social safety net programs such as vulnerable group development, vulnerable group feeding, cash/food for work or elderly benefit. However, access to safety net is an external factor, i.e. a household cannot access it if a program is not available in that area. Moreover, if there are no elderly people in a house, then that house will not receive elderly benefit. Therefore, the condition for deprivation here is a bit relaxed. A household is deprived only if it does not have access to at least one of these programs. The second indicator is "stipend" that reveals information on households deprived from receiving any stipend, scholarships or grants provided by either public or private entity.

The dimensions are equally weighted in this analysis. So, a weight of 1/5 has been assigned for each dimension, and within each dimension, the indicators are also equally weighted. A person is considered deprived in each indicator if their achievement falls below the cutoff. Then poverty cutoff is set; in this case, the minimum number of deprivations

necessary across indicators is set to determine whether a person is considered poor. For this analysis, the poverty cutoff is set at 35% of indicators, i.e. seven indicators. Therefore, being deprived in 7 out of 20 weighted indicators would make a person poor on multidimensional level.

4. Results and analysis

4.1 Deprivation in indicators

As mentioned in the methodology, to calculate the MPI, first, we need to know the number of deprived households in each indicator. Table 2 below tells us the percentage of households deprived in each indicator for both program and control households. We find that households in program areas are significantly better off in most of the indicators than households in control areas. For instance, households in program areas are significantly less deprived of income poverty by 7% point. The program group is also highly significant in the most important indicator of health dimension, which is protein intake. It is observed that control group is almost 10% point highly deprived in protein intake than program group. This means these households' weekly per capita protein consumption is less than 420 grams, which may have a severe adverse impact on health.

In education dimension, we find that program group is significantly less deprived by 6% point than control group. In living standard dimension, control group is more deprived of all the indicators than program group, and in most of the indicators, the difference is highly significant. The highest deprivation is observed in housing, television and mobile indicator. In this study, any house made of tin, hay/bamboo and polythene tin that cost below BDT30,000 is deprived in housing indicator, which means around 43% of households in control group is living in a low-quality house, which made them deprived in this indicator. We have observed from this analysis that program group is performing better in four dimensions out of five. Regarding having social security control group is performing better.

Indicator(s)	Program (N = 1,199)	Control (N = 398)	Difference in t-test	Aggregate (N = 1,597)
1. Food poverty line	18.60	25.63	7.02***	20.35
2. Daily protein intake	60.47	70.10	9.63***	62.87
3. Iodized salt intake	2.60	4.36	1.75*	3.04
4. Packet saline	4.29	3.60	−0.06	4.12
5. Wearing sandal	40.00	48.84	8.84***	42.18
6. Source of drinking water, cooking and daily work	9.49	5.38	−4.10**	8.48
7. Maintenance of drinking water	9.15	7.69	1.47	8.79
8. Years of schooling	9.09	15.58	6.48***	10.71
9. School attendance	10.83	11.76	0.09	11.05
10. Type of toilet	5.34	11.06	5.71***	6.76
11. Tube well	85.49	91.46	5.97***	86.98
12. Electricity	20.68	30.40	9.72***	23.11
13. Type of house/building	32.28	43.72	11.44***	35.13
14. Living space	6.59	12.31	5.72***	8.02
15. Transport	74.73	81.66	6.92***	76.46
16. Television	77.15	89.45	12.29***	80.21
17. Mobile	10.59	16.08	5.48***	11.96
18. Bed	54.46	66.08	11.61***	57.36
19. Safety net	71.89	69.10	−2.79	71.20
20. Stipend	80.23	80.40	0.01	80.28

Table 2. Percentage of households deprived in each indicator by program and control village

We have to keep in mind that the worse off households are likely to get more access in social security. Perhaps, this is the reason they are less deprived in this dimension than program group. However, the difference is not significant in this case.

4.2 Multidimensional Poverty Index, headcount ratio and average intensity of poverty

When MPI is decomposed into program areas and control areas, Table 3 shows that the raw headcount of program group is around 35%, whereas the figure is around 47% for control group. It means that control group has around 12% point more households than program group that are deprived of at least 7 indicators out of 20 indicators. However, the intensity of deprivation is more or less similar for both the group. The value of MPI yielded is 0.16 and 0.23 for program and control group, respectively, which indicates that the program households are better off than the control households. In the previous analysis, the deprivation headcounts in indicators and dimensions also show that program group performs better than control group.

4.3 Who are more likely to be multidimensional deprived?

It is important to know the characteristics of these multidimensionally deprived households irrespective of who received the intervention or not. To know that, first, we categorized the households based on the level of deprivation and see what types of households are more likely to belong to the most deprived group. This may help to identify specific groups in policy making group of households who need special attention from the program providers. The households that are deprived less or equal to 35% of indicators out of 20 indicators are considered to be under lower deprivation. Any household deprived above 35% cut but below or equal to 50% is deemed moderately deprived. A household is highly deprived if it is deprived above 50% of indicators. After defining the deprivation category we have observed households' income, asset accumulation with certain household characteristics and analyze which characteristic falls more under which category.

Table 4 reveals that higher the income, lower the deprivation of the household. It is interesting to note that the average income difference between moderate deprivation group and high deprivation group is very less, only around Taka2,000. So, it is observed that deprivation in other dimensions matter along with income deprivation. However, the average income of lower deprivation group is around 1.5 lac, which is far more than the income of moderate and higher deprivation group. It seems from the result that asset accumulation does not matter much for being multidimensional poor as we find not much difference in average asset holdings between the lowest deprived and highest deprived group, though lowest deprived group has more asset than higher deprived group. On the other hand, moderate deprived group has the lowest asset.

The result also shows that female headed households are more likely to belong to the higher deprivation group. Among higher deprivation households, nearly 10% are female-headed households. It is not surprising as usually households that are female headed would

Table 3. Multidimensional headcount ratio (H), average intensity of MPI poverty across poor (A) and MPI by program and control

K (%)	H	A	MPI
Program (N = 1,199)			
35	35.30	0.4600	0.1624
Control (N = 398)			
35	47.92	0.4717	0.2259

indicate absence of a male earner in the house, e.g. widow. On the contrary, households whose head is involved in self-employment in nonagricultural activities are less likely to belong to the higher deprivation group, given they are used to have a stable source of income over the year. Idiosyncratic shocks may not have deterministic effects on the level of deprivation.

It is observed that 35% of higher deprived group are engaged in nonagricultural activities, whereas this figure is 48% for the lowest deprived group. The trend is similar for the households whose head has multiple earning sources as they can minimize the risk during any idiosyncratic or covariate shock. The result reveals that households having salinity in their area are more likely to be deprived in more indicators. It is not surprising because salinity has an adverse impact on livelihood.

Furthermore, the analysis shows that households in program areas are less likely to be deprived than control households. As mentioned in this analysis, household head having nonagricultural activities are less likely to be deprived. However, we need to know which occupation is more vulnerable to multidimensional deprivation. Figure 1 shows the level of deprivation for different occupation type. It reveals that households involved in agriculture, fisheries and livestock are more likely to suffer from higher deprivation. It shows households involved in these activities are deprived of almost 40% indicators of 20 indicators. We know that southwestern region is challenging for cultivation due to salinity and water logging. Furthermore, it is difficult for white fish to survive in the saline water. Livestock also suffers from malnutrition as they do not get enough food. Hence, it is no surprise that we find agricultural households to be more deprived.

Indicator(s)	Lower deprivation ($ci \leq 0.35$)	Moderate deprivation ($0.35 < ci \leq 0.5$)	Higher deprivation ($ci > 0.5$)
Total income of HH (in '000 Tk.)	147.69	94.14	92.05
Total asset value of the HH (in '000 Tk.)	737.49	472.51	644.78
Female-headed HH	3.17	5.00	10.37
HH head involved in non-agriculture	48.34	37.33	35.28
HH having multiple earning source	24.68	19.67	20.74
HH suffering from salinity	8.66	9.00	10.20
HH in program village	80.09	71.33	71.07

Table 4. Households under different level of deprivation

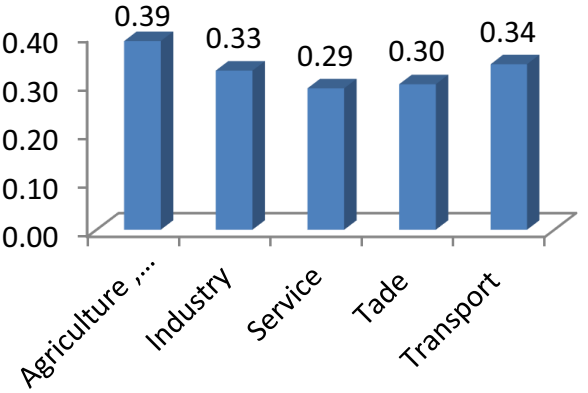

Figure 1. Deprivation in terms of occupation (in percentage)

4.4 Econometric analysis: Effectiveness of Fael Khair Waqf in reducing multidimensional poverty

We need an econometric analysis to be able to tell how FKW program has contributed to reduce multidimensional poverty. In this regard, a logistic regression analysis has been conducted to examine the association between MPI poverty status of the households (the dependent variable), i.e. the log of the odds-ratio and the independent variables such as program status of households and other socio-economic characteristics. Here, the dependent variables represent the log of odds-ratio of poverty status (dummy variable). It is also important to mention that we have considered those households as MPI poor that are deprived of 35% indicators out of 20 indicators.

The above logit model in Table 5 confirms that the likelihood of the participants of FKW to be MPI poor is around 1.5 times lower than the nonparticipants, and the result is significant at 1% level. This indicates that program has a positive impact in reducing multidimensional poverty as initially (before the commencement of program) the socioeconomic characteristics were similar for both the groups (program and control). Further, we have found that female-headed households are 1.6 times more likely to be MPI poor than male-headed households. The result also shows that self-employed household heads involved in agriculture, fisheries and livestock are 1.96 times more likely to be deprived than the self-employed household heads involved in nonagricultural activities. Both these findings are significant at 1% level and strongly validate the result of descriptive analysis.

It is also observed that the higher the educational qualification of the household head, the lower the probability of being MPI poor. The likelihood of the less educated household head to become poor is 1.04 times higher than the more educated one. Here, educational qualification is measured the number of years completed in academics. The logit analysis also reveals that household heads with multiple earning sources are less likely to be deprived by 1.5 times than household heads having single source of income. The results are significant at 1% level.

Furthermore, the regression analysis found that two groups, households involved in agriculture-related activities and female-headed households, are more vulnerable of being multidimensionally poor. As mentioned before in the descriptive analysis, in the absence of male earner the female-headed households get vulnerable, and their mobility is also constrained by cultural barrier. Hence, it is not surprising that these households are deprived of many indicators of well-being.

Table 5. Impact of FKW in reducing multidimensional poverty (logistic regression)

Variables	If the HH is MPI poor odds ratio
Participants of FKW	0.6473231 *** (0.0797426)
If the HH head is female	2.684517 *** (0 0.6735839)
If the HH head is self-employed in agri/fishery/livestock	1.967876 *** (0.2987681)
Savings of HH	0.9992333 (0.0006065)
Years of education of HH	0.9568558*** (0.0125916)
If the HH head has multiple earning source	0.6610295*** (0.0855255)
Constant	2.100019
	0.2680712***
Observations	1591

Notes: Standard errors in parentheses; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Though to the best of our knowledge, we have not found any impact of QH program on MPI, in general, our findings are in line with Farooqi *et al.* (2017) in Bangladesh, Iqbal and Shafiq (2015) in Pakistan and Effendi (2013) in Indonesia. Farooqi *et al.* (2017) conducted a study of 700 women in Bangladesh and found a positive and significant influence of the gross monthly income of borrowers. Iqbal and Shafiq (2015) investigated the AKHUWAT program as a case study of QH and found that it had successfully improved the standard of living of its beneficiaries by transforming them into donors. Effendi (2013) conducted qualitative analysis of the role of Islamic microfinance in poverty alleviation, finding that Islamic microfinance was more successful than conventional microfinance in reducing poverty because of its interest-free financing options and more flexible repayment plans.

5. Conclusion and recommendation

5.1 Conclusion

This paper has addressed the effectiveness of the FKW program, which is a QH (interest-free loan), in reducing the poverty situation of the participants. The results show that program has a significant impact in reducing poverty, while we compare the poverty headcount between program area and control area. The difference in poverty rate is quite visible between program and control area. Granted that poverty is an outcome of multiple economic indicators, this study evaluated poverty situation of the households using multidimensional approach.

As FKWP provides interest-free loans it is obvious to observe a direct positive impact of program while observing the changes in income deprivation between program and control. Hence, the overall picture of poverty reduction points toward a positive scenario, i.e. reduction in poverty in treatment area. The result shows that the likelihood of the participants of FKW to be MPI poor is around 1.5 times lower than the nonparticipants, and the result is significant at 1% level. This indicates that program has a positive impact in reducing multidimensional poverty as initially (before the commencement of program) the socioeconomic characteristics were similar for both the groups (program and control).

It is also observed that around 25% of the control group is deprived in income indicator, whereas this figure is only around 18% in case of treatment group. The *t*-test is also significant in this regard. As FKW offers interest-free loans, the cost of borrowing becomes significantly lower, and hence, people can accumulate more assets, which might help them to improve their capacity to avail better income opportunity, better health and education service and thus better living status.

5.2 Recommendations

Based on the findings, this paper puts forward the following recommendations:

- to evaluate any livelihood program like FKW, it is recommended to measure through an MPI approach because it not only considers financial ability of a particular group but also considers the living standard of that group;
- to ensure an inclusive development, the livelihood programs should not only consider features that increases income but also should include features like investment in education, health and sanitation awareness along with providing loans for income generating activities;
- to include special features for vulnerable communities including women, children and persons with disabilities in the livelihood programs;
- to enhance financial inclusion in the country, this study recommends government to incentivize Islamic banking and FIs to launch QH-based poverty alleviation

programs. For example, microcredit programs can be offered through QH to redistribute income among the community;

- to improve the economic status of vulnerable people, interest-free loans like FKW should be offered so that their cost of borrowing becomes significantly low, and hence, they can accumulate more assets, which might help them to improve their economic status; and
- to inspire the academicians, researchers and decision-makers who value evidence-based policy research and want to seriously alleviate poverty through the application of Islamic social financial instruments such as Zakat, Waqf and QH.

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