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Fertility Intention, Social Capital and Non-Government Organizations (NGOs) in Bangladesh

Karmaker, Arun Kumar

University of Rajshahi

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Fertility Intention, Social Capital and Non Government Organizations (NGOs) in Bangladesh



University of Rajshahi

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Philosophy in Population Science and Human Resource Development of the University of Rajshahi.

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I wish him a bright future and every success in life.

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I wish him a bright future and every success in life.

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DECLARATION

I do hereby declare that the thesis “**Fertility Intention, Social Capital and Non Government Organizations (NGOs) in Bangladesh**” submitted to the Department of Population Science and Human Resource Development, University of Rajshahi, Bangladesh for the award of the Degree of **Master of Philosophy** is a record of original and independent research work as done by me under the supervision of Professor Dr. Md. Abdul Goni, and Associate Professor Dr. Tapan Kumar Roy, Department of Population Science and Human Resource Development, University of Rajshahi, Bangladesh.

This has not been submitted elsewhere for any other degree or diploma.



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**Fertility Intention, Social Capital and
Non Government Organizations
(NGOs) in Bangladesh^a**

Dedicated
To
My
Departed Grandmother
&
Beloved Sons

ACKNOWLEDGMENT

First and foremost I am grateful Almighty God for giving me strength, patience and ability to perform this thesis work in timely.

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I am solely responsible for errors and omission that remain in thesis, if any.

ABSTRACT

Fertility intention has been drawn increasing attention on the significance of social capital and NGOs because there is interrelation among fertility intention, social capital and NGOs. It is interesting to note that NGOs has a great role to build up a social networks which can be treated as a medium by which individual's learn about demographic behavior. Social networks can also be sources of valuable resources that help to reduce the costs of having children and that build a stock of fertility-related social capital. In general, social interactions in personal networks affect individual's reproductive attitudes and behavior. However, social capital is a multidimensional concept and is used to refer to the goodwill, trust, and cooperation evident in any particular organization or society. It is the fruit of social relations and consists of the expectative benefits derived from the preferential treatment and cooperation between individuals and groups. In other words, social capital means relationships with others by trust, norms and social networks that an individual can change his/her socio-economic phenomena. Trust, social norms and social networks are the elements of social capital, by these elements one can improve the society and can get economic benefits by which changes his/her status. NGOs have great impact and contribution to make social capital through various programs such as, micro-credit. In this context, an attempt has been made to know the interrelationships among fertility intention, social capital and NGOs at Charghat Thana, Rajshahi. For this purpose, data were collected from 498 ever married women who are the members' of different NGOs and from women who are not involved with NGOs through purposive sampling. Based on primary data, the impact of social capital measured on intentions to have a second child has been investigated. This study also identifies the determinants of fertility intention and the determinants of fertility at Charghat Thana. It also investigates the role of NGOs to build up social capital.

The result indicates that most of the respondent's are middle aged groups 26- 45 years (43.4%), 20.1 % women are young in the age group 15-25 years, 36.5% women are older age groups above 45 years. 31.7% of the women have completed primary education, majority of women are house wife (87.6%) and a few numbers of women are involved with petty business (7.6%). Most of the women are Muslims (77.7%). It is observed that 34.1% families have monthly income below 5000 Taka, 37.1% families have monthly income in the range 5000-8000Taka, 11.4% families have monthly income in the range 8000-10000 Taka, and 17.1% families have monthly income above 10000 Taka and the average monthly income is 6171.69 Taka. It is also observed that 49.4% families have monthly expenditure below 5000 Taka, 30.3% families have monthly expenditure in the range 5000-8000Taka, 12.2% families have monthly expenditure in the range 8000-10000 Taka, and 8% families have monthly expenditure above 10000 Taka and the average monthly expenditure is 5286.75 taka. About fifty percent (50%) women's marry at age under 18 years. 76.4% are using contraception who are involved with NGOs which impact on reducing fertility. The result shows that 20.8% women who involved with NGOs have intention to bear more children and 21.1% women have intention to bear more children who are not involved with NGOs.

The social capital index is constructed to observe social capital formation among NGO members. To know the determinants of fertility intention, the prominent multivariate analysis such as, logistic regression analysis has been employed. The results reveals that middle aged women 26-35 years have 76 percent less likely and older women aged 35 and over have 98 percent less likely to have fertility intention respectively than younger women aged less than 25 years. Muslim women are 1.2 times more likely to have fertility intention than their non-Muslim counterparts. The result shows that primary completed women have 42 percent less likely and secondary and higher educated women have 22 percent less likely to have fertility intention respectively than illiterate women. Women who have married under 18 years old have

21 percent less likely to have fertility intention than the women who have married above and equal 18 years. Women who have household assets are 1.4 times more likely to have fertility intention than those women who have no household assets. The result indicates that the women who are involved with NGOs are 1.5 times more likely to have fertility intention than women who don't involve with NGO. It shows that women who attend regular group meeting of NGOs are 35 percent less likely to have fertility intention than those women who don't attend regular group meeting. 22% women who belong middle social capital index are less likely to have fertility intention than those women who have lower social capital index and the women who have upper social capital index are 31 percent less interested to have fertility intention than those women who have lower social index.

The multiple classification analysis has been conducted to evaluate the contribution of socio-economic and demographic variables on fertility. The important determinants of fertility are women age, religion, education, age at marriage, contraceptive use, having electricity, mass media exposure, NGO membership and social capital index. Consciousness has grown among members exposed to NGO led activities. Most of the members have a strong knowledge about AIDS, arsenic contamination, Immunization program, health, nutritional needs, family planning, etc., after involvement into NGO activities. It is note that the average monthly family income of the respondents had TK. 4125.25 before joining the NGO as a member. After joining as a member, the average monthly family income has increased to TK. 6171.69. Before the membership, the average family expenditure was 3917.35, and after membership the average expenditure is measured at TK. 5286.75. The average savings has increased to TK. 884.94 (mean) due to a NGO member. Illness as well as awarding education for the member s' children depends on several independent variables like income, savings, hygienic condition, sanitation, TT vaccine, family planning, member s' education, etc so as to remove illness, and to expand educational facilities of the children. NGO has played a significant role by increasing family income, ensuring

healthy sanitation facilities, providing educational facilities, enlarging knowledge on health education, etc.

The correlation and path analysis have been used to know the relationship and the factors affecting fertility intention, social capital and NGOs. From the correlation analysis, it is found that social capital has significantly positively correlated with total family member and NGO membership. On the other hand, age at marriage and wealth are significantly inversely correlated on SCI. To examine the causal link (direct, indirect and total effects) among socio-economic and demographic variables, a multivariate technique known as path model analysis has been applied. The total association, the direct effects, non-causal effects, and total effects of exogenous and endogenous variables on the residual variable such as social capital have been investigated. The total association with SCI is statistically significant with age at first marriage, total family member, wealth and NGO membership. The age at first marriage, total family member and wealth are also statistically significant with NGO membership through total association. The total association with fertility intention is statistically significant as women age, age at first marriage and total family member. But women age, education, total family member, fertility intention and NGO membership have favorable total effects on social capital; age at marriage and wealth have adverse total effects on social capital. This study will help to policy makers to give idea to understand the NGOs contribution about social capital formation and to identify the relationships among fertility intention, social capital and NGOs at Charghat Thana in Rajshahi District in Bangladesh.

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CHAPTER ONE

Research Perspective

1.1 Introduction

Bangladesh is the 8th most densely populated country in the world, has a population of about 152.5 million (BBS, 2012), with a corresponding population density of more than 1015 persons per square kilometer with 1.37 percent of population growth rate (BBS, 2012). Bangladesh has a very young population, constituting 24 million females under age 15 years and 21 million in the early reproductive age range of 15-30 years and is characterized by a young age structure, thus built in population momentum (BDHS 2007). These percentages of population have tremendous demographic significance and they have double significance as they are, at the same time, the present and future. Bangladesh has consequently experienced dramatic increase of contraceptive use and a sensational decline in fertility over the last three decades.

Fertility in Bangladesh has been declining since the 1970s. The TFR declined sharply from 6.94 births per woman in 1970 to 6.88 births per woman in 1974 followed by another rapid decline in the next decade of 6.23 births per woman in 1981 to reach 4.36 births per woman in 1991. The TFR declined further next decade 3.01 births per woman in the year 2001, during the current decade to reach 2.2 births per woman in the year 2011. According to World Bank Data-2011; In 1970, TFR in Bangladesh was so high than India and Pakistan that is Bangladesh, India and Pakistan was 6.94, 5.49 and 6.60 respectively but in 2011, the TFR in Bangladesh has been dramatically slop downed than India and Pakistan which is Bangladesh, India and Pakistan is 2.20, 2.59 and 3.34 respectively.

The number of children desired is influenced by many social, economic, and cultural factors, including one's religion and preference for children of a particular sex. The adoption of family-planning methods, on the other hand, is largely determined by

couples' knowledge of family-planning methods and their accessibility and suitability. The decline in the TFR in Bangladesh till the mid-1990s as reflected in the forgoing analysis was concomitant to the declining trend in the desired number of children and increased use of modern family-planning methods. In context of this successful declining trend in desired number of children has vital role in NGOs activities in Bangladesh.

From Bangladesh Demographic and Health Survey (2011) it is found that future fertility preferences of married respondents were determined by asking whether or not they wanted to have another child and, if so, how soon. Overall, 65 percent of currently married women in Bangladesh want to limit childbearing 59 percent say they want no more children (up slightly from 57 percent in 2007), and an additional 6 percent have been sterilized. The proportion of women who either want no more children or have been sterilized increases rapidly with the number of living children, from 16 percent among women with one child to 82 percent among women with 2 children and to 93 percent among women with four or five children. There has been a small increase in the proportion of women who want to limit childbearing over the past four years (63 percent in 2007 to 65 percent in 2011), while the desire to have another child has decreased (34 percent in 2007 to 31 percent in 2011).

Bangladesh has a successful history of family planning program to reduce population growth (Bairagi et al., 2001). Various contraceptive methods are available in Bangladesh. Women are using several contraceptive methods such as pill, injections, condom, IUD, foam, jelly, etc. They are using these methods either spacing or limiting purposes to control their births. In fact, women are using various contraception methods depend on their purposes, characteristics, reliability and effectiveness. Depending on the user characteristics and purposes, contraceptive methods are known as, terminal methods, barrier methods, physical methods, chemical methods, hormonal methods, clinical methods, long term and short term methods. In the last three decades, NGOs have been considered to be an important vehicle for fertility reduction, specially spreading for use of modern contraceptive method, build-up social capital, economic development and poverty alleviation in

poor countries (Ahmed;2004). He has focused on the NGO programmes that generate different forms of social capital such as trust, norms and networks to promote collective action.

Bangladesh has seen in the early 1980s, the various types of NGOs working in the countryside where more than 80% of the women lived. Many women's organizations shifted their focus from welfare to access to credit, employment and income by paying due attention to literacy, health, and family planning. Also, a large number of NGOs has become more active in rural areas, Mobilizing rural women on a regular basis (Jahan, 1995). Women's participation in micro-credit programs has been suggested to have many important social and economic impacts for women such as increasing economic status, empowerment increasing mobility and social interaction outside of the home, increasing access to information about contraceptive methods, exposure to different worldviews and support and guidance from program staff (Amin.et al. (1996). Besides micro-credit activities, some large NGOs, like BRAC and similar programs under the essential healthcare program with the help of Shastho Shebikaa (Health volunteers) and Shastho karmis (Health Workers) are providing service to pregnant women for improving their health and nutrition status. Grameen credit gives high priority on building social capital. It is promoted through formation of groups and centers, developing leadership quality through annual election of group and centre leaders, electing board members when the institution is owned by the borrowers. To develop a social agenda owned by the borrowers, something similar to the "sixteen decisions ", it undertakes a process of intensive discussion among the borrowers, and encourages them to take these decisions seriously and implement them. When NGOs performing public-good functions can generate "Social capital". One of the intentions of this paper is to show how some local NGOs like Grameen Bank or BRAC building social capital by their activities in the country.

Studied have found that in demographic research, social networks are primary concerned with communication about fertility and family planning in high fertility contexts. Personal networks are characterized also by exchanges of materials and non-material resources such as money, goods, services, power or the capacity to work.

They have argued increasingly that social interaction is an important mechanism for understanding fertility behavior. Yet it is still quite uncertain whether social learning or social influence is the dominant mechanism through which social networks affect individuals' contraceptive decisions. In this study we assume that these mechanisms can be distinguished by analyzing the density of the social network and their interactions with proportion of contraceptive users among network partners and justify about fertility intension. Analyses of the timing and pace of fertility transitions in developing countries are inconsistent with theories of fertility change that emphasize only individuals' socio-economic characteristics or their contacts with family planning programs (Bongaarts and Watkins 1996). To explain these inconsistencies, demographers have increasingly developed and applied theories that take into account the social interactions that connect individuals with another.

Social interactions in these theories encompass two distinct processes that affect contraceptive behavior: Social learning and social influence .In this study we exploit variations in the structure of social networks to analyze the processes of social interactions in the adoption of modern contraceptives in Charghat Upazilla, Rajshahi District, Bangladesh. In particular, we investigate whether it is the content or the structure of social interactions that matters and whether social learning or social influence is the dominant process through which social interactions affect contraceptive use and fertility intension of Bangladeshi people.

Social capital is a multidimensional concept and is used to refer to the goodwill, trust, and cooperation evident in any particular organization or society. Social capital comes about through changes in the relations among persons that facilitate action. It indicates as friendships refer to connection within and between networks. It highlights the value of social relations and the role of cooperation and confidence to get economic results. Professor Ian Falk (2006) has defined social capital as the cement of society's goodwill which creates social cohesion. In general, "Social Capital" is the fruit of social relations and consists of the expectative benefits derived from the preferential treatment and cooperation between individuals and groups. In other words, "Social capital means relationships with others by trust, norms and social

networks that an individual can change his/her socio-economic phenomena.” Trust, social norms and social networks are the elements of social capital, by these elements one can improve the society and can get economic benefits by which changes his/her status.

NGOs have great impact and contribution to make social capital. Micro-credit program of NGOs is a development strategy innovation that has proved to be very effective in poverty reduction and social development by De Aghion and Morduch (2006), Bali Swan (2007). There is also numerous literature about other impacts of micro-credit most notably empowerment of women (Goetz and Sen Gupta 1996, Mayoux 2002, Kabeer 2003, Bali Swain and Wallentin 2007). This credit is provided to group members for various income generating activities (BRAC 2005). Such access to credit helps NGO members to generate self employment that enhances their earnings, lead to empowerment, increase mobility, decision making power and greater control over their lives. In addition, micro-credit activities help NGO members to improve health and education as well as trying to develop their new life styles.

In the early 1980s in Bangladesh, the various types of NGOs working in the countryside among women where more than 80% of the women lived. Many women’s organizations shifted their focus from welfare to access to credit, employment and income by paying due attention to literacy, health, and family planning. Afterwards, a large number of NGOs has become more active in rural areas, mobilizing rural women on a regular basis (Jahan, 1995). Women’s participation in micro-credit programs has been suggested to have many important social and economic impacts for women such as increasing economic status, empowerment, increasing mobility and social interaction outside of the home, increasing access to information about contraceptive methods, exposure to different worldviews, and support and guidance from program staff (Amin et. al., 1996). Besides, micro-credit activities among different NGOs such as BRAC, Grameen Bank have the similar programs under the essential health care programs. With the help of Shashtho Shebikas (Health Volunteers) and Shashtho Kormis (Health Workers) are providing

service through NGOs to pregnant women for improving their health and nutritional status.

Grameen credit gives high priority on building social capital. It is promoted through formation of groups and centers, developing leadership quality through annual election of group and centre leaders, electing board members when the institution is owned by the borrowers. To develop a social agenda owned by the borrowers, something similar to the "sixteen decisions", it undertakes a process of intensive discussion among the borrowers, and encourages them to take these decisions seriously and implement them. When NGO's performing public-good functions can generate "Social capital". One of the intensions of this paper is to show how some local NGOs like Grameen Bank or BRAC building social capital by their activities in the country.

Rajshahi is popularly known as an educational city. In spite of these, Rajshahi division is one of the neglected divisions in health sector among seven administrative divisions in Bangladesh. It has an area of 18,174.4 square km and a population at the 2011 Census is 18,329,000 (Census, 2011). Chorghat is one of the most neglected thana in Rajshahi district and it is situated south-east corner of Rajshahi. It is 20 KM far from Rajshahi. The socio-economic condition of the women of Chorghat is far more miserable than others women in any other society in Bangladesh. They more often live from hand to mouth. They cannot meet the most basic needs, let alone health care. What is more, almost all of them are illiterate. They are less aware of their reproductive health, reproductive rights and human rights. The reproductive components such as maternal care, safe motherhood, prevention of unsafe abortion, unwanted births, contraceptive use, knowledge about MR, HIV/AIDS, RTIS, STDs, etc. are questionable situations. Now, what makes this condition worse is their family life and their life styles and they live in slum areas. They always suffer from the lack of money, and they take loan from NGOs. They are less aware of their standard life and are not conscious about their fertility intention. Now-a-days, various NGOs are working to develop their standard of life through various programs such as fertility reduction and desire, income generating program, micro credit, etc. Considering the

above discussion, this study tries to find out the interrelationship among fertility intention, social capital and NGOs at Charghat Thana in Rajshahi district in Bangladesh. In this study we exploit variations in the structure of social networks to analyze the processes of social interactions in the adoption of modern contraceptives for reducing fertility at Charghat Thana. In particular, we investigate whether it is the content or the structure of social interactions that matters and whether social learning or social influence is the dominant process through which social interactions affect fertility intention and social capital through NGOs of Bangladeshi people.

1.2 Concept of Fertility, Fertility Intention and Social Capital

Fertility is the actual level of reproduction of a woman based on the number of live births that occur. It is normally measured in terms of women of childbearing age, defined as 15-49 years, although births to women outside this age range can, and do occur. Fertility should not be confused with fecundity, which is the biological capacity of women to bear children.”

“Fertility intention is the desire or aspiration of a women to bear additional children in context of Social and economic suitability”. Throughout the 20th century, the nature of fertility has changed. In modern societies, fertility is very much characterized by people’s active demand for children. Due to the prevalence of family planning and contraceptive use, fertility is less dependent on, individuals’ natural fecundity, but by their desire for children, i.e. by their willingness to have a particular number of children at particular periods in their life courses. Consequently, fertility became very much an outcome of processes of decision making and purposeful behavior. This is also mirrored by research on fertility, which has become increasingly interested in a more detailed understanding of reproductive decision-making. In this connection, the theory of intentions is receiving much scientific recognition. Intentions are a central of purposeful behavior. Applied to fertility intentions inform about reproductive plans, i.e. about contraceptive behaviors people want to perform in a near future (Miller 1994).

Social capital refers to the repository of trust, norms and networks upon which members of a community may draw to solve public problems. Mentionable that Physical capital refers to the physical objects ie tangible property and human capital refers to the education, training and experience of individual whereas social capital refers to the connection and relation among individuals. Social capital highlights the value of social relations and the role of cooperation and confidence to get collective or economic results. In general, social capital is the fruit of social relations, and consists of the expectative benefits derived from the preferential treatment and cooperation between individuals and groups.

Social capital is a multidimensional concept and relatively a new term. In general, physical capital is created by changes in materials to form tools that facilitate production, human capital is created by changes in persons that bring about skills and capabilities that make them able to act in new ways, social capital, however, comes about through changes in the relations among persons that facilitate action. Professor Ian Falk (2009) defines social capital as the cement of society's goodwill, which creates social cohesion. Thus social capital means relationships with others by trust, norms and social networks that an individual can change his/her socio-economic phenomena. Trust, norms and social networks are the elements of social capital. *Trust* is an abstract concept and difficult to measure. If A does something for B and trust B to reciprocate in the future, this establishes an expectation in A and obligation in the part of B. In the NGOs and their client interaction, both the groups are always doing this for each other. By initiating micro-credit and others programmes NGOs create trust trough the establishment of formal rules and procedures that enable repetitive interactions. Stable rules provide incentives for the parties of transactions (borrowers and NGO officials) to behave trustworthy (Ostorm and Ahn ;2001) NGOs establish long-term relationships with the clients that can be harnessed to deal with different kinds of resource allocation programme. In this way social interaction becomes stable and acquires the status of capital, here trust can be important component of this process. *Networks* refer to personal contacts with group members of an organization- by regular weekly group meeting, one can share her ideas, discuss about business deals and can consult different type of important aspects of organization and about

herself. *Norms are rules* or standards of behavior shared by members of a group which are customary rules of behavior that coordinate ones interactions with others. Due to regular attendance in the group meeting, timely repayment loan, NGOs member learn to respect rules and interact with each other within the framework set up by the NGOs”.

1.3 Social Capital Formation by NGOs (BRAC & Grameen Bank)

Although microfinance programs are aimed to help poor, particularly poor women to overcome poverty for self-employment projects that generate income, they have significant potential role in social capital formation. Grameen bank’s “Sixteen Decisions” and BRAC’s “Seventeen Promises”, a kind of “credo” for the respective members, help to install a great awareness of social and political issues and creation of social capital. At least 6 of “Sixteen Decisions” of Grameen Bank directly enforce formation of social capital among its group members, which are as follows (Yunus, 2005): (i) The four principals of Grameen Bank-Discipline, Unity, Courage and Hard Work-we shall follow and advance in all walks of our lives (ii) We shall not inflict any injustice on anyone; neither shall we allow anyone to do so ((iii) For higher income we shall collectively undertake bigger investments ((iv) We shall always be ready to help each other. If anyone is in difficulty, we shall all help (v) If we come to know of any breach of discipline in any center, we shall all go there and help restore discipline and (vi) We shall take part in all social activities collectively. Similarly, following promises of BRAC also enforces social capital among its group members: ((i) We shall not do malpractice and injustice ((ii) We will try to help others under all circumstances ((iii) We will be loyal to the organization and abide by its rules and regulations ((iv) We will attend weekly meetings regularly and on time (v) We will always abide by the decisions of the weekly group meeting. Other MFOs also have similar principles and strategies that enforce their group members to create trust, institutional norms, norms of reciprocity, collective action and horizontal and vertical networks, thus enhance formation of social capital.

1.4 Social Capital, NGOs and Development in Bangladesh:

Bangladesh has the strong tradition of NGO activities and Bangladesh's NGOs are among the most active in the world. Successive governments have also developed effective partnerships with the NGOs to improve living condition of the poor. NGO services such as micro-credit for start-up businesses, non formal education, and social mobilization help to strengthen poor communities and amplify their voice. In this way, Micro-credit has allowed millions of poor people to overcome poverty and improve their lives. Through such programs, loans and training are provided to individuals, who have never been involved in the economy, and to small entrepreneurs to help them scale develop their activities and create employment for the poor. In this way, NGOs in Bangladesh, substitute rather than complement the state with respect to poverty alleviation. NGO activities, especially micro-credit is able to cope with immediate poverty problems.

An important form of social capital is the potential for information that inheres in social relation formed by the association of the NGOs. Information is essential in providing a basis for any action. Information about new types of income generation, potentially and profitability of existing business enterprise are acquired by effective use of social organization and weekly meeting of the VO of BRAC and group unit of GB. As a result, women with an interest of income generation took loans and started business for their family members and paid the loans regularly and the NGOs received about 97% loan recovery. Women also did not want to leave the opportunity of information channel and most of them did not leave group and took loans regularly and paid as well.

GBs cell phone (village phone) operators have gained increased social status in their villages. Better-off villagers now come to poorer women's house to use the phone and now the women's house is a centre of activity, with people waiting to make or receive calls. Now their homes are the centre of a new type of social network where people can share their ideas, discuss about business deals and can consult on different types of important aspects of the village. Similarly, BRAC education programme create a network among guardians, students and teachers and health programme office. Close

monitoring of the programme workers and teaching method help to prevent drop out of the students, meeting with guardians helps to increase living standard and group study method ensure better study and cooperation among themselves. All these are the examples of social relations that constitute a new form of social capital that provides information that facilitate action for getting opportunity, security and empowerment.

When a norm exists and is effective, it constitutes a powerful form of social capital. BRAC weekly central meeting norms of a micro-credit group: walking across the village to attend the centre meeting; sitting on a mat in a open yard or centre house with a group of women from different linkage, religions, and social status at centre meeting; handling money; and using first name in an address from the NGO employee during the centre meeting. L. Larance. (1998) found that about ninety percent of the members believed that they had changed as individuals because of their interaction with NGO worker and other members at the weekly centre meetings and can get information about health & hygiene, family planning, legal aid, women's rights, tree plantation etc. Every plantation became regular norms among the villagers and women told that if they cut one tree they try to plant 10 trees according to the instruction of the BRAC workers. NGO and its workers are replaced as the source of information for standard living, decision-making and some sort of environmental care. All this examples suggest, effective norms can constitute a powerful form of social capital.

Trust plays an important role to get fresh loan because micro-credit has been given to the individuals without morgues only taking guarantor from her groups. Again many members take loans with the help of other member's membership card. Officially the card holder member is liable to pay the loan, but actually the other member pays. This informal deal is done simply on trust and evidence shows that in all cases the loan is paid without any problem. Also reported that, members had helped other members to make up shortfalls on loan installments. These initial economic transactions are done on trust and often developed into personal relationships.

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1.5 Review of Literatures

The study on fertility, fertility intentions, contraceptive use and social capital & NGOs activities in Bangladesh has great significance in the context of Bangladesh. There have been done numerous good studies based on fertility, fertility intentions, contraceptive use, social capital and NGOs activities in Bangladesh during the last few decades. Most of the researchers concentrated on studying the levels, patterns, trends, differential and determinants of fertility and contraceptives & fertility intentions and NGOs activities build up social capital using tabular analysis and descriptive statistics. Most of the works related to a wide range of factors including demographic, social, economic and cultural factors, which effect on fertility. These factors may vary from one society to another and these may also vary from country to country. Thus, a review of literature is essential to know about the previous studies conducted in this field. The literature relevant in the context of the present study is discussed briefly below.

Lesthacghe (2010); observed the two arguments for declining fertility in Bulgaria, Germany and Italy; the first one sees changing values as the responsible factor, processes of individualization, secularization, or women's emancipation challenge traditional living arrangements, gender roles and perceptions of family, which again lead to postponed and low levels of reproduction. The second argument addresses economic aspects, during the second half of the 20th century; the direct and indirect costs of having children have risen significantly. Individuals developed high levels of aspiration according to their living conditions and the prospects of life of their children.

T. Majhabeen and I. A. Khan (2011); Contraception appears as the most prominent determinant in fertility reduction in Bangladesh, followed by marriage, lactation infertility and induced abortion. Their analysis reveals that although the fertility reducing effect of the marriage variable is increasing, its effect is offset by the declining trend in lactation amenorrhea period. A review of these two variables suggests that their effect cannot be raised much due to the socio-economic and cultural reasons prevailing in the country. Thus the use of contraception will be the

dominant factor for further reduction in fertility. The national goal of attaining a replacement level of fertility could be expected to be achieved if the rate of contraception use can be increased up to a certain level.

R. Bairagi et al., (2001) show that although currently desired fertility in Matlab is about 2.5 children per woman, the expected desired fertility is unlikely to be less than 3, owing to the practice of sex preference for children in the region, even under a perfect fertility control situation. Matlab is a son-preferring area (Bairagi, 2001), where the desired number of sons was recently found to be 35 percent higher than the desired number of daughters. Sheps (1963) demonstrated that expected fertility would be higher than desired fertility in the presence of sex preference for children. For example, if desired fertility is 2, the expected fertility with an intention to have one son and one daughter is 3 while with the intention to have 2 sons is 3.88, and so on. Thus, it may be perceived that fertility in the Matlab MCH-FP area has already declined to the current desired level. A further decline may require a decrease in desired fertility or gender preference, or both. This study also suggests that without effecting any change in these phenomena, further emphasis on the family planning programme may increase CPR. However, its impact on fertility is likely to be counterbalanced by a decline in the impact of any other direct determinants of fertility, such as abortion and the inefficient use of contraceptives (failure). Contraceptive failure in the Matlab MCH-FP area is already very high, but it has been showing a declining trend (Bairagi and others, 2000).

Rahman, DaVanzo and Razzaque (2001) suggests that it may not be the case unless there is an improvement in family planning services that will lead to higher and efficient use of contraception. Therefore, the study indicates that improvements in both education and family planning services should receive priorities in policies. Family planning services can help women avoid unintended pregnancies and the abortions that sometimes follow them (Rahman and others, 2001). It finds that there is a substantial amount of fertility that is excess of desired fertility. Excess fertility is higher among women with no or little education. Family planning programs can play a crucial role, especially among the women with no or little education, in reducing the gap between desired and actual fertility. Fertility among the educated could reach

below replacement level if family planning programs would be stronger; in the late 1990s educated women desired below-replacement fertility and wanted to have about half of a birth less than they actually had.

Rodriguez and Cleland (1980) have noted the effect of education, residence and other explanatory variables on fertility for 22 countries where the World Fertility Survey (WFS) were conducted. Their findings show an inverse relationship between education and fertility for married women in Latin America, Jordan, Korea and Malaysia but an irregular pattern for Srilanka and Pakistan. Balakrishnan et al., (1980) have shown the influence of various factors on children ever born to Canadian women aged 15-49. Primary ascribed characteristics such as religion, ethnicity and nativity were treated as exogenous variable and achieved characteristics such as education, income and work status as endogenous variables. For old women, ascribed characteristics were found to have a considerable on fertility.

Kabir et al., (1981) using data from the World Fertility Survey (WFS), have examined the fertility differentials by socioeconomic characteristics specially putting emphasis on education factors where children ever born measure fertility. They observed that female employment itself may influence fertility in a significant way unless a women's education is low. They have also found that husband's education and occupation, rural or urban residence and the degree of availability of contraception limit impact of female education on fertility.

Ahmed (1981) has studied fertility differentials by age at marriage, by education, by husband's occupation and child mortality. He found that age at marriage and education is inversely related to fertility, but child mortality is positively associated with fertility (number of children ever born). On the other hand, Jones (1982) has observed a negative relationship between level of education and fertility and has suggested that such relationship is stronger at the education scale.

Ahmed (1982) has examined the two distinct models those have been established, one for rural area and the other urban area. In both models, neither wife's nor husband's childhood background is found to have any significant effect on fertility wife's age,

religion and age at marriage are found to have direct effect on fertility. Age and religion have been found to positive direct effects and age at marriage a negative direct effect. Indirect effect of religion is seen to be positive in both rural and urban areas. In urban area, both the direct and indirect effect of wife's education on fertility is negative. On the other hand, husband's education has a positive effect in the urban area and no effect at all in the rural area.

Chowdury (1984) has studied the Bangladesh Fertility Survey of 1975 to examine the relationship between three aspect of female status (education, work experience and age at marriage) and the use of contraception and fertility in Bangladesh. Education is found to be the variables most strongly correlated with the use of contraception and is also one of the significant variables. The most important factor explaining fertility behavior is age at marriage. The higher is the age at marriage; the lower is the fertility, when all other factors are held constant. Work experience has very little of no effect on current use of contraception and fertility.

Rob and Kabir (1988) have constructed a causal model for factors affecting fertility in rural Bangladesh. In their study socioeconomic, demographic and family planning program variables have been used to describe the change of fertility behavior. They have examined the factors affecting fertility using path analysis for two regions of Bangladesh: Northwestern and Southwestern. They have found that the both regions of respondent's previous experience of child mortality have a positive effect on additional fertility in the both regions. They have found that the duration of postpartum amenorrhea has no effect on fertility in Southwestern region while a strong negative effect on fertility was noticed in the Northwestern region.

Das (1989) has demanded that the desire for at least one son and one daughter, and the tendency to continue childbearing until the desired minimum has been attained would increase total fertility rate and crude birth rate in the population by 36 to 38 percent compared with what would happen if the family size were limited to two surviving children regardless of their sex, the sex composition of the children that they already could have influenced their decision about whether or not to have another child.

According Cleland et al., (1993), it can be stated with confidence that fertility decline has been begun in Bangladesh. The decline is substantial and has been confined to the two decades since independence. They also observed that between 1975 and 1990, the level of fertility fell from about 7.0 births to 4.5 births per woman. The main mechanism of fertility change was increased contraceptive use, rises in age at marriage played little part. Couples living in cities and towns have lower fertility and higher contraceptive use than those do in rural areas. The decline has been lower in Chittagong division than elsewhere. Women with four or more years of schooling, married to men with white-collar occupations and from relatively affluent households, have lower fertility than the less privileged mass of the population.

Islam (1993) has also shown that contraception is the second most important factor followed by the marriage factor, which plays the least role in the reduction of fertility. Contraception is responsible for substantial fall in fertility between 1975 and 1989 in Bangladesh. His analysis suggests that the fertility reducing effect of contraception is steadily increasing, where as the effect of lactation infecundability remains nearly constant. The fertility reducing effect of the marriage variable is also increasing but at a slow rate.

Rahman and Da Vanzo (1993) have emphasized that, if couples desire to have one or more sons then they might have larger families than would otherwise be the case, which could create “a significant barrier to future fertility decline” in many developing countries. Research shows that Bangladeshi women want at least two sons, perhaps to endure against the risk of losing an only son to death, or to provide old-age security to their widowhood (Kabir and others, 1994). Although the common preference is for sons, there is evidence that parents may prefer to complete their families with a daughter (Mannon, 1988; Rahman and others, 1992).

Philipov et al, (2004) has shown of his research on the influence of social capital on fertility intentions in Russia, Bulgaria and Hungary that the availability of at least one helpful network partner has a positive impact on women’s intention to have a second

child. Significance of family members and especially parents as sources of resources within supportive networks. Parents are the primary source of money and support in kind, for example in the form of childcare, even if their children are adults. The willingness to give resources increases if grandchildren have to be supported. In general, parents support their children economically (financially and in kind) whilst children provide support for their parents in the public sphere.

Philipov et al.(2004); has observed his studies that social capital is the availability of supportive network partners, expressed by the number of people that are engaged in the exchange of supportive resources with an individual two basic categories of support are money and non-monetary resources, for example , tools, food, time or assistance. The availability of these resources has an impact on an individual's living conditions and consequently it should also have an influence on her fertility-related intentions. Therefore, he has hypothesized that the larger the number of network partners that give support to an individual, the higher her intention to have a child.

Larance.(1998) found that about ninety percent of the members believed that they had changed as individuals because of their interaction with NGO worker and other members at the weekly centre meetings and can get information about health & hygiene, family planning, legal aid, women's rights, tree plantation etc. Every plantation became regular norms among the villagers and women told that if they cut one tree they try to plant 10 trees according to the instruction of the BRAC workers. NGO and its workers are replaced as the source of information for standard living, decision-making and some sort of environmental care. All this examples suggest, effective norms can constitute a powerful form of social capital.

Mahmud (1991) found a positive association between contraceptive use and the ability of women to work outside the home, when a women is engaged to a NGO then she will have to maintain the roles and regular attend the group meeting, in such way, she is able to come out from her home and meet the another various women and can share personal matters with also contraceptive use.

R. Khonder (2010) noted that the total fertility rate was lower among participants than among non-participants in all program areas, although the mean number of children born was higher among program participants than among non-participants. The total fertility rate was lower among program participants than among non-target households in both grameen bank and BRAC areas.

Surumathi & Mohon (2011) had analyzed about the micro-credit impacts on women empowerment. They found that micro finance was one of the elements to remove the poverty and the improvement of rural women capacity. They also discussed the empowerment of the women sensitively, financially, and in a social context. Their investigation showed that there was a continuing enlarge in the all the three factors among rural women's. There is a distinct enhancement in mental welfare and public empowerment among rural women consequently participating in micro-credit.

Parveen & Chowdhury (2009) was intended to analyzed countryside women's financial empowerment as the outcome of micro-credit interventions. Basically women improvement has dependent on three economical elements such as income , savings , and asset .by the use of those resources women enhancement like; remove gender discrimination, poverty reduction, family power exercise and self reliance has increased day by day.

Nessa et al. (2012) discussed the different aspects of micro-credit. They analyzed that micro-credit not only improve the earnings sources of rural and poor women but also it enhanced better abilities, choices and self determination in decision making. There were five dimensions in decision making, such as household, economic, movement, property, political and social. They found that every dimension had significantly increased due to micro-credit effects.

Loro (2013) evaluated his research study about the gender discrimination in the third world countries. He showed that the rank and supremacy of women had enhanced significantly from the time when NGO opened their activities in developing nations. However, micro-credit has increased self-esteem and self respect of women and

thereby empowered them. In spite of credits often economically beneficiary as well as it enhances the higher social status of women.

Pitt et al. (2006) said that, credit provided women had statistically significant effects and it's showed the way of women taking a better position in household decision making, having greater access to financial and economic resources, having greater social networks, having greater bargaining power vis-a- vis their husbands and having greater freedom of mobility. They also analyzed that women's involvement in small loans programs had an encouraging consequence on fertility.

1.6 Objectives of the Study

The study requires an in-depth analysis to find out the issues and factors related with fertility intention and social capital. Social capital is consisted of social network, trust and norms. Social networks which can be build-up through NGO, is to be considered as sources of valuable resources. It can help to reduce the costs of having child and that build a stock of fertility related social capital. In general, NGO activities may be changed fertility behavior and women's involvement in NGOs can be exerted a curbing effect on their desire for additional children. In this study, an attempt has been made to show the interrelationship among social capital, NGO and fertility intention behavior. The specific objectives of the study are:

- to provide a database and give an idea about socio-demographic behavior of women at Charghat Thana in Rajshahi District;
- to identify the factors associated with fertility intention, social capital and NGOs at Charghat Thana in Rajshahi District;
- to know the determinants of fertility intention at Charghat Thana in Rajshahi District;
- to assess the role of NGO activities to build-up social capital among NGO members.
- to know the relationship between fertility intention and social capital ;

1.7 Organization of the Study

In order to furnish a meaningful representation of the study, the complete dissertation presented into seven chapters. The chapters mention briefly as bellows:

The first chapter deals with introduction; Concept of Fertility, Fertility intention and Social Capital; Social Capital Formation by NGOs (BRAC & Grameen Bank); Social Capital, NGOs and Development in Bangladesh; Review of Literature; Objectives of the Study and Organization of the Study and objectives of the study.

The chapter two discusses introduction, data and sampling, Description of the selected variables, techniques of analysis, Bivariate analysis, multivariate analysis, Binary logistic regression analysis, Multiple Classification Analysis, construction of social capital index and Path analysis.

The chapter three represents background characteristics of the study population which includes socio-economic variables, demographic variables, health-related variables, social capital and NGO related variables.

The important part of chapter four is the multivariate analysis i.e. logistic regression analysis and Multiple Classification Analysis (MCA) has been employed to find out affecting factors and fertility determinants at Chorghat Thana in Rajshahi District in Bangladesh in this chapter.

The chapter five describes role of NGOs in social capital formation which includes economic development and social capital, knowledge –awareness and social capital, contribution of NGO as a source, sanitation practices and role of NGOs, determinants factors of NGO members by linear logistic regression analysis, and impact of social capital variables as NGO membership.

The most important part of the study is chapter six which discusses relationship between fertility intention and social capital and to find out the relationship correlation analysis, path analysis, path model specification and path analysis for SCI had employed.

The last chapter contains results and discussion of the major findings, policy recommendation and conclusion. References are given in the end of the dissertation.

Data and Methodology

2.1 Introduction

Data source and methodology are important part to obtain accurate findings and finally comment on these findings for any research; Research methodology is the philosophy of researcher to systematically solve the problem. It is necessary for the researcher to understand not only the research methodology but also consider the logic behind the methods which are used in the context of the research and to explain the research is conducted. The present chapter is confined to indicate a description of the data source, sampling and analytical methodology used in the study. In addition, some definitions of terms used in the study are also included in the present chapter.

2.2 Data and Sampling

The Primary data were collected through direct interview method by using pre-tested structured questionnaire from NGOs (Non Government Organizations) members and Non NGOs individuals located at Charghat Thana in the district of Rajshahi, by taking intensive training me and my team. In this study, a total number of 498 respondents have been questioned during the survey period in June, 2011 to January, 2012 and this survey has been conducted under the authority of the Department of Population Science and Human Resource Development, University of Rajshahi, Bangladesh. The respondents have interviewed by purposive sampling technique. The study participants comprised of ever married women aged 15-49 years. The dependent variables are used fertility intention (If yes=1, otherwise =0) and NGO membership (if yes= 1, otherwise = 0).In our study, information on knowledge of family planning methods is collected by asking female respondents to name ways or methods by which a couple could delay or avoid pregnancy. If the respondents do not mention a particular method spontaneously, the interviewer described the method and asked where the respondents have heard about the method. In this manner, knowledge is assessed for seven modern methods, traditional methods and any other methods, if

spontaneously mentioned by the respondent, are also recorded. The independent variables included are demographic, social capital and socio-economic which influence the fertility intention and involvement into NGOs. In this study descriptive statistics have been used to understand background characteristics of the respondent and binary logistic regression has been used to find out the factors affecting fertility intention and MCA has been used to find out the determinants of fertility at Charghat Thana.

2.3 Description of the Selected Variables

In this study different kinds of variables has been used. Some important variables such as, age of women, Religion, education of women, age at marriage, monthly family income, contraceptive use, children ever born, Knowledge about HIV/AIDS, Exposed to Mass media, House hold assets, NGO membership, Regular group meeting attendance , social capital index and desire for children have been selected in this study. Brief descriptions of the variables are as follows:

Age of women

To the study of women age come at the first consideration. It gives an idea about the proportion under particular age groups, which may be associated with demographic and economical activities. The variable age of women included into the analysis are divided into three age groups i.e. 15-25, 26-45 and 45+.

Religion

Religion is more closely related to fertility. Guerin (1983) concluded that religion and fertility is closely associated, especially for Muslims than for any other major religious groups. As the majority proportion of population of Bangladesh are Muslims, the religion are categories into the following two groups, these are Muslims and Non Muslims.

Women Education

Women education means that in this study are female education. Female education has a significant effect on fertility and mortality. Education is the factor which

regulates the income, occupation, family status, knowledge of balanced diet and protection of health from diseases severally reduce mortality and also fertility. So the education of respondents into the study and it is record into four categories: illiterate, primary education, secondary education and higher education.

Age at Marriage

Age at first marriage is probably the most useful fact about women's marital history for the study of their fertility. Laws establishing a minimum age at marriage are nearly universal, which the most common ages are 20 for males and 18 for females (UN population Division, 1997). In the present study age at marriage is recorded into two categorized: Less than 18 years and equal 18 years or above.

Monthly Family Income

Monthly family Income is one of the most important socio-economic characteristics which play an important role in social and human life. The socio-economic condition of the study area is not so good. It affects other socio-economic variables. We have classified this variable into two categories; less than five thousand taka and greater than or equal five thousand taka.

Contraceptive Use status

In this analysis the use of contraception is included as an important predictor to capture the consciousness and accessibility to reproductive health care facilities. A woman's desire on using contraceptive method is partially affected by her status in the household and her own sense of empowerment. We have classified this variable into two categories: Yes or not.

Children Ever Born

Children ever born comprise information on the number of children born alive (lifetime fertility) and should include all children born alive (that is to say excluding fetal deaths and stillbirths) during the lifetime of the woman concerned up to the census date. Children ever born are recorded into two categories i.e. ≤ 2 children and > 2 children.

Knowledge about HIV/ AIDS

Knowledge about HIV/AIDS is very important health-related characteristics of the study. Education plays an important role for achieving knowledge about HIV/AIDS. Knowledge about HIV/AIDS is recorded into two categories yes and no.

Exposed to Mass Media

Exposed to Mass media is dominant way to gather any information especially knowledge about HIV/AIDS, family planning advantages are known through it. Exposed to Mass media is recorded into two categories i.e. Yes and No.

Regular Group Meeting Attendance

To attend regular group meeting is institutional rules and bound obligation to the members and thus norms create in this way and it constitutes a powerful form of social capital. BRAC weekly central meeting norms of a micro-credit group are walking across the village to attend the centre meeting; sitting on a mat in a open yard or centre house with a group of women from different linkage and religions. Regular attend group meeting is recorded into two categories i.e. Yes and No.

Involved with NGOs

Last three decades, Bangladesh has developed in many sectors. Behind this success not only government action but also many national and international NGOs have worked to overcome the poverty, reduce fertility, decreasing the child mortality, decreasing the maternal mortality, enhance awareness to contraceptive use and after all build-up social capital by network based action. Involvement with NGOs is recorded into two categories i.e. Yes and No.

Fertility Intention

Fertility intention means desire for additional children. In Bangladesh, two children in a family are considered as an ideal family. The woman who wants more than two children is considered as more intention to have children. Fertility intention is recorded into two categories i.e. Yes and No.

2.4 Techniques of Analysis

Regardless of one's area of study, collecting information data on complex issues is usually anything but easy. One of the first decisions that the researcher faces concerns which variables to measure. In the very early stages of scientific inquiry there is often very little theory to rely on, and only the flimsiest of hypothesis can be formulated. Consequently, the research adopts a hit and misses strategy, collecting information on the typically large number of variables that might be relevant. When the many variables are measured besides rates, ratio and proportions, the analyses use the following demographic and statistical techniques and methods as per requirement of the study.

2.4.1 Bivariate Analysis

In case of bivariate analysis, which examines the independent variables individually, that gives only a preliminary notion of how important each variable is by itself. The examination of percentage in a bivariate analysis is an advantageous first step for studying the relationship between two variables, through these percentages do not allow for qualification or testing of that relationship. For this purposes, it is useful to consider various index that measure the extend of association as well as statistical test of the hypothesis that there is no association, chi-square test of independence is performed to test the existence of interrelationship among the categories of two qualitative variables. In this study, some variables such as women age, religion, monthly income, women education, occupation Contraceptive use, children ever born are considered to show the relationship In view of performing differential analysis, it is required to take these variables into categories on the basis of their respective standard ranges.

To determine which of the factors influence on the use of maternal health care service and treatment seeking behaviors of the study population, data is analyzed by the variables which affect maternal health care service.

2.4.2 Multivariate Analysis

In multivariate analysis, it is to examine each independent variable individually; it can provide information of how important each variable is by itself. The relative

importance of all the variables such as, age of respondent, age at marriage, religion, educational qualification, income etc. have to be examined simultaneously by applying prominent multivariate technique such as binary logistic regression and linear regression analysis.

2.4.3 Binary Logistic Regression Analysis

The logistic regression model is commonly used to describe the effect of one or several explanatory variables on a response variable. The goal of a logistic regression analysis is to find the best fitting and most parsimonious, yet biologically reasonable, model to describe the relationship between an outcome (dependent or response variable) and a set of independent (predictor or explanatory) variables.

The logistic regression model has been used in statistical analysis and frequently used in survival analysis for many years. It is more applicable because of its distribution free assumption of the categorical independent variable and obviously a powerful analytical tool for epidemiological research.

Since our outcome variables include both dichotomous variables, we employed both binary logistic regression. For the analysis of the dichotomous outcome the logistic distribution is preferred for two primary reasons: (i) from a mathematical point of view; it is an extremely flexible and easy used function, (ii) it lends itself to a biologically meaningful interpretation.

The logistic regression model allows a categorical variable (dichotomous variable) as dependent variable. Let Y is a dichotomous dependent variable, which takes values 0 and 1 i.e.;

$$Y_i = \begin{cases} 1, & \text{if the } i\text{th unit possesses the characteristic that } Y \text{ represents} \\ 0 & \text{if the } i\text{th unit does not have the characteristic that } Y \text{ represents,} \end{cases}$$

$$i=1,2,3,\dots,\dots,\dots,n$$

Also let there is a collection of k independent variables which will be denoted by the vector $X'=(x_1,x_2,x_3,\dots,\dots,x_k)$ and β be a $(k+1)\times 1$ vector of unknown parameters. For simplification, we can use the quantity $\pi(X)=P(Y=1|X)$ the probability that the event occurs conditional on the value of X .

Hence

$$\pi(x_i) = P(Y=1|X) = \frac{e^{g(x_i)}}{1 + e^{g(x_i)}} = \frac{e^{x_i\beta}}{1 + e^{x_i\beta}}$$

and

$$1 - \pi(x_i) = P(Y=0|X) = \frac{1}{1 + e^{x_i\beta}}$$

Hence
$$\frac{\pi(x_i)}{1 - \pi(x_i)} = e^{x_i\beta}$$

The central part of logistic regression in a transformation of $\pi(X)$ is known as logit transformation, which is defined in terms of $\pi(X)$, is as follows:

$$g(x_i) = \text{logit } \pi(x_i) = \log \left[\frac{\pi(x_i)}{1 - \pi(x_i)} \right] = x_i\beta$$

$$\Rightarrow g(x_i) = \beta_0 + \beta_1 x_{1i} + \dots + \beta_k x_{ki}$$

Which is the logit of the multiple logistic regression models? The logit, $g(X)$ is linear in its parameters and has many of the desirable properties of linear regression model.

With a two-category response variable, we will examine models for

$\log \left[\frac{\pi(x_i)}{1 - \pi(x_i)} \right]$. It is to be remarked that when these models are regression type

models, they are called logistic regression models. The two terms “logit” and “logistic regression” as applied to models, are essentially two names for the same idea.

Technically, the term logit and logistic are names for transformations. The logit transformation takes a number $\pi(X)$ between 0 and 1 and transforms it to

$\log \left[\frac{\pi(x)}{1 - \pi(x)} \right]$ The logistic transformation takes a number x on the real line and

transforms it to $\frac{1}{1 + e^{-\beta x}}$

Note that the logit transformation and logistic transformation are inverse of each other.

2.4.4 Multiple Classification Analysis (MCA)

In 1934 Yates developed the multiple classification analysis (MCA) and, it was later expanded and detailed by Anderson and Bancraft in 1952. In 1963, the computerized MCA program was prepared by a group of researchers at the Survey Research Center of the University of Michigan. Since then, the Multiple Classification Analysis require one dependent variable and two or more independent variables, but all the independent variables must be categorical variables. Multiple classification analysis can equally handle the nominal and ordinal variables and can also deal with linear and non-linear relationship of predictor variables with dependent variables. Mathematically, the model can be expressed by the following equation:

$$Y_{ijk} = \tilde{y} + a_i + b_j + c_k + \dots + e_{ijk}$$

Where,

Y_{ijk} is the value or score of an individual who falls in the i th category of a factor A, j th category of the factor B and k th category of a factor C.

\tilde{y} is the grand mean of Y.

a_i is the effect due to the i th category of a factor A, which is equal to the difference between \tilde{y} and the mean of its category of factor A.

b_j is the effect due to the j th category of a factor B; which is equal to the difference between \tilde{y} and the mean of its category of factor B.

c_k is the effect due to the i th category of a factor C, which is equal to the difference between \tilde{y} and the mean of its category of factor C.

e_{ijk} is the error term related with Y_{ijk} score of the individuals.

The coefficients, which are estimated by solving the normal equation systems, are called the adjusted or net effect of the predictors. These effects measure those of the predictor alone after taking into account the effect of all other predictors. If there is no interrelation among the predictors, the adjusted and unadjusted effects of the predictors will be same. The unadjusted, eta-square (η^2) coefficient is a correlation ratio, which explains how well the predictor variables explains variation in the dependent and is usually estimated by solving the normal equation with only one predictor. This unadjusted coefficient indicates the proportion of variance explained by a single predictor alone. Similarly, the beta-square (β^2) coefficient indicates the proportion of variation explained by the other predictor variables. The beta coefficient

is compared to the partial correlation coefficient in multiple regressions. Statistically, analysis of variance, multiple classification analysis and dummy regression are the same, but multiple classification analysis has some advantages. It provides estimates of each category of the predictor variable and at the same time provides the coefficients for explaining the strength of the relationship.

2.4.5 Path Analysis

A path analysis is one of the important techniques to show the causal linkages among the interrelated variables. The path analysis was first introduced by biologist Sewall Wright in 1934 in connection with decomposing the total correlation between any variable in a causal system. Path analysis assumes the existence of causal framework interlinking different predictor variables with the response variables. The technique of path analysis is based on a series of multiple regression analyses with the added assumption of casual relationship between independent and dependent variables. This technique lays relatively heavier emphasis on the heuristic use of visual diagram, technically described as a path diagram. The representation of the causal variable is called as a path model. The merit of path analysis in comparison to correlation analysis is that it makes possible the assessment of the relative influence of each antecedent or explanatory variable on the consequent or criterion variables by the first making explicit the assumptions underlying the casual connection and then by elucidating the indirect effect of the explanatory variables.

2.5 Construction of Social Capital Index

Loury (1977) is one of the earliest users of the term social capital, Bourdieu (1977, 1984, 1997), Coleman (1988) and Putnam et al. (1993, 1996, 2000) are recognized as the 'seminal perspectives' (Schuller et al. 2000, DeFilippis 2001). Bourdieu (1977) and Schuller et al. (2000) have defined social capital as aggregate of actual or potential resources derived from network of institutionalized relationships. Coleman (1988) understands social capital as particular resource gained by any actor through social processes like institutional obligations, expectations and trustworthiness, generating formation channels and setting norms effectively backed by sanctions.

Putnam et al. (1993) identifies trust, norms and networks as social capital. It is seen that despite their different approaches to and understanding of social capital, ideas of network and some kind of norm is present in all of their thinking.

In this section, Social Capital Index (SCI) is constructed to develop indicators of social capital formation among NGO members. The different indicators are considered for different issues considering the above ideas and different definition. Each of the issues of an indicator is quantified on the basis of the nature of the responses among respondents. The accuracy of the measurement of social capital formation depends on the selection of appropriate indicators. Social capital is consisted of social norm, trust and social networking. For this purpose, the variables considered are: regularly attending group meeting, involvement of NGO with long duration, loan from NGO, Opportunities from NGO, help with each other and assist to neighbor. The above variables express the social capital systems which are norm, trust and network. The SCI index is computed to give score for each category of the variables. The scores are then totaled to get the social capital index. The highest possible score for SCI is 11 and the lowest possible score is 0. Then, the range of score of SCI can be 0 to 11. For the convenience, the SCI have categorized as:

Category	Score range
Lower	0-3
Middle	4-7
Upper	8-11

The result shows that 28.5 % women belong lower, 13.3 % women from middle and 58.2% women from upper social capital index.

2.6 Statistical Software

Different software has been used to complete this study. The entire analysis of the study is done by most extensively using software SPSS (Statistical Package for Social Sciences) for windows (version 16.0) and MSWord 2007 are used simultaneously as they are also found to be necessary in different aspects. Some firsthand analysis such as frequencies, cross tabulations, construction of different tables, descriptive analysis, chi-square tests are performed through SPSS 16.0. The word processing software is used to prepare as well as presents all the outputs that are presented in this paper.

CHAPTER-THREE

Background Characteristics of the Study Population

3.1 Introduction

NGO has an impact to create social capital and fertility reduction. Fertility has serious health impact on women's health in developed as well as in developing world. It is important public health issues and grave concern for Bangladesh. This country has been passing through a dramatic transition of fertility trends and patterns through unplanned pregnancy. Considering the drastic effect fertility in Bangladesh, this chapter considers the trends of fertility, fertility intention and NGOs in Bangladesh during the last two decades. This chapter also provides information on the basic socio-demographic characteristics of the women in Bangladesh. It gives an idea about the situation of fertility in Bangladesh and the variation of fertility according to different characteristics. This information helps to study further in-depth analysis. It also helps in comparing the finding with similar characteristics in other independent survey findings.

This chapter provides a short descriptive summary of socio-economic, demographic, NGO related characteristics and some other relevant variables related fertility in Bangladesh. The trends of fertility have been observed to find out the increasing, decreasing nature of fertility and fertility intention in Bangladesh. This chapter presents a snap short picture of overall fertility intention, social capital and NGOs in Bangladesh.

3.2 Fertility Levels and Trends

Perhaps the most significant demographic change over the past three decades has been the substantial decline on fertility in all areas of the world since 1970-75 world total fertility has declined by 37% from 4.5 births per women to the 1995-2000 levels of

2.8. The large decline at the global levels reflects different changes in reproductive behavior in specially populous countries such as India, Indonesia, Pakistan and Bangladesh whose total fertility rates in 1970-75 were above 5 children (UN Population Division, 2002). It may be ascertained that fertility levels and trends in Bangladesh have been relatively high and fluctuating within a relatively narrow range except in catastrophic situations such as war and famines. The prospects for a dramatic decline in the birth rate do not appear to be bright given the age structure of the population, the early age at marriage, universality of marriage and the high traditional value given to childbearing and large families in the Islamic as well as the Hindu cultures. The slow pace of mortality decline, particularly the persistence of high infant and child mortality, does not provide a strong incentive for family limitation. Some argue that the decline in fertility level was achieved mainly because of successful family planning programs (Cleland et al., 1994). Population development programs have, no doubt, contributed to the fertility decline. However, several biological, demographically cultural factors and NGOs activities in Bangladesh are also involved for declining fertility level. In 1975, the TFR was so high in Bangladesh its scenario has been changed last three decades and behind this progress the activities of NGOs are remarkable, at present the TFR is 2.3 where 1975 was 6.3, the figure is shown below:

Figure: 3.1: Trends in Total Fertility Contraceptive Rates, in 1975-2011

Year	1975	1989	1991	93-94	96-97	99-00	2004	2007	2011
TFR	6.3	5.1	4.3	3.4	3.3	3.3	3.0	2.7	2.3
CPR	8	25	31	40	45	49	54	56	61

Sources: *Bangladesh Demographic and Health Survey -2011*

In the decades 1980s, the various NGOs (national and international) are working in the rural areas in Bangladesh. They have many health related programs especially Grameen Bank and BRAC are continuously running their programs to eradicate the poverty and social consciousness programs and some of them ; increase the use of contraceptive method to keep small family size are mentionable. From BDHS report

shows that in 1975, the contraceptive prevalence rate was only 8 now it has been increased and it is 61, the figure is shown below: undoubtedly say that to reduce the fertility, the NGOs activities in Bangladesh is remarkable.

3.3 Socio-Economic Characteristics

Socio-economic characteristics of women are important role to study social capital, fertility and fertility intention. The variables reflecting the picture of social and economic status of a community are termed as socio-economic variables. The socio-economic status of women is represented by socio-economic variables. Socio-economic factors have influence on women's health status. The distribution of economic conditions and social benefits is closely related to women's health. In this study, some socio-economic characteristics such as women's education, husband's education, women's occupation, husband occupation place of residence, religion, monthly income, monthly expenditure, having electricity, having household assets are considered as socio-economic variables. The frequency and percentage distribution of women by some selected socio-economic variables are given table 3.1

Women's Education

Table 3.1 presents the percentage distribution of women's educational qualification. Education is the key to any success such that educational qualification is very important for any improvement of people of any nation about any matter. Education is the backbone of a nation, without education a nation can not be civilized nation. Education affects almost all human life, including demographic and health related behaviors. It provides pupils teaching skills that prepared them physically, mentally and socially .Education has great impact on fertility, fertility intention and builds social capital. The result indicates that most of the women have completed primary education and their percentage is 31.7 and the secondary and higher education has been completed 22.5% and 18.7 respectively.

Women's Occupation

Table 3.1 presents the percentage distribution of women's occupation. Occupation is one of the important socio-economic variables, which influence the human behaviors

and characteristics. The women who hold higher occupational status generally be more decent do not involve with unfair activities. Among the respondents most of the women are house wife and their percentage is 87.6 and a few numbers of women are involved with petty business and their percentage is 7.6

Husband's Education

Table 3.1 presents the percentage distribution of husband educational qualification. Education of husband for any family is very important part of life because husband is a driver of the family. If driver of a vehicle is educated then every function will be run smoothly. So to run appropriately the family husband education is very compulsory. Besides, education is the key of any success so that, to have educational qualification is very important for any improvement of people of any nation about any matter. Education is the backbone of a nation, without education a nation can not be civilized nation. Education affects almost all human life, including demographic and health related behaviors. It provides pupils teaching skills that prepared them physically, mentally and socially .Education has great impact on fertility, fertility intention and builds social capital. The result indicates that most of the husband has completed primary education and their percentage is 31.9 and the secondary and higher education has been completed 21.1% and 23.3 respectively.

Husband's Occupation

Table 3.1 presents the percentage distribution of husband occupation. Occupation is one of the important socio-economic variables, which influence the human behaviors and characteristics. The women who hold higher occupational status generally be more decent do not involve with unfair activities. Most of the husband of the respondent's is engaged with small business and their percentage is 30.3. 29.7 percent husband is self employed and 20.5 percent husband are service holder.

Religion

Table 3.1 presents the percentage distribution of women's religion. Bangladesh is Muslim dominant country in the world. Although other religions people live in this country but their percentage is very few. From my frequency table, the results shows

that most of the women are Muslim and their percentage is 77.7 and rest of the women are Non-Muslim.

Monthly Family Income

The percentage distribution of monthly family income is shown in the table 3.1. Income is one of the most important socio-economic characteristics which play an important role in social and human life. The socio-economic condition of the study area is not so good. Here most the people are involved with small business and agriculture-labor sector. It is observed that 34.1% families have monthly income below 5000 Taka, 37.1% families have monthly income in the range 5000-8000Taka, 11.4% families have monthly income in the range 8000-10000 Taka, and 17.1% families have monthly income above 10000 Taka and the average monthly income is 6171.69 Taka.

Monthly Family Expenditure

Table 3.1 presents the percentage distribution of women's family expenditure. Expenditure is another important socio-economic characteristic which play an important role in social and human life. The proverb say, "The cut your coat according to your cloth". Although the socio-economic condition of the study area is not so good. But most the respondents maintain family within their income and try to save money after maintaining family. It is observed that 49.4% families have monthly expenditure below 5000 Taka, 30.3% families have monthly expenditure in the range 5000-8000Taka, 12.2% families have monthly expenditure in the range 8000-10000 Taka, and 8% families have monthly expenditure above 10000 Taka and the average monthly expenditure is 5286.75 taka. From this figure we conclude that most of the women have savings tendency and have got the effect of NGOs activities.

Types of House

Table 3.1 presents the percentage distribution of women's type of house. Types of main living house are considered as indicator of economic position of the households. The result shows that about 53.8 % women's dwelling place is made of mud, 25.1% is made of building and 21.1% are made of semi building.

Having Electricity and Household Assets

Table 3.1 presents the percentage distribution of women's having electricity and household assets. Having electricity and household assets are another two important socio-economic characteristic for standard living life. Without electricity there can not be imagine better life. The results have found that most of women's house has electric supply and their percentage is 75.5 and maximum women get opportunity to show TV and get information about family planning and others prospect. Also the result shows that 85.9 % women belongs household assets which can be said to have better life instrument.

Respondent's Children School Status

Table 3.1 presents the percentage distribution of respondent's children school status. Various national and international NGOs are working in Charghat area and those NGOs have many supplementary programs instead of micro-credit especially BRAC ensures the women's children education. From the study 64.7 % children go to school regularly.

Table: 3.1 Percentage Distributions of Women by Selected Socio-Economic Characteristics at Charghat Thana in Rajshahi District.

Socioeconomic characteristics	N	Percent (%)
Women's Education		
No education	135	27.1
Primary	158	31.7
Secondary	112	22.5
Higher	93	18.7
Women's Occupation		
Petty Business	38	7.6
House wife	436	87.6
Others	24	4.8
Husband Education		
No education	118	23.7
Primary	159	31.9
Secondary	105	21.1
Higher	116	23.3
Husband Occupation		
Agriculture	97	19.5
Small Business	151	30.3
Self employed	148	29.7
Service	102	20.5
Religion		
Muslim	387	77.7
Non Muslim	111	22.3
Monthly family Income(TK)		
< 5000	170	34.1
5000-8000	185	37.1
8000-10000	57	11.4
>10000	56	17.3
Monthly family Expenditure (TK)		
< 5000	246	49.4
5000-8000	151	30.3
8000-10000	61	12.2
>10000	40	8.0
Type of Resident		
Mud made	268	53.8
Building	125	25.1
Semi building	105	21.1
Having Electricity		
No	122	24.5
Yes	376	75.5
Having House hold Asset		
No	70	14.1
Yes	428	85.9
Women's children school status		
No	176	35.3
Yes	322	64.7

3.4 Demographic Characteristics

Bangladesh is among the least development country of the third world countries. Demographic variables (e.g. respondent's age, age at marriage, contraceptive use, type of family, CEB and fertility intention) play an important part in this study. Demographic characteristics of the respondent's have vital role to play in the analysis of fertility, fertility intention and social capital with NGOs activities. The frequency and percent distribution of the selected demographic variables are given the table 3.2

Women's Age

Table 3.2 presents the percentage distribution of women's age. Age composition of the people is one of the very important demographic characteristic, which is presented in the table .Age is often presented as a proxy for accumulated experience, including in the use of health services (Burgard S.2004). From table value it is observed that most of the respondent's age comprises 26- 45 years and their percentage is 43.4% which has said to be young and middle group. 20.1 % women are in the age group 15-25, 36.5% women are in the age above 45 years. From the information we may conclude that age group 26-45 contains the highest of women and age group 15-25 contains the lowest percent of women.

Family Size

Table 3.2 presents the percentage distribution of family size. Family size is the important variable for demographic analysis. Family size keeps impact on another variable. From the result, we get 43.4% families have below 4 persons, 50.4 % families have 4-6 persons and 6.2% families have above 6 persons.

Age at Marriage

Table 3.2 presents the percentage distribution of women's age at marriage. Age at marriage is another important demographic characteristic which is presented table. In Bangladesh legal minimum age at marriage is 18 years. But mean age at marriage of Bangladesh is 15.3 (NIPORT,-20011). From the above table it is observed that fifty

percent (50%) women's age at first marriage is under 18 years and another fifty percent women's age at first marriage is over 18 years.

Women's Idea about Family Planning

Table 3.2 presents the percentage distribution of women's idea about family planning. Women's idea about family planning is also an important demographic variable. We observed that from our below table reveals among our total respondent's 94.0% have idea about family planning and only 6.0 % has no idea about family planning.

Knowledge about Family Planning

Table 3.2 presents the percentage distribution of women's knowledge about family planning. Family planning is important part demographic and health characteristics, at present maximum people have interested to show TV and have habit listening Radio. The result shows that 71.1% women have known about family planning through TV and Radio, 23.7% women have known about family planning by NGO volunteer and 5.2 % women have known about family planning through public mouth.

Used Contraceptive Method

Table 3.2 presents the percentage distribution of women's used contraceptive method. Contraceptive use of women plays an important role for fertility control and unplanned pregnancy and also important for preventing knowledge about HIV/AIDS. From 3.2 table the respondents who are involved with NGOs are more used contraceptive method than not involved with NGOs that is the percentage of using contraception involved with NGOs is 76.4% and the percentage of using contraceptive method not involved with NGOs is 69.7% which impact on reducing fertility.

Fertility Intention

Table 3.2 presents the percentage distribution of women's fertility intention. In Bangladesh, two children in a family are considered as an ideal family. In this study, the woman who wants more than two children is considered as more intention to have children. From table 3.2, the result shows that the respondents who are involved with

NGOs less interested to have more child than women who do not involvement with NGOs. The result shows that the percentage of intention to have more children involved with NGOs is 20.8% and the percentage of intention to have more children not involved with NGOs is 21.1%.

Children Ever Born

Table 3.2 presents the percentage distribution of children ever born. Number of children ever born (CEB) is a vital demographic characteristic to analysis the fertility and fertility intention. Fertility intention depends on the number of living children of a women and their socio-economic condition. From table 3.2, we observe that 34.5 percentage women have 0-1 child, 32.9 % women have two child and 32.9 % women have 2+ children.

Table 3.2: Percentage Distribution of Women by Selected Demographic Characteristics at Charghat Thana in Rajshahi District

Demographic characteristics	N	Percent (%)
Women Age		
15-25	100	20.1
26-45	216	43.4
45+	182	36.5
Family size		
<4	216	43.4
4-6	251	50.4
>6	31	6.2
Age at Marriage		
<18 years.	249	50.0
≥ 18 years	249	50.0
Knowledge about family planning		
No	30	94.0
Yes	468	6.0
Sources of Family Planning		
Radio/TV	354	71.1
NGO	118	23.7
Others	26	5.2
Contraceptive use among All		
No	127	25.5
Yes	371	74.5
Contraceptive use for only NGO member		
No	84	23.6
Yes	272	76.4
Contraceptive Use among Non member		
No	43	30.3
Yes	99	69.7
Fertility Intention (combined)		
No	394	79.1
Yes	104	20.9
Fertility Intention (NGO member)		
No	282	79.2
Yes	74	20.8
Fertility Intention (Non member)		
No	112	78.9
Yes	30	21.1
No. of CEB		
0-1	172	34.5
2	164	32.9
2+	162	32.5

3.5: Health Related Characteristics

Health status of Bangladeshi people is not at normal. Health plays great impact on respondent's knowledge about HIV/AIDS, taking drinking water, use hygienic latrine etc. Health is the root of all happiness and it is correlated with other socio-economic and demographic variable. The frequency and percent distribution of health related variables are given the table 3.3

Taking Healthcare During Illness

Table 3.3 presents the percentage distribution taking healthcare during illness. The over all socio-economic condition of my study is is not high. Most of the respondent's monthly family income is under five thousand (table 3.1) so during illness they go to government hospital for the treatment. From the table value we get 64.7 percent women take treatment from government hospital, 23.1% women take treatment from NGO healthcare clinic and 12.2 % women take treatment from village doctors.

Source of Drinking Water

Table 3.3 presents the percentage distribution of source of drinking water. To be healthy pure drinking water is very important. Every disease is carried out from the uncured water. From the information it is conclude that 97.4 % families the main source of drinking water is tube-well and tap and only 2.6 % families the main source of drinking is alternative way.

Types of Toilet

Table 3.3 presents the percentage distribution of types of toilet. Types of toilet is also a another important heath indicator. From the information we show that most of the family member use semi-sanitary toilet and their percentage are 44.4 %, 33.7 % family use sanitary toilet and 21.9 % family use row toilet.

Knowledge about HIV/ AIDS

Table 3.3 presents the percentage distribution of knowledge about HIV/AIDS. Knowledge about HIV/AIDS is very important health characteristics of the study.

Education plays an important role for achieving knowledge about HIV/AIDS. From my collected information, maximum respondents are completed primary education and have practices to listen Radio, TV. The result shows 76.9 % women have idea about HIV/AIDS and 23.1% women have no idea about HIV/AIDS.

Type of Family Planning Method

Table 3.3 presents the percentage distribution of type of family planning method. Type of family planning method plays an important role for fertility control and unplanned pregnancy and also important for preventing knowledge about HIV/AIDS. All methods are not suit every women for this before using contraceptive method to discuss the doctor is very important. From the table 3.3 we observed that among the total respondents, maximum women use oral contraceptive pill and their percentage is 55.6, 19.1% women use injection. 17.5% women's husband use condom, 7.4% women have taken permanent method (female sterilization) and only 0.4 % women's husband has been done male sterilized.

Source of Family Planning Method

Table 3.3 presents the percentage distribution of source of family planning method. To control fertility available supply of contraceptive method is very emerging part. To create the awareness about the use of family planning method government health volunteer go to door to door besides various NGO volunteer serves the giving contraceptive method. On the basis of these total efforts (Govt. and NGO) has kept important role to reduce fertility in Bangladesh. From the above table among the total contraceptive user's 41% women get CP from Government health volunteer, 33.1 % women get contraceptive from NGO sector and 25.95 women purchase contraceptive from market.

Exposed to Mass Media

Table 3.3 presents the percentage distribution of exposed to mass media. Exposed to mass media is dominant way to gather any information especially knowledge about HIV/AIDS, family planning advantages are known through it. From table 3.3 we conclude that 68.1% women are exposed to mass media and 31.9% women are not exposed to mass media.

Table 3.3: Percentage Distribution of Women by Selected Health-related Characteristics at Charghat Thana in Rajshahi District

Health related characteristics	N	Percent (%)
Taking healthcare during illness		
Govt.Hospital	322	64.7
NGO healthcare	115	23.1
Village Doctors and Others	61	12.2
Source of Drinking Water		
Tube well/tape	485	97.4
Other	13	2.6
Type of Toilet		
Sanitary	168	33.7
Semi-Sanitary	221	44.4
Open	109	21.9
Knowledge about HIV/AIDS		
No	115	23.1
Yes	383	76.9
Source of knowledge about HIV/AIDS		
Mass Media	289	58.0
NGO volunteer	147	29.5
Public Mouth	62	12.4
Type of family planning Method		
Pill	272	55.6
Injection	95	19.1
Condom	87	17.5
Female sterilization	32	7.4
Male sterilization	12	0.4
Sources of family planning Method		
Bazaar	139	25.9
Govt.Health volunteer	204	41.0
NGO Volunteer	155	33.1
Prevention way from HIV/AIDS		
No	161	32.3
Yes	337	67.7
Exposed to Mass Media		
No	159	31.9
Yes	339	68.1

3.6 Social Capital and NGO Related Characteristics

Network based resources build social capital if the support individuals to reach their goals. NGO members receive varieties co-operation and give cooperation to other members such as borrow money, small help by giving and taking commodities and shows humanity with each other. Hence we conclude that the NGOs in Bangladesh are contributing to build-up social capital by their activities (made by group with 6 members and select a leader, a centre is made by this type of 5 groups and a chairman is elected among the 6 leaders who performs ensure weekly group meeting, ensure loan taking qualification and discuss with program officer about various problems of members). Regular group meeting attendance. Duration involved with NGOs, cooperation to NGO member is considered to the social capital and NGO related variables.

Involved with NGOs

Table 3.4 presents the percentage distribution of NGOs involvement. Last three decades, Bangladesh has developed in many sectors. Behind this success not only govt. action but also many national and international NGOs have worked to overcome the poverty, reduce fertility, decreasing the child mortality, decreasing the maternal morality, enhance awareness to contraceptive use and after all build-up social capital by network based action. In this study, the 356 women (71.5%) are involved with NGOs and 142 women (28.5%) are not involved with any NGO. Among them most the respondent's are engaged with Grameen Bank (48%), 35.1% women are involvement with BRAC and 16.9% women are involved with other NGO.

Duration Involved with NGOs

Table 3.4 presents the percentage distribution of duration involved with NGOs. The study found that less than five years involved with NGOs is 43 % women and greater than or equal five years involved with NGOs is 57% women. Here the result shows most the women are involved with NGOs a long time so we conclude that NGOs involved women are benefited socially and economically and they are being empowered.

Regular Group Meeting Attendance

Table 3.4 presents the percentage distribution of regular group meeting attendance. From table 3.4, we get most of the women (87.4%) attend group meeting regularly. To attend regular group meeting is institutional rules and bound obligation to the members and thus norms create in this way and it constitutes a powerful form of social capital. BRAC weekly central meeting norms of a micro-credit group are walking across the village to attend the centre meeting; sitting on a mat in a open yard or centre house with a group of women from different linkage and religions.

Cooperation to NGO Member

Table 3.4 presents the percentage distribution of getting cooperation from NGO members and neighbors, doing cooperation to NGO members and neighbors. The group members are cooperative each other, from collected data observed that 84% respondents receive varieties co-operation and 87.1% respondents give cooperation to others members such as borrow money, small help by giving and taking commodities and shows humanity with each other. On the other hand over all respondents (involved with NGOs & not involved with NGOs), the percentage of any types of cooperation to neighbors is about 62.7% which is less than to NGOs members. Hence we conclude that the NGOs in Bangladesh are contributing to build-up social capital by their activities (made by group with 6 members and select a leader, a centre is made by this type of 5 groups and a chairman is elected among the 6 leaders who performs ensure weekly group meeting, ensure loan taking qualification and discuss with program officer about various problems of members).

Increased Monthly Income after Joining with NGOs

Table 3.4 presents the percentage distribution of increased monthly income after joining with NGOs, feel family solvency among NGO member and non member. We have followed that 78.1% respondents have answered their monthly family income has increased after joining with NGOs and the percentage of family solvency not involved with NGOs is 52.1% & the percentage of family solvency involved with NGOs is 64.3% which is greater than not involved with NGOs. From this here we can say that the NGOs are keeping important role to alleviate poverty by their micro-credit activities in Bangladesh.

Table-3.4: Percentage Distribution of Women by Selected Social Capital and NGO Related Characteristics at Charghat Thana in Rajshahi District.

Social capital and NGO related Characteristics	N	Percent (%)
Involved with NGOs		
No	142	28.5
Yes	356	71.5
Name of NGOs		
BRAC	125	35.1
Grameen Bank	171	48.0
Others	60	16.9
Duration involved with NGOs		
< 5yrs	153	43.0
> 5yrs	203	57.0
Regular Group meeting attendance		
No	45	12.6
Yes	311	87.4
Getting Cooperation from NGO Member		
No	57	16.0
Yes	299	84.0
Doing Cooperation to NGO Member		
No	46	12.9
Yes	310	87.1
Getting Cooperation from Neighbor		
No	186	37.3
Yes	312	62.7
Doing Cooperation to Neighbor		
No	182	36.5
Yes	316	63.5
Increased Monthly Income after joining with NGOs^{2a}		
No	78	21.9
Yes	278	78.1
Feel family solvency (among NGO member)		
No	127	35.7
Yes	229	64.3
Feel family solvency (among Non member)		
No	68	47.9
Yes	74	52.1

3.7 Conclusion:

From the above discussion we may conclude the maximum respondents are less interested to have more children who are involved with NGOs so we may say that involvement with NGOs plays important role for build-up social capital, and fertility intention. on the other hand, practices of contraceptive use have been more among the NGO members (76.4%) which impact on reducing fertility. Last three decades, Bangladesh has developed in many sectors. Behind this success not only govt. action but also many national and international NGOs have worked to overcome the poverty, reduce fertility, decreasing the child mortality, decreasing the maternal mortality, enhance awareness to contraceptive use and after all build-up social capital by network based action.

The NGO group members are cooperative each others and they receive varieties cooperation and give cooperation to others members such as borrow money, small help by giving and taking commodities and shows humanity with each other. On the other hand, not involved with NGOs are less interested to co-operate each other. Hence we conclude that the NGOs in Bangladesh are contributing to build-up social capital by their activities (made by group with 6 members and select a leader, a centre is made by this type of 5 groups and a chairman is elected among the 6 leaders who performs ensure weekly group meeting, ensure loan taking qualification and discuss with program officer about various problems of members). So we can say that the NGOs are keeping important role to build social capital, fertility reduction and alleviate poverty by their micro credit activities in Bangladesh.

Fertility Intention and Fertility Determinants at Charghat Thana in Rajshahi District

4.1 Introduction:

“Fertility intention is the desire or aspiration of a women to bear additional children in context of Social and economic suitability”. Woman who wants more than two children are considered as more intention to have children Fertility has a great impact on the socio-economic condition of a society. Bangladesh, along with other obstructions to socio-economic development, is burnt with a high fertility rate. It has a growth rate of 1.30 percent per year. Recently, a decline in fertility rate is noticed. Despite the recent decline from 6.3 in 1975 to 2.7 in 2007 and recently it has declined to 2.3 (Mitra et al. 2011), the fertility rate is still far above the replacement level. The recent decline in fertility has created much interest among researchers, policy makers and academics because such a dramatic change in fertility has occurred in Bangladesh without a substantial improvement in the socio-economic status, health conditions and other factors which are usually required for fertility decline (Amin et al. 1993). However, non-governmental organization has played a vital role in fertility reduction by forming social capital among the members. Various studies suggest that there is direct and indirect relationship with fertility, fertility intention and social capital (Putnam 1993, Christop and Ewa, 2003, Rossier and Bernardi 2010). The NGO activities was not only economic one, but also raising rural women’s awareness in socio-medical as well as providing different levels of loans to different group members through group formation. Access to credit helps them to generate self-employment which will enhance their earning, lead to empowerment, cooperation each other, discuss about their problem to each other, helps neighbor, increase mobility, decision making power, greater control over their lives, resulting make to form social capital among NGO members. The different NGOs are working on fertility reduction by supplying contraceptive materials and do research on fertility intention behavior. NGO has a microcredit program and microcredit is always

depending upon social capital which involves management practices of lenders and patron-client relationships between borrowers and lenders (Bali Swain 2007). This chapter focuses on the determinants of fertility and the factors associated with fertility intention with NGO activities.

4.2 Fertility Intention:

In Bangladesh, two children in a family are considered as an ideal family. In this study, woman who wants more than two children are considered as more intention to have children. Table 4.1 presents the fertility intention status by some selected socio-economic, demographic and NGO related characteristics. The result shows that fertility intention status increases as women as increases. This is highly significant. Muslim women have more intention to have children than their non-Muslim counterparts. Education has inversely related with fertility intention. Illiterate women have about 9 times more tendency to take another birth than literate women. Occupation has impact on fertility intention. About 33.7 percent housewife wants more births whereas 21.1 percent petty business and only 12.5 percent service woman wants another birth. Monthly income is insignificantly related to fertility intention. Women who marry at early ages among them 36.9 percent wants more child and 26.5 percent wants more child who married at later ages of 18 years and over. Women who don't use any contraceptive have intended to take more fertility than women who use any methods of contraceptives. Social capital index has a strong impact on fertility intention. The result indicates that SCI has inversely related with fertility intention. It shows more than two-thirds women (70.0%) have less than two children among upper SCI women and only 30 percent upper SCI women have greater than two children and more. On the other hand, the opposite scenario is seen among middle and lower SCI women. The percentage is higher among middle and lower SCI women than upper SCI women. The relationship is significant with fertility intention and SCI.

Table 4.1 Association of Fertility Intention with Some Selected Socio-Economic, Demographic and NGO Related Variables

Characteristics	CEB		Total
	< 2 child	>2 child	
Women Age			
15-25	91.0	9.0	100.0
26-35	77.3	22.7	100.0
35+	45.1	54.9	100.0
Pearson χ^2 P-value = 0.00			
Religion			
Muslim	66.9	33.1	100.0
Non Muslim	73.0	27.0	100.0
Pearson χ^2 P-value = 0.28			
Women Education			
No education	42.2	57.8	100.0
Primary	67.7	32.3	100.0
Secondary	79.5	20.5	100.0
Higher	93.5	6.5	100.0
Pearson χ^2 P-value = 0.00			
Women Occupation			
Petty trade	78.9	21.1	100.0
House wife	66.3	33.7	100.0
Service	87.5	12.5	100.0
Pearson χ^2 P-value = 0.03			
Monthly family Income			
<=5000	67.6	32.4	100.0
>5000	69.1	30.9	100.0
Pearson χ^2 P-value = 0.72			
Age at Marriage			
<18 years	63.1	36.9	100.0
≥ 18 years	73.5	26.5	100.0
Pearson χ^2 P-value = 0.01			
Contraceptive Use			
No	58.3	41.7	100.0
Yes	71.7	28.3	100.0
Pearson χ^2 P-value = 0.01			
Exposed to Mass Media			
No	61.6	38.4	100.0
Yes	71.4	28.6	100.0
Pearson χ^2 P-value = 0.02			
Having Household Assets			
NO	61.4	38.6	100.0
Yes	69.4	30.6	100.0
Pearson χ^2 P-value = 0.18			
Involvement with NGOs			
NO	66.9	33.1	100.0
Yes	68.8	31.2	100.0
Pearson χ^2 P-value = 0.68			
Duration involvement with NGOs			
≤5yrs	72.2	27.5	100.0
> 5yrs	80.0	20.0	100.0
Pearson χ^2 P-value = 0.30			
Regular Group meeting attendance			
No	43.0	57.0	100.0
Yes	76.2	23.8	100.0
Pearson χ^2 P-value = 0.00			
Received Cooperation from NGO Member			
NO	59.6	40.4	100.0
Yes	70.6	29.4	100.0
Pearson χ^2 P-value = 0.10			
Doing Cooperation to NGO Member			
No	58.7	41.3	100.0
Yes	70.3	29.7	100.0
Pearson χ^2 P-value = 0.11			
Social Capital Index			
Lower	60.6	39.4	100.0
Middle	66.7	33.3	100.0
Upper	70.0	30.0	100.0
Pearson χ^2 P-value = 0.03			

Table 4.2 Variables and their Categories for Logistic model are given below:

Dependent variable	Independent variable	Categories
Y = Fertility Intention 1 = Yes 0 = Otherwise	X1 = Age	1 = 15-25 years 2 = 26-35 years 3 = 35+ years
	X2 = Religion	1 = Muslim 2 = Non Muslim
	X3 = Women education	0 = No Education 1 = Primary 2 = Secondary and Higher
	X4 = Age at Marriage	1 = <18 years, 2 = ≥18 years
	X5 = Monthly family Income	1 = ≤5000 TK., 2 = >5000 TK.
	X6 = Contraceptive Use	0 = No, 1 = Use
	X7 = Children Ever Born (CEB)	1 = ≤ 2 child, 2 = >2 child
	X8 = Knowledge about HIV/AIDS	0 = No, 1 = Yes
	X9 = Exposed to Mass Media	0 = No, 1 = Yes
	X10 = Household Assets	0 = No, 1 = Yes
	X11 = NGO Membership	0 = No, 1 = Yes
	X12 = Regular Group Meeting Attendance	0 = No, 1 = Yes
	X13 = Social Capital Index	1 = Lower, 2 = Middle, 3 = Upper

4.3 Factors Affecting Fertility Intention (Logistic Model)

Throughout the 20th century, the nature of fertility has h changed. In modern societies, fertility is very much characterized by people's active demand for children. due to the prevalence of family planning and contraceptive use, fertility is less dependent on individuals natural fecundity, but their desire for children, i.e. by their willingness to have a particular number of children at particular periods in their life courses. Consequently, fertility became very much an outcome of processes of decision making and purposeful behavior. Fertility intention is a central part of purposeful

behavior and inform about reproductive plans. Communication networks are important for reproductive behavior and contraceptive use, as these networks transfer fertility-related information, experiences and create structures of interpersonal influence.(Buhler and kohler 2004). Personal networks are characterized also by exchanges of material and non-material resources such as money, goods, services, power or the capacity to work. The question, therefore, arises whether personal networks influence fertility by exchange relationships. Recent studies using data from Russia, Poland, Hungary and Bulgaria document the positive significance of supportive resources located in social networks, attributed as individual social capital, on fertility intention -Buhler and Fratzcak (2005); Philipov et al (2004); For Germany and Bulgaria, the results confirm the hypothesized role of social capital for the intention to have a second child. In Italy, the very people who receive informal childcare by relatives and friends, and who could therefore assume to get the same help for a second child, more often declare that they do not intend to have a second child in the next three years as compared to people who cannot fall back on informal help. Bulbo and Mills (2011) find that the presence of siblings who have small children could have the effect of postponing having another, probably due to a lack of availability of informal child care from the grandparents, but at the same time lower family social capital –where family social capital is defined as closeness among the members of the extended family –positively influences the realization of the intention to have another child.

Table 4.3 presents the results of logistic model analysis for the fertility intention by some selected socioeconomic, demographic and NGO related variables. Women age has an great impact on fertility intention status. The results indicates that middle aged women 26-35 years have 76 percent less likely and older women aged 35 and over have 98 percent less likely to have fertility intention respectively than younger women aged less than 25 years.

Religion also influences fertility intention status. Muslim women are 1.2 times more likely to have fertility intention than their non-Muslim counterparts.

Education plays vital role on fertility intention status. The result indicates that primary completed women have 42 percent less likely and secondary and higher educated women have 22 percent less likely to have fertility intention respectively than illiterate women.

Age at marriage influences on fertility intention status. The result shows that women who have married under 18 years old have 21 percent less likely to have fertility intention than the women who have married above and equal 18 years.

The women whose family income is low those are more interested to take another child. The result indicates that women whose monthly family income is greater than taka five thousand have 22 percent less likely to have fertility intention than women whose monthly family income is less than or equal taka five thousand.

Contraceptive use has a great impact on fertility intention status. The result founds that women who do not use any contraceptive method are 1.25 times more likely to have fertility intention than the contraceptive user women.

Number of living children of women has great significant impact on fertility intention. The women who already exit more than two children have 15 percent less likely to have fertility intention than women who bearing one or two children.

Knowledge about HIV/AIDS has much more influence on fertility intention status. The result indicates that women with knowledge about HIV/AIDS have 15 percent less likely to have fertility intention than those women who have no knowledge about HIV/AIDS.

Exposed to Mass media has much important factor on fertility intention status. Women who are exposed to mass media reported that those women are 38 percent less likely to have fertility intention than those women who are not exposed to mass media.

Household assets have also influence on fertility intention status. Women who have household assets are 1.4 times more likely to have fertility intention than those women who have no household assets.

The result indicates that the women who are involved with NGOs are 1.5 times more likely to have fertility intention than women who don't involve with NGO.

The NGO members are to obey some rules after joining with any NGO. Attendance of regular group meeting is compulsory rules and practices of being a NGO member. This is also a criterion for social capital as a norm. The result indicates that the women who attend regular group meeting are 35 percent less likely to have fertility intention than those women who don't attend regular group meeting.

Social Capital Index has great impact on fertility intention. The result indicates that the women who have middle social capital index are 22 percent less likely to have fertility intention than those women who have lower social capital index and the women who have upper social capital index are 31 percent less interested to have fertility intention than those women who have lower social index.

Table 4.3 Results of Logistic Model Analysis for the Effects of Fertility Intention by Some Selected Socio-Demographic and NGO Related Variables

Characteristics	Coefficient (β)	S.E.of (β)	P-value	Odds ratio
Respondent's Age				
15-25(RC)	.....	.....	.....	1.000
26-35	-1.424	.289	0.00	0.241***
35+	-3.787	.508	0.00	0.023***
Religion				
Muslim	0.546	0.334	0.49	1.223**
Non Muslim(RC)	.....	.....	.....	1.000
Respondent's Education				
No education (RC)	.....	.....	.....	1.000
Primary	0.543	.399	0.06	0.58*
Secondary & Higher	-0.246	.309	0.09	0.78*
Age at Marriage				
<18 years	-0.231	0.266	0.08	0.794
\geq 18 years(RC)	.....	.....	.....	1.000
Monthly family Income				
\leq 5000 (RC)	.....	.....	.....	1.000
>5000	-0.247	0.26	0.34	0.783
Contraceptive Use				
No	1.249	0.341	0.00	1.249
Yes(RC)	.....	.....	.....	1.000
No. of CEB				
\leq 2 (RC)	.....	.....	.....	1.000
>2	0.702	0.27	0.01	0.851**
Knowledge about HIV/AIDS				
NO (RC)	-0.281	0.31	0.37	0.764
Yes	.....	.....	.....	1.000
Exposed to Mass Media				
No (RC)	.....	.....	.....	1.00
Yes	-0.428	0.274	0.08	0.625*
Household Assets				
No (RC)	.....	.....	.....	1.000
Yes	0.341	0.404	0.39	1.403
NGO Membership				
No	.....	.....	.....	1.000
Yes	0.433	0.544	0.09	1.542
Regular Attend Meeting				
No	.....	.....	.....	1.000
Yes	-0.652	0.489	0.11	0.652
Social Capital Index				
Lower(RC)	.....	.....	.....	1.000
Middle	-0.064	.401	0.09	0.878*
Upper	-0.246	.209	0.03	0.689**

Note: ***P<0.01, **P<0.05 and *P<0.10

Model Summar		
-2Lo likelihood	Cox & Snell R S uare	Na elkerke R S uare
588.675	0.437	0.559

4.4 Fertility Determinants:

In demographic literature, fertility is concerned with the propensity of women in a population to bear children. It indicates the actual reproductive performance of a woman or a group of women or to the relative frequency with which the birth occur in total population of in the population exposed to clear it. The fertility of a country relies on the information of the actual number of births, different birth rates, the levels, patterns and trends of birth rates. In a country adequate reliable data on the number of births, birth rates and trend of birth rates are rare. Several studies conducted in the early sixties reported total fertility rate as seven in Bangladesh (Afzal, 1967; Aladdin and Faruquee, 1983). A slight decrease in fertility was documented in Bangladesh between 1975 and 1983 (Amin, Becker and Chowdhury, 1990). In recent years, a dramatic decline in fertility in Bangladesh has been found that the total fertility rate has declined from 6.3 children per women in 1975 to 3.5 in 1995 (MHPC, 1978:73; BBS, 1996). During the period 1975-1996, the total fertility rate dropped by approximately half, from about six children per women to about three per women (Khuda et. al., 1999). In Bangladesh, it is now well documented the fertility decline though disagreement persists regarding the magnitude of the decline. This appreciable decline in fertility in Bangladesh took place under diverse socioeconomic and cultural circumstances where NGOs play a great role through their microcredit program and by forming social capital among their members. But unexpectedly, total fertility rate remains unchanged and stagnant at around three children per women during a decade from 1993 to 2000 (Bairagi et al, 2001). After a plateau situation of fertility, the total fertility rate has decreased to 2.7 (BDSH, 2007 and recently BDSH survey is estimated at 2.3 (BDSH, 2011). This section focuses on determinants of fertility at Charghat Thana in Bangladesh. To examine the important determinants of fertility, the prominent multiple classification analysis technique have been employed to fertility data collected from Charghat Thana, Rajshahi in Bangladesh.

4.5: Multiple Classification Analysis (MCA):

In 1934 Yates developed the multiple classification analysis (MCA) and it was later expanded and detailed by Anderson and Banerjee in 1952. In 1963, the computerized MCA program was prepared by a group of researchers at the Survey Research Center of the University of Michigan. Since then, the MCA program has been widely used in social science research. Multiple Classification Analysis (MCA) requires one dependent variable and two or more independent variables. The dependent variable can be either a continuous or a categorical variable, but all the independent variables must be categorical variables. Multiple Classification Analysis can equally handle the nominal and ordinal variables and can also deal with linear and non-linear relationships of predictor variables with dependent variables. Mathematically, the model can be expressed by the following equation:

$$Y_{ijk} = Y + a_i + b_j + c_k + \dots + e_{ijk}$$

Where,

Y_{ijk} is the value or score of an individual who falls in the i th category of the factor A, j th category of the factor B and k th category of the factor C

Y is the grand mean of Y

a_i is the effect due to the i th category of the factor A, which is equal to the difference between y and the mean of its category of factor A.

b_j is the effect due to the j th category of the factor B, which is equal to the difference between y and the mean of its category of factor B.

c_k is the effect due to the k th category of the factor C, which is equal to the difference between y and the mean of its category of factor C.

e_{ijk} is the error term related with Y_{ijk} score of ijk individuals.

The coefficients, which are estimated by solving the normal equation systems are called the adjusted or net effect of the predictors. These effects measure those of the predictor alone after taking into account the effects of all other predictors. If there is no interrelation among the predictors, the adjusted and unadjusted effects of the

predictors will be same. The unadjusted, eta-square (η^2) coefficient is a correlation ratio, which explains how well the predictor variable explains the variation the dependent variables and is usually estimated by solving the normal equations with only one predictor. This unadjusted coefficient indicates the proportion of variance explained by a single predictor alone. Similarly, the beta-square (β^2) coefficient indicates the proportion of variation explained by the other predictor variables. The beta coefficient is compared to the partial correlation coefficient in multiple regressions. Statistically, analysis of variance, multiple classification analysis and dummy regression are the same, but multiple classification analysis has some advantages. It provides estimates of each category of predictor variable and at the same time provides the coefficients for explaining the of the relationship.

4.6: Variables Considered in the Analysis

The multiple classification analysis is undertaken first to evaluate the contribution of socio-economic and demographic such as women age, religion, education, occupation, age at marriage, knowledge about HIV/AIDS, contraceptive use, having electricity, Mass media exposure, NGO membership and SCI on children ever born. Here, fertility variable named children ever born is considered as dependent variable and the above mentioned variables are regarded as independent variables. In this case children ever born are taken to be the dependent variable and demographic variables are the categorical variables. They are included in MCA in the fashion in the following table.

Table-4.4 Variables and their Category used in Multiple Classification Analysis

<i>Variable</i>		<i>Category</i>
<i>Dependent</i>	<i>Independent</i>	
<i>Y= Children Ever Born</i>	<i>X1= Age</i>	<i>1= 15-25 years</i>
		<i>2= 25-35years</i>
		<i>3= 35+ years</i>
	<i>X2= Religion</i>	<i>1= Muslim</i>
		<i>2= Non-Muslim</i>
	<i>X3= Women Education</i>	<i>0= No Education</i>
		<i>1= Primary</i>
		<i>2= Secondary</i>
		<i>3= Higher</i>
	<i>X4= Women Occupation</i>	<i>1= Petty Business</i>
		<i>2= Housewife</i>
		<i>3= Service</i>
	<i>X5= Age at Marriage</i>	<i>1= <18 yrs.</i>
		<i>2= ≥18 yrs.</i>
<i>X6= Knowledge about HIV/AIDS</i>	<i>0= No</i>	
	<i>1= Yes</i>	
<i>X7= Contraceptive Use</i>	<i>0= Not Use</i>	
	<i>1= Use</i>	
<i>X8= Having Electricity</i>	<i>0= No</i>	
	<i>1= Yes</i>	
<i>X9= Exposed to Mass Media</i>	<i>0= No</i>	
	<i>1= Yes</i>	
<i>X10= NGO Involvement</i>	<i>0= No</i>	
	<i>1= Yes</i>	
<i>X11= Social Capital Index</i>	<i>0=Lower</i>	
	<i>1=Middle</i>	
	<i>2=Upper</i>	

4.7 Results of Multiple Classification Analysis:

The variables included in the model given above in the aforesaid fashion and the MCA is performed on primary data collected from Chorghat Thana in Rajshahi district. There are a variety of socio-economic and cultural factors that may influenced the fertility. To examine the deferential patterns of mean number of children ever born among women, the well known Multiple Classification Analysis (MCA) is employed. The results indicates that the proportions of variance explained by MCA is not very high for women (Multiple $R^2=0.57$). The low value of R^2 may be due to some other factors, which may affect the mean number of children ever born.

Table 4.5 shows the mean number of children ever born both unadjusted and adjusted by different socio-economic and demographic characteristics with the values of η^2 and β^2 produced from multiple classification analysis with data on Charghat Thana in Rajshahi. Here women age, religion, women education, women occupation, age at marriage, knowledge about HIV/AIDS, contraceptive use, having electricity, Mass media exposure, and NGO membership are considered as the determinants of children ever born.

Among the selected factors women's age is the most effective one. It is important to note that the age group 15- 25 years women have been found to have lower fertility. The mean number of children ever born is 1.89 for women who are the age group 26-35 years and 1.32 for the ages 15-25 years. It may be that educated women marry later and have lower fertility within marriage.

Muslim community has higher fertility than their non-Muslims counterparts. It may be due to the religious value systems, which influence individuals. Mean children ever born are 2.12 and 2.01 respectively for Muslim and non-Muslims community.

Among the selected factors women's education is one of the vital effective one. It is important to note that highly educated women have been found to have lower fertility. The mean number of children ever born is 2.70 for women who have no education and 1.57 for highly educated women. It may be that educated women marry later and have lower fertility within marriage.

Working status has important impact on fertility. Children ever born on the average is higher for women who are housewife than the women who have involved in petty business and service.. Though the deference is not remarkable, still working women have produced a smaller number of children than the non-working group. Results shows that mean children ever born are 2.16 those are housewife, 1.65 those who involved petty business and 1.70 those who are involved in service.

Age at marriage directly affect on fertility. There exist an inverse relation between age at marriage and fertility. The higher age at marriage shows the lower number of children ever born. Women who marry at less than 18 years have on average 2.21

children, women who marry greater than 18 years have on average 1.98 children per women.

Knowledge about HIV/AIDS affect on fertility. The average number of children born is shown decreases with the increasing knowledge of HIV/AIDS. It observed that mean (adjusted) children ever born per ever married women are 2.25 and 2.05 respectively for no knowledge about HIV/AIDS and have knowledge about HIV/AIDS.

Respondents who have not using contraceptive show the highest fertility than their user counterparts. It observed that mean (adjusted) children ever born are 2.16 those who do not use contraceptive and children ever born are 2.08 those who use contraceptive. It may be cause of different social setting in society.

Ownership of electricity shows least effect on children ever born. It is observed that mean (adjusted) children ever born are 2.11 and 2.09 respectively for “without electricity in the household” and “having electricity in the household.”

The average number of children ever born decreases with the increased access to mass media. It is observed that mean (adjusted) children ever born per ever married women are 2.25 & 2.03 respectively for no access to media and access to media.

NGOs Involvement has important impact on fertility. The women who are not involved with any NGOs their average children ever born is higher than those who are involved with NGOs. Results shows that mean children ever born are 2.07 those who are involved with NGOs and 2.15 those who are not involved with NGOs.

There is a strong relationship with social capital index and fertility at Charghat Thana. The average child among NGO member due to social capital is low. Because, among NGO members usually social capital is formed automatically their groups. On average one child is seen among upper SCI, whereas one average two children belong middle SCI and the higher, on average three children gives lower SCI. Social capital index directly influence fertility at Charghat Thana in Rajshahi District.

Table-4.5 Results of Multiple Classification Analysis of Children Ever Born per Ever-Married Women by Selected Socio-Demographic and Social Capital Variables at Charghat Thana in Rajshahi District.

Characteristics	Mean		η^2	β^2
	Unadjusted	Adjusted		
Women Age				
15-25	1.21	1.32	0.48	0.42
26-35	1.86	1.89		
35+	2.86	2.76		
Religion				
Muslim	2.13	2.12	0.05	0.04
Non-Muslim	1.99	2.01		
Women Education				
No education	2.87	2.70	0.41	0.31
Primary	2.04	2.04		
Secondary	1.86	1.89		
Higher	1.34	1.57		
Women Occupation				
Petty Business	1.82	1.65	0.15	0.13
Housewife	2.16	2.16		
Service	1.33	1.70		
Age at Marriage				
< 18 yrs.	2.31	2.21	0.17	0.09
≥ 18 yrs.	1.88	1.98		
Knowledge about HIV/AIDS				
No	2.61	2.25	0.22	0.06
Yes	1.94	2.05		
Contraceptive Use				
Not Use	2.35	2.16	0.12	0.03
Use	2.01	2.08		
Having Electricity				
No	2.17	2.11	0.04	0.01
Yes	2.01	2.09		
Mass Media Exposure				
No	2.40	2.25	0.16	0.08
Yes	1.96	2.03		
NGO Involvement				
No	2.09	2.15	0.01	0.03
Yes	2.10	2.07		
Social Capital Index				
Lower	2.73	2.69	0.39	0.51
Middle	2.05	2.03		
Upper	1.13	1.03		

4.8 Conclusion

Bangladesh has the strong tradition of NGO activities and Bangladesh's NGOs are among the most active in the world. Successive governments have also developed effective partnerships with the NGOs to improve living condition of the poor. NGO services such as micro-credit for start-up businesses, non formal education, and social mobilization help to strengthen poor communities and amplify their voice. In this way, Micro-credit has allowed millions of poor people to overcome poverty and improve their lives. Through such programs, loans and training are provided to individuals, who have never been involved in the economy, and to small entrepreneurs to help them scale develop their activities and create employment for the poor. In this way, NGOs in Bangladesh, substitute rather than complement the state with respect to poverty alleviation. NGO activities, especially micro-credit is able to cope with immediate poverty problems. An important form of social capital is the potential for information that inheres in social relation formed by the association of the NGOs.

Some result of MCA analysis deserves considerations from the viewpoint of policy implication. It has been found that female age at marriage has impact on fertility. Thus raising age at marriage by implementing a minimum-age law may lower fertility. Again fertility is direct effect by contraceptive use and ideal number of children. In Multiple Classification Analysis women's education one of the most important factors which effect is the strongest for explaining the variability in children ever born. Gradually more educated women's have less mean children ever born than no educated women. This is the second strongest determinant among the variables. Involvement of NGOs is another vital determinant among the variables. It has been found that NGOs Involvement has important impact on fertility and fertility intention status. The women who are not involved with any NGOs their average children ever born are higher than those who are involved with NGOs. Various NGOs in Bangladesh especially BRAC and Grameen Bank has taken consciousness programs taking female to keep small family size in order to economic development so government should provide technical support and should observe the NGOs activities

so that every local & International NGOs not only run micro credit function but also going on health and family planning activities.

Total effect of female education on fertility is found to be negative. Education may provide better employment opportunities outside home and age at marriage can be raised through providing education. Based on the results of this section it may be suggested that attention should be focused on the need of providing educational facilities, particularly in rural areas in order to depress the level of fertility in Bangladesh.

Role of NGOs in Social Capital Formation at Charghat Thana in Rajshahi District

5.1 Introduction

Bangladesh is a poor and a densely populated country, the third most populous country in the world (BBS 2012). In spite of these, a large number of the populations can play a vital role in the economy of any country, because it is the population that constitutes its manpower and can contribute to make social capital. This population is one of the most important resources for third world country like Bangladesh (PROSHIKA, 2001). We have limited natural resources significantly, but development and social capital formation may be possible, if we utilize our large number of human resources (Chowdhury, O. and Sen, B. 1997). NGOs have accepted the challenge to ensure health and reproductive health, non-formal education, nutrition, sustainable environment, etc. for human development. In addition, NGOs provide micro-finance through village organizations and providing different levels of loans to different group members. This group formation is organized to increase savings and to raise women's awareness in economic, social and family issues. The collateral-free-credit is provided to group members for various income-generating activities (BRAC Report, 2011).

A large number of the people in Bangladesh are unemployed. It is not possible for it to give an employment to all these people. Self-employment is a possible solution to this problem. It means that people themselves can engage in economic activities which will enhance their earnings, lead to empowerment, greater control over their lives as well as develop a new life styles among NGO members (Kevane M, 1997). Various NGO's throughout the country are working forth to create a working environment by which people can be self-employed by forming a group so that they will establish social network, norm and trust. They try to make the poor and vulnerable people turn into valuable human resources by

providing adequate facilities like training, health facilities, education, etc. After the liberation period, various NGOs have taken a role in social capital formation. The different NGOs such as BRAC, ASA, PROSHIKA, GRAMEEN BANK etc. are working forth to alleviate poverty, to eradicate disparity of women, increase the standard of living, resulting human resource development and to contribute for formation of social capital.

From the above discussion, this study is devoted to make an investigation on the role of NGOs in strengthening human resource development climate in Bangladesh. In this chapter, it also investigates the social capital formation among NGO members through their different activities. We would like to observe the issues associated to economic awareness, sanitation development, and improvement of hygienic condition, as well as training program. It is also associated to observe the contribution of micro-credit program in human development and social capital.

5.2 Economic Development and Social Capital

NGO's employment and income generating program helps poor men and women to become economically self-reliant through forming social capital. It is evaluated the performance of the NGO members along the lines of income, expenditure, and savings practices of the members. Actually, any kind of development primarily depends on an economic development. If we were being able to develop the economic condition of the people, human resource development would necessarily be taking place (Human Development Report, PROSHIKA-2001). Sustainable development of the poor can be achieved only through income generating activities. This can indeed accelerate the process of human resource development. Social capital ultimately is formed simultaneously with human resource development. It is uncovered that expected incomes indicate the expected standard of living, which is an essential component for human resource development.

Table 5.1 shows that the average monthly family income of the respondents had 4125.25 and standard deviation 2979.45 before joining the NGO as a member. However, at present, the average monthly family income has increased to 6171.69, and the standard deviation to 3297.64. Consequently, one can reiterate that NGO has changed 50 percent of their monthly family income. It is viewed and cleared that the monthly family incomes are increasing day by day and this type of income increasing may be possible through the impression of NGO. It may conclude that social capital formation has been taken place among NGO members.

Expenditure depends on an income as well as social capital and it measures the standard of living of a family. Economic solvency is essential for improving human resource. The below representation indicates that before the membership, the average family expenditure was 3917.35, and the standard deviation 2889.35. However, after membership the average expenditure is measured at 5286.75 and the standard deviation to 3178.19. It is mentioned that 35 percent average expenditure changes may be due to a NGO, through contribution of social network. As the expenditure has comparatively increased, then it is obvious that the standard of living must be developed.

Saving means development i.e., when the income is greater than the expenditure, then a person has to be able to save some money. They know the information from their regular meetings and from network. By the savings from money, members can participate into various developmental activities. They may also support their children in higher education, face vulnerable adverse situation, and be able to receive proper medical treatment, make an improvement on nutritional sanitation quality; and help in maternal and child health care. Table 5.1 indicates that, the mean and standard deviation of monthly savings had 207.9 and 301.25, respectively before the membership. However, the present, average savings has increased to 884.94 (mean) and 890.37. This phenomenon may indicate that, development has occurred in their monthly family savings, and helped to realize their latent potentialities. As the savings have increased, one can decipher that there is a development in their latent potentialities alongside the human resource and social capital.

Table 5.1: Mean, Standard Deviation and Percentage Change by NGO Membership

Characteristics	Period	Mean	Standard deviation	Percent change (Mean)
Monthly income	Before member	4125.25	2979.45	50
	At present	6171.69	3297.64	
Monthly expenditure	Before member	3917.35	2889.35	35
	At present	5286.75	3178.19	
Monthly savings	Before member	207.9	301.25	326
	At present	884.94	890.37	
Working status	Before member	7.87	1.96	5
	At present	8.24	2.19	

We observe that the average working status (any kinds of works, such as small business) of the respondents is 7.87, and the standard deviation is 1.96, when they did not join the membership of the NGO. At recent times, the average working status of the respondents is 8.24 and the standard deviation is 2.19. They are working and investing any kinds of economic activities 5 percent more than the past. It is obvious that the tendency of investing increases day by day; and the people are comparatively working more. We can admit that human potentiality has increased, which will be able to bring forth sustainable development of the poor members.

5.3 Knowledge, Awareness and Social Capital

Knowledge is considered as an essential component to develop members, social capital development as well as human development. Most of the people of our country are ignorant about some factors, which are related to their health status. A new dimension has been added to NGO activities, as it is helping to grow awareness among members and to communicate each other which is proxy

indicator for social capital formation. This will increase much, as the NGO group member's capability in order to fight off the curse of various diseases, to help each other neighbor and ill health relations.

Family planning is a demographic indicator, which is essential for controlling the population. Before the membership, 74 percent of the members had been familiar with family planning programs, and as of late 98 percent of the respondents have been familiar with incorporating family planning programs. It is obvious that about 24 percent of the respondents have been aware about family planning programs, after becoming involved into NGO activities.

About 33 percent of the respondents had been familiar with EPI programs such as immunization before the membership of NGO. At the present time, 96 percent of the members have introduced themselves in EPI program. Finally, 63 percentage changes have been seen among NGO members due to social capital formation.

Health and nutrition program have been included in a NGO curriculum. Under this program respondents are educated about nutritional status and the necessity of nutrition intake for a person within ages. Before the membership, only 34 percent respondents had been familiar with acquiring nutritional necessity, and at the present time, this number has grown up to 95 percent. As a result, 61 percent of the respondents have changed their attitude on nutrition, after involvement into NGO activities.

From the Table 5.2 we observe that 50 percent people have knowledge about HIV/AIDS before membership. At present, this number has increased up to 80 percent. About 90 percent of the respondents are aware about AIDS and preventive measure after involving in NGO program. This change is possible only through social capital formation.

Table 5.2 Percentage Distribution and Change of the Members According to Their Different Knowledge.

Knowledge	Consciousness		Percentage Change
	Before membership (%)	At present (%)	
Family Planning	74	98	24
Immunization	33	96	63
Health and Nutrition	34	95	61
HIV/AIDS	50	90	80

From the above discussion, we observed that most of the respondents have developed themselves, and gained the required knowledge about socio-cultural customs, social norm, trust and health after involving themselves into NGO activities. It may be realized that NGOs helps them directly or indirectly to garner knowledge through different activities, and makes them tolerable to protect themselves from various vulnerable situation. Hence, there was no bound to suggest, that NGO activities have developed to build social capital among NGO members.

5.4 Contribution of NGOs as a Source

Table 5.3 shows that benefited organizations helps the deprived poor people for growing consciousness about AIDS, family planning, Immunization etc. The result indicates that, most of the respondents i.e., 45 percent, are acquainted about AIDS from the field workers of NGO, undertaking preventive measures through the blessing of NGO activities, about 57 respondents have been consciousness in immunization program, 53 of the respondents are conscious about the necessity of health, nutrition and nutritional status, and finally, 47 percent of the respondents have introduced about family planning programs and its effect in their family from NGO program.

Table 5.3 Awareness of the Respondents about the Selected Variables through Different Sources

Characteristics	Media from which they known			
	NGO	Mass media	Neighbor people	Govt. representative
AIDS	45	18	6	
Immunization	57	19	20	
Health and Nutrition	53	17	25	
Family planning	47	16	17	21

It is obvious from the above illustration that NGO plays a significant role in growing consciousness on health status and maintaining the longevity of life. So, we can confidently say that NGO always helps in the development of human resource process among the indebted poor people through making social capital.

5.5 Sanitation Practices and Role of NGOs

An essential condition for sustainable human development resonates around maintenance of healthy sanitation facilities. However, the poor in Bangladesh have provided very little infrastructure facilities that are required for ensuring well being (Rahman, H, 1996). From Table 5.4 we observe that 30 percent of the respondents had used toilet facilities prior to their membership (when they did not engage themselves into NGO activities), but at the present time (after engaging themselves into NGO activities), about 65 percent of the respondents use toilet facilities, 35 percent of them have increased their knowledge for using toilet facilities due to the blessings of NGO led activities. However, 35 percent of them have never enjoyed toilet facilities.

Table 5.4 Distribution of NGO Members according to Toilet and Tube-well Facilities.

Ownership	Before membership	At present	Percentage change (%)	No Facility
Toilet	30	65	35	35
Tube-well	36	90	54	

Table 5.4 also indicates that about 36 percent of the respondents had received tube-well facilities before acquiring the membership, and at the present time, most of the members (90 percent) used fresh water facilities. This indicates that 54 percent of the excessive respondents use tube-well facilities only after having been involved in NGOs. Inculcating, activities from the above discussion, we uncover that more people have received sound sanitation facilities, as compared to their previous status. One admits that it may have been possible due to NGO advocacy program. Ensuring sound sanitation facilities is an essential condition for development of human resource, NGO play a significant role in this area.

5.6 Training Program and NGO Activities

NGOs' health education program is meant to reduce the vulnerability, and the occurrence of common diseases that affect those most, as well as helping to improve their overall health status. NGO deliver relevant training to the respondents about maintaining protection technique from diarrhea. Now, we observe to evaluate this training program and NGO activities which may contribute to make social capital.

Table 5.5 Distribution of Members about Diarrhea Treatment to Their Children

Involved with NGOs		
Characteristics	Frequency	Percentage (%)
Supplementary food during diarrhea.		
Oral saline		
Yes	341	95.7
No	15	4.3
Mother's milk and others food		
Yes	320	89.9
No	36	10.1
Preparation of oral saline.		
Yes	344	96.6
No	12	3.4

From the above table 5.5 it is observed that almost all of the respondents (95.7 percent) know that during incurring diarrhea, one needs to give oral saline to their children; and a few of them (4.3 percent) do not know how to provide saline to their children. About 90 percent of the respondents are well aware that the provision of mother's milk and others food to their children during diarrhea is permissible. Whereas, only about 10 percent of them are ignorant, that it is permissible to serve mother's milk and other foods during diarrhea period. Preparing oral saline is one of the protection techniques adopted to prevent diarrhea. NGO trainer's group members learn how to prepare oral saline. From the above table 4.5 it is observed that most of the respondents (96.6 percent) are quite well aware about how to prepare oral saline. Only 3.4 percent of the respondents are aware about preparing saline.

From the beginning, NGOs are trying to build social capital among members through training, interact and strong communication among members. It is observed from table 5.6, about fifty percent (47.8) members getting training from NGO about reproductive health and rights, contraceptive issues and sexual abuse.

16.9 percent have equipped with earning capabilities, planting trees properly, making handicraft and any other vocational training. Only 14.6 percent have been trained regarding health, education and nutrition. Very few percent (11.4%) know about legal aid through proper training. But, 9.3 are absent from any other training program.

Table 5.6 Different Training Program for NGO Activities to Build-up Social Capital

Training Characteristics	Frequency	Percentage (%)
Reproductive Health, Contraceptive use & Sexual abuse	170	47.8
Earning capabilities, Planting trees, handicraft & Vocational	60	16.9
Health, Education & Nutrition	52	14.6
Legal Aid	41	11.4
No training	33	9.3

From the above findings, one realizes that health, education, reproductive rights, sexual abuse, legal aid training program plays an important role among the vulnerable poor people for garnering knowledge about how to face own problem and solve problem in their personal life such as free from diarrhea, realize her own life as human being. Consequently, NGOs are helping their members to build up social capital. Human potential may be developed that means human resource development takes place after conducting certain training programs from among the members of NGO.

5.7 Determinant Factors of NGO Members: Linear Logistic Regression Analysis

In this section, various factors that affect on NGO members have been investigated through logistic regression model. To evaluate multiple effects of explanatory variables the following three regression models are assumed:

Model -01: Illness of Children of the NGO Members

For maintaining the logistic regression model, we predict the illness of the children with some categorical independent variables. For this model, let

$Y=1$, If the children possess some diseases like diarrhea and pneumonia

$Y=0$, if the children were do not posses diseases like diarrhea and pneumonia

Then, $P_r (Y=1/X_1, X_2, \dots, X_k)$ is the conditional probability, that the

children possessed through diarrhea and pneumonia with regard to a set of

“K” independents variables.

Model- 02: Training Opportunity of the NGO Members

For logistic regression model, we are able to predict the training opportunity of the respondents within some categorical variables.

$Y=1$, If the respondents get an opportunity of receiving training in various discipline.

$Y=0$, If the respondents do not get an opportunity of receiving training. Then $P_r (Y=1/X_1, X_2, \dots, X_k)$ is the conditional probability that the

respondents get training opportunity with regard to a set of “K” independents variables.

Model- 03: Opportunity of Receiving Primary Education among the NGO Member's Children.

In logistic regression analysis, we predict that the acquisition of primary education of the respondent's children with respect to some categorical independent variables. For the model, let

$Y=1$, If the respondents are able to send his/her children to the school.

$Y=0$, If the respondents failed to send his/her children to the school

Then $P_r (Y=1/X_1, X_2, \dots, X_k)$ is the conditional probability that the

respondent's child acclaim an opportunity of receiving primary education with regard to a set of "K" independents variables.

Table 5.7 presents the results of regression analysis on the respective three models. From Model-01 it is found that the children, whose parents are literate, are 2.61 times more free from diarrhea and pneumonia, as compared with those whose parents are illiterate. The children who defecate stool in the field have 59 percent more chances to be free from diarrhea and pneumonia as compared with those, who are habituated to leave stool in the *Uthan*. On the other hand, children who defecate stool into the toilet are 2.97 times more prone to be free from diarrhea and pneumonia. Children who have *Kacha* toilets are 82 percent free from facing vulnerability of diarrhea and pneumonia, as compared with those, who enjoy no toilet facilities.

Table 5.7 Results of Logistic Regression Analysis by Some Selected Variables:

Characteristics	Co-efficient (β)	Odds ratio EXP (β)
Model-01		
Education		
Illiterate (Ref)	.....	1.000
Literate	-0.4792	2.6193**
Leaving stool of children		
Uthan (Ref)	....	1.000
Field	-.6047	.5963
Toilet	-.0689	1.9732**
Quality of toilet		
No(Ref)	....	1.000
Kacha	-0.1922	08251***
Paka	0.1626	2.1760**
Mothers TT vaccine		
Yes(Ref)	...	1.000
No	1.6964	2.1820***
Lessening radio of mothers		
Yes(Ref)	.....	1.000
No	0.6530	1.9262*
Watching TV of mothers		
Yes(Ref)	.....	1.000
No	0.5715	4.6547
Family income		
<5000(Ref)	.....	1.000
5000-8000	-1.3436	1.2609*
8000-10000	-0.9894	3.3717*
>10000	-1.0922	4.9632**

Model-02		
Education		
Illiterate(Ref)	---	1.0000
Literate	-0.6023	1.5475**
Occupation		
Household worker(Ref)	....	1.0000
Agricultural worker	-0.4153	0.6591
Self-employed worker	1.4628	4.3136**
Self-employed credit		
Yes(Ref)	.....	1.000
No	-0.1646	2.8483
Duration of membership		
<3 years(Ref)	....	1.000
3-5years	-2.4545	0.0859
>5 Years	0.2224	1.2494***
Monthly Family income		
<5000(Ref)	....	1.0000
5000-8000	-1.9374	.1441**
8000-10000	-1.5746	2.205**
>10000	-.6593	0.5932
Model-03		
Monthly Family income		
<5000(Ref)	....	1.0000
5000-8000	-0.4292	0.6510
8000-10000	0.0852	1.0891
>10000	3.0058	20.2032***
Respondent's education		
Illiterate(Ref)	.....	1.0000
Literate	-0.3389	1.7126
Total family member		
<4(Ref)	.....	1.0000
4-6	-0.4651	0.6281
>6	-1.3139	0.2674*
Mass education		
Yes(Ref)	.....	1.0000
No	-0.4676	0.6265

Note: Ref=Reference category, Here ***p< .001 (highly significant), **p<.01 (significant), *p< .05 (less significant).

Again, children who have *Pakka* toilets are 2.17 times freer from vulnerability of incurring these diseases. Mothers, who received immunization programs, are 2.18 times less prone to the outbreak of diarrhea and pneumonia among their children, as compared with those children, whose mothers have not received TT vaccine. Radio Bangladesh broadcasted some health-educational programs, which is effective and helpful for growing consciousness, and accepts preventive measures from diarrhea and pneumonia. Mothers, who enjoy radio programs, have 1.92 times less vulnerability in diarrhea and pneumonia of their children, as compared with those children, whose mothers do not listen to radio programs. Watching TV in leisure periods is a good habit that meets up recreational needs of the community, and eventually enlarges the boundary of knowledge.

Children whose parents enjoy telecast have 65 percent less probability of unleashing and outbreak of diarrhea and pneumonia, as compared with those children, whose parents did not enjoy watching the telecast health programs. Family income is an important variable by which all the members survive in a sustainable way. More income generating family enjoy more facilities, resulting to a less prone scenario where children are suffers from these diseases. The children of the medium family income (monthly 5000-8000 T.K.) have suffered 1.26 times less, as compared with those children of the family, whose monthly income is less than 5000 T. K. The children whose family earned 8000-10000 T. K. per month, are 3.37 times more free from diseases like diarrhea and pneumonia. Lastly, children of the higher income family, i.e., greater than 10000 T.K., enjoy 4.96 times free from these types of diseases.

Model-02 of Table-5.7 presents the results of logistic regression analysis on imparting the opportunity of the training received. From this model-02, it is obvious that respondents education, respondents occupation, self-employed credit provided by NGO, duration of membership, and monthly family incomes are relevant factors that had been significantly associated with the acceptance of training delivered by NGO. Respondents, who are more literate enough receive 1.54 times more opportunity to participate themselves into the NGO s' training

programs, as compared with those who are literate. Occupation is an important factor for receiving training opportunity. From the table 4.7 model-02, it is observed that agricultural workers receive 65 percent more chances in receiving training as compared with those who are household workers. Again, self-employed workers enjoy almost more than 4.31 times more opportunity through training programs, as compared with those who are household workers. To some extent, receiving opportunity of training depends on self-employed credit. Respondents, who did not receive self-employed credit, receive 2.84 less likely opportunity of training, as compared with those who enjoy self-employed credit.

Generally, older members enjoy more facilities from NGO in which they are involved. The members who are 3-5 years old in the membership receive 85 percent more opportunities of training facilities as compared with those memberships that are less than three years old in the NGO programs. Members whose duration of membership is more than five years old, receive 1.24 times more chances to involve themselves into the training programs. Family income is one of the responsible factors of offering relevant training facilities. Members whose monthly family income are between 5000-8000 T. K, receive 14 percent more chances enjoying training facilities, as compared with those whose monthly family income is less than 5000 T. K. On the other hand, the members whose income expands to 5000-8000 T. K receive 2.20 times more chance. Lastly, the members whose monthly family income is more than 10000 T. K enjoy 59 percent more chances of receiving proper training facilities.

Model-03 (Table-5.7) presents logistic regression analysis considering the respondent child's education, as being dependent variables. From Model-03 (Table-5.7), it can be overseen that the monthly family income, respondent's education, total family membership, mass education and vegetable cultivation are the primary factors that were significantly associated into enhancement of child education. All kinds of expectations are fulfilled by the family income resources. Members whose monthly family income exists between 5000-8000 T. K, enjoy 65 percent more opportunities to serve some educational skills and facilities to their

children, as compared with those whose monthly family income is less than 5000 T. K. On the other hand, the members whose income exists between 8000-10000 T. K have 1.08 times more chances to be delivered with enjoying proper educational facilities. Coincidentally, the members whose monthly family income is more than 10000 T. K, they have 20.2 times more chance to have their children educated in a proper manner.

The respondent's education largely affects the way of acquiring about their education among the children. Respondents who are literate receive 1.71 times more opportunity to be able to provide educational facilities to their children, as compared with those who are illiterate. All, throughout Bangladesh family planning method is widely accepted. So, it naturally tends to favour various small planned family members. This phenomenon is helpful through creation of an educational environment. Medium family consists of four to six members. They get 62 percent less chance in providing education among their children, as compared to the model family who contain less than four members. On the other hand, extended family members belonging to more than six persons received 26 percent less opportunity to be provided with child education in comparison with the children of model family. Mass education (older education plus adult education), is one of the important factors for expanding educational facilities among the children. NGO provided mass education among their group members. They grow conscious about the needs towards imparting education for their children. The members, who did not, received mass education from the NGO, 62 percent were less conscious about the necessity of child education, as compared with those who received mass education.

5.8: Impact of Social Capital Variables on NGO Membership

It is realized that NGO members are social capitalized during their process of trust, norm and social network. In this section, it has been investigated the impact of social capital variables on NGO memberships. For this purpose, multivariate logistic regression analysis has been applied to know the influencing factors of

social capital variables on NGO memberships.

Table 5.9 indicates the results of multivariate logistic regression analysis. The result shows that middle aged women (26-35 years) have 1.5 times and older women have 1.2 times higher odds of being a NGO member than younger women aged less than 25 years.

Muslim women are 3.6 times more involve with NGO than their non-Muslim counterparts. Education has influence on NGO memberships. Illiterate women are less likely to have involved with NGOs than higher educated women. Primary completed women are 1,20 times more likely to have involved with NGOs than higher educated women and secondary completed women are 1.98 times more likely to have involved with NGOs than higher educated women. Education increases their tendency increases up to secondary education then decreases among higher educated women. The women whose have monthly family income above five thousand taka are 78 percent less interested to have chance involvement with NGOs than the women whose monthly family income below five thousand Taka. Petty business and housewife women are less involved with NGO than women who do service. Women who marry at aged 18 years and over have 11 percent lower chances of being NGO member than women who marry at ages less than 18 years old. Contraceptive use, children ever born, fertility intention, and cooperation to Neighbor are insignificantly related to NGO membership. The women who do not use contraceptive method are 35 percent less interested to have chance involvement with NGOs than the women who use contraceptive method.

The women who have house hold assets are 50 percent more likely to have chance involvement with NGOs than not have house hold assets. Women who are not exposed to mass media are 1.8 times higher odds being a NGO member than who exposed to mass media. Women who feel solvency are 34 percent higher chances of being NGO member than women are not solvent.

Table 5.8 Variables and their Categories in the Logistic Regression Analysis:

Dependent variable	Independent variable	Categories
<p>Y= NGOs Involvement</p> <p>1 = Yes</p> <p>0 = Otherwise</p>	X1 = Age	1 = 15-25 years 2 = 26-35 years 3 = 35+ years
	X2 = Religion	1= Muslim 2= Non Muslim
	X3= Women education	0 = No Education 1= Primary 2= Secondary 3= higher
	X4= Women Occupation	1 = Petty Trade 2= Housewife 3= Service
	X5 = Monthly family Income	1 = ≤5000 TK., 2= >5000 TK
	X6 = Age at Marriage	1 = <18 years, 2= ≥18 years
	X7 = Contraceptive Use	0 = No ,1 = Use
	X8 = Children Ever Born (CEB)	1 = ≤ 2 child, 2 = >2 child
	X9 = Exposed to Mass Media	0 = No, 1 = Yes
	X10 = Household Assets	0 = NO, 1 = Yes
	X11= Fertility Intention	0 = No, 1= wants more
	X12= Cooperation to Neighbor	0 = No, 1 = Yes
	X13= Feel family Solvency	0 = No, 1 = Yes

Table-5.9 Impact of Socio-Demographic and Social Capital Variables on NGOs Involvement.

Characteristic	Coefficient (β)	S.E.	Odds ratio	95% C.I.	
				Lower	Upper
Women Age					
15-25 yrs.(Ref)	-----	-----	1.00	-----	-----
26-35 yrs.	0.39	0.33	1.47	0.77	2.82
35+ yrs.	0.20	0.72	1.22	0.59	2.53
Religion					
Muslim	1.28	0.26	3.60***	2.14	6.02
Non-Muslim (Ref)	-----	-----	1.00	-----	-----
Women Education					
No education	-0.03	0.39	0.97	0.46	2.07
Primary	0.18	0.35	1.20	0.61	2.38
Secondary	0.68	0.38	1.98*	0.94	4.17
Higher (Ref)	-----	-----	1.00	-----	-----
Women Occupation					
Petty business	-0.19	0.69	0.83	0.21	3.21
House wife	-0.36	0.55	0.70	0.24	2.04
Service (Ref)	-----	-----	1.00	-----	-----
Monthly family Income					
<=5000 (Ref)	-----	-----	1.00	-----	-----
>5000	-1.54	0.28	0.22***	0.13	0.37
Age at Marriage					
<18 years (Ref)	-----	-----	1.00	-----	-----
≥ 18 years	-0.12	0.30	0.89	0.56	1.42
Contraceptive Use					
No	-0.43	0.27	0.65	0.38	1.10
Yes (Ref)	-----	-----	1.00	-----	-----
Children Ever Born					
≤2 (Ref)	-----	-----	1.00	-----	-----
>2	-0.03	0.30	0.97	0.54	1.74
Exposed to Mass Media					
No	0.57	0.26	1.77**	1.05	2.97
Yes (Ref)	-----	-----	1.00	-----	-----
Household Assets					
No (Ref)	-----	-----	1.00	-----	-----
Yes	-0.70	0.41	0.50*	0.22	1.09
Fertility Intention					
NO	0.05	0.33	1.05	0.55	2.03
Yes (Ref)	-----	-----	1.00	-----	-----
Cooperation to Neighbor					
No (Ref)	-----	-----	1.00	-----	-----
Yes	0.99	0.65	2.70	0.76	9.60
Feel family Solvency					
No (Ref)	-----	-----	1.00	-----	-----
Yes	0.85	0.26	2.34***	1.34	4.08

5.9 Conclusion:

Recently, human resource development is the most important program of government and NGOs. Besides, NGOs are playing a vital role to form social capital among their member. There are many NGO's engaged in poverty alleviation, socio-economic development programs as well as social capital formation in Bangladesh.

Consciousness has grown among members exposed to NGO led activities. Most of the members have a strong knowledge about AIDS, arsenic contamination, Immunization program, health, nutritional needs, family planning, etc., after involvement into NGO activities. They have predominantly dependent upon agriculture based economy; however occupational diversity remains quite high among its members. Economic condition of the members has tended to reach considerably high in a sustainable level after involvement in the NGO programs. The average monthly family income is 6171.69 T.K per month, but savings are not satisfactory (884.94 T.K per month).

Illness as well as awarding education for the member s' children depends on several independent variables like income, savings, hygienic condition, sanitation, TT vaccine, family planning, member s' education, etc so as to remove illness, and to expand educational facilities of the children. NGO has played a significant role by increasing family income, ensuring healthy sanitation facilities, providing educational facilities, enlarging knowledge on health education, etc. Unfortunately, various training programs has not been able to play a significant role among its members because only few number of members have been able to receive proper training opportunities. Self-employment training is essential for human resource development. About 66.33 percent of the members had been able to receive self-employment training facilities from the NGOs. Among them, 20 percent received training on fisheries development, 60 percent of them on poultry firms and 46 percent of them on tree plantation.

Social Capital and Fertility Intention: The Relationships with NGOs

6.1 Introduction

Evidence from various studies on Microcredit program of NGOs suggests that social capital is multidimensional concept and is associated with normative ambiguities and extreme flexibility (Woolclock 1998). However, the research recognizes the utility of social capital concept in general and for economic development and social change in particular. Simultaneously it critically engages with both Microcredit and social capital aspects where NGO has a great contribution. Due to social capital formation among NGO members, it also has a demographic impact on fertility. Social capital of NGOs is a serious multidimensional issue and various demographic as well as socioeconomic factors effect on such issues in Bangladesh. The social capital index (SCI) has been constructed in data and methodology chapter. In this chapter, to know the important factors associated with NGO, social capital index and fertility intention, correlation analysis has been used. This analysis is used to know the association and the relationships among NGO, social capital index, fertility intention and some selected variables. This chapter also finds out to detect the important factors affecting on NGO, social capital index and fertility intention at Charghat Thana in Rajshahi district in Bangladesh. For this purpose, a path analysis has been employed. Such path analysis is used to examine the direct, indirect, and total effects of different selected variables on NGO, social capital, and fertility intention. It reveals that, the simultaneous effects of several variables on the NGO, social capital index and fertility intention.

6.2 Correlation Analysis

Pearson correlation coefficients are known as total associations in path analysis and are used to examine the direction, strength and significance of linear relationships between variables (Chaterjee et al. 2006). In this section, an attempt has been made to observe the relationships of the different variables and at the same time the direction including positive and negative as well as magnitude (intensity) of correlation of the phenomena under study. The analysis is performed on the basis of zero order correlation coefficient. The results of correlation among women age, education, age at marriage and total family member, wealth, fertility intention, NGO membership and social capital index (SCI) are shown in this section.

Table 6.1 Results of Zero Order Correlation Analysis among the Selected Socio-Demographic Variables with Social Capital

Variables	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈
Women age (X ₁)	1	-0.145 ^a	-0.068	0.065	-0.036	-0.416 ^a	0.049	0.073
Education (X ₂)		1	0.234 ^a	-0.021	0.129 ^a	0.051	0.026	-0.042
Age at marriage (X ₃)			1	-0.094 ^b	0.059	0.100 ^b	-0.125 ^a	-0.134 ^a
Total family member (X ₄)				1	0.084	0.129 ^a	0.277 ^a	0.283 ^a
Wealth(X ₅)					1	0.037	-0.127 ^a	-0.089 ^b
Fertility intention (X ₆)						1	-0.004	-0.018
NGO membership (X ₇)							1	0.953 ^a
SCI (X ₈)								1

Note: ^a Significant at 1% level and ^b Significant at 5% level.

Table 6.1 exhibits the zero order correlation coefficients among women age (X₁), education, age at first marriage, total family member, wealth, fertility intention, NGO membership and social capital index. The results show that, SCI is significantly positively correlated with total family member (0.283), and NGO membership (0.953) at 1% level of significant. However, the SCI is also significantly inversely correlated with age at marriage (-0.134) at 1% level of significant, and wealth (-0.089) at 5% level of significant. Education (-0.042), and fertility intention (-0.018) are inversely correlated with SCI insignificantly. Women age (0.073) is positively correlated with SCI and relationship is insignificant. It is also found that, NGO membership is significantly positively correlated with total family member (0.227) and NGO

membership insignificantly inversely correlated with age at marriage (-0.125) and wealth

(-127) at 1% level of significant. Women age (0.049) and education (0.026) are insignificantly positively correlated with NGO membership, whereas, fertility intention is insignificantly inversely correlated with NGO membership. Fertility intention is significantly positively correlated with total family member (0.129) at 1% level of significant and age at marriage (0.100) is significantly positively correlated with fertility intention at 5% level of significant. Women age (-416) is significantly inversely correlated with fertility intention at 1% level of significant. Education (0.051) and wealth (0.037) are insignificantly positively correlated with fertility intention. Education (0.129) is significantly positively correlated with wealth at 1% level of significant. Age at marriage (-0.094) is significantly inversely correlated with total family member at 1% level of significant. Education (0.234) is significantly positively correlated with age at marriage and women age (-0.145) is significantly inversely correlated with education at 1% level of significant.

6.3 Path Analysis

A path analysis is one of the important techniques to show the causal linkages among the interrelated variables. The path analysis was first introduced by biologist Sewall Wright in 1934 in connection with decomposing the total correlation between any variable in a causal system. This technique developed during 1920s by Sewell Wright as an aid to the quantitative development of genetics gained popularity in social science studies with the further expositions made by Duncan and Land. Recently its application is gained popularity in demography (Leobner and Driver, 1973; Kendall and Muirheartiagh, 1977; Sivamurthy and Ahmed, 1979; Balakrishnan et al., 1980; Ahmed, 1980; Rob and Kabir, 1988; (Roy et al .2012) Kaium and Tapan K. Roy 2013; Mondal and Shitan, 2014);

Path analysis assumes the existence of causal framework interlinking different predictor variables with the response variables. The technique of path analysis is based on a series of multiple regression analyses with the added assumption of casual relationship between independent and dependent variables. This technique lays

relatively heavier emphasis on the heuristic use of visual diagram, technically described as a path diagram. The representation of the causal variable is called as a path model and it is both stochastic and explanatory and it is said to be an extension of the multiple regression model (Rutherford and Choe, 1990; Hermalian, 1975). It helps in estimating the magnitudes of the linkages between interrelated variables and provides information about the underlying causal processes. This technique explores a chain of relationship among the variables by using standardized regression coefficients of a set of regression equations. The fundamental to the path analysis is the path diagram which is the outcome of a set of linearly interrelated variables and it is assumed causal relationship among them. In the path diagram the basic principles are to be considered as: (i) the variables are arranged from right in such a way that all the endogenous variables are to the right of their exogenous variables; (ii) the unidirectional straight arrows called henceforth as causal paths that go from left to the right represent the endogenous variables; (iii) the two-headed curvilinear arrows represent the non-causal (correlated) relationship among the exogenous variables. This study employs a recursive path model relating to socio-economic and demographic variables.

The merit of path analysis in comparison to correlation analysis is that it makes possible the assessment of the relative influence of each antecedent or explanatory variable on the consequent or criterion variables by the first making explicit the assumptions underlying the casual connection and then by elucidating the indirect effect of the explanatory variables.

6.4 Path Model Specification

The aim is to provide estimates of the magnitude and significance of hypothesized causal connection between sets of variables. Path analysis provides a theoretical model specified as a system of simultaneous regression equations, which are linear, additive and usually recursive (Boyle, 1970). This is best explained by considering a path diagram. Path coefficients are standardized regression coefficients in a system of linear regression equations, usually denoted P_{ij} , where the first subscript shows the dependent variable and the second subscript indicates to the variable whose direct

effect on the variable is measured. On the other hand, P_{ij} are path coefficients representing the direct effect of j on variable i . A path coefficient gives the proportion of the standard deviation of the dependent variable for which the independent variable is directly responsible. In other words,

$$P_{ij} = \sigma_j / \sigma_i$$

where, σ_j and σ_i denote the standard deviation of the dependent and independent variables respectively (Chandrasekaran and Hermalin, 1975). The path estimation equations are useful (i) in deriving path coefficients; (ii) in deriving the direct, indirect and residual and (iii) in predicting the implied correlation. The path estimation equations are derived from the Alwin and Hauser's (1975) methods. According to the causal ordering of variables, we may divide the selected set of variables into three groups- the exogenous variables $\{X_1, X_2, X_3, X_4, X_5\}$, endogenous variables $\{X_6, X_7\}$, and dependent variable $\{X_8\}$.

This model is a recursive path model in which each variable is assumed to be dependent upon all prior causal variables (Wright et al. 1960). The system of linear equations for the path model can be written as:

$$X_6 = P_{65} X_5 + P_{64} X_4 + P_{63} X_3 + P_{62} X_2 + P_{61} X_1 + P_{6u} R_u \quad - \quad - \quad - \quad - \quad (1)$$

$$X_7 = P_{76} X_6 + P_{75} X_5 + P_{74} X_4 + P_{73} X_3 + P_{72} X_2 + P_{71} X_1 + P_{7v} R_v \quad - \quad - \quad (2)$$

$$X_8 = P_{87} X_7 + P_{86} X_6 + P_{85} X_5 + P_{84} X_4 + P_{83} X_3 + P_{82} X_2 + P_{81} X_1 + P_{8w} R_w \quad - \quad (3)$$

where, P_{ij} ($i= 6, 7, 8; j= 1, 2, 3, 4, 5, 6, 7$) are the path coefficients and R_u, R_v and R_w are the random disturbance terms. All the random disturbance terms are mutually independent and are independent of their corresponding explanatory variables. The residual of path coefficients can also be estimated from the regression equation as square root of $(1-R^2)$, where R^2 (unadjusted) is the multiple correlation coefficients (square) of the regression equation for the endogenous variable to which the residual path is attached (Pathak and Murthy, 1996).

The exogenous variables are considered in this model are (i) women age (X_1), (ii) education (X_2), (iii) age at marriage (X_3), (iv) total family member (X_4), (v) wealth (X_5) and endogenous variables are considered are (i) fertility intention (X_6) and (ii) NGO membership (X_7). The dependent variable is considered ($X_8 =$ social capital index). Path analysis reveals the direct, indirect and total effects of selected explanatory variable for SCI.

6.5 Path Analysis: Results for Social Capital Index (SCI)

Table 6.1 produces the results of zero order correlation coefficients of various socio-economic and demographic variables which helps us to get the idea about non-causal (correlation) relation among exogenous variables. The different types of total effect, direct effect and indirect effect are shown in table 6.2. The causal relationships among socio-economic and demographic variables are shown in the figure 6.1

In path analysis, we obtain path coefficients, direct, indirect and total effects of the selected explanatory variables. According to figures 6.1, we observed that, 6 paths for SCI out of 18 hypothesized paths are found to be statistically significant. The t- test is used to identify the estimated path coefficients that are significant. The significant coefficients of the direct and indirect effect are discussed here only. It is worth mentioning here that the examination of the non-significant path has only a small effect on the power of the explanation of the model. The result and discussions of path model about SCI is shown below:

6.6 Path Analysis for SCI

Path coefficients are the direct effects of the determinant factors specified in regression equations (1), (2) and (3) and are estimated by the ordinary least-squares regression procedure. Thus, the fitted form of the path models of unwanted births is as follows:

$$X_6 = 0.031X_5 - 0.100X_4 + 0.068X_3 - 0.031X_2 - 0.408X_1 \quad - \quad (4)$$

P-value (0.453) (0.015) (0.105) (0.467) (0.000)

$$X_7 = 0.068X_6 - 0.150X_5 + 0.286X_4 - 0.099X_3 + 0.026X_2 + 0.050X_1 - \quad - \quad (5)$$

$$\text{P-value } (0.149) \quad (0.001) \quad (0.000) \quad (0.025) \quad (0.557) \quad (0.289)$$

$$X_8 = 0.950X_7 - 0.003X_6 + 0.034X_5 + 0.014X_4 - 0.011X_3 - 0.015X_2 + 0.023X_1 - - \quad (6)$$

$$\text{P-value } (0.000) \quad (0.846) \quad (0.015) \quad (0.344) \quad (0.446) \quad (0.296) \quad (0.136)$$

Fundamental to path analysis is the path diagram, which is the outcome of a set of linearly interrelated variables and the assumed causal relationships among them. In path analysis, the variables involved in the path diagram are divided into 3 groups- the exogenous variables, endogenous variables and residual variable. These 3 types of variables are diagrammatically presented in the figure 6.1, which is the fitted form of the above path models. The path diagram of the SCI and various socio-economic and demographic characteristics are given in the figure 6.1.

The direct, indirect, and total effects and various path coefficients of the explanatory variables from path analysis have been obtained, and the interpretations of the effects of these factors on social capital are shown in Table 6.2.

Table 6.2 shows the total associations among variables, i.e., the direct effects, non-causal effects, and total effects of exogenous and endogenous variables on the residual variable (social capital). The total association with SCI is statistically significant with age at first marriage (X_3), total family member (X_4), wealth (X_5), and NGO membership (X_7). The age at first marriage (X_3), total family member (X_4) and wealth (X_5) are also statistically significant with NGO membership through total association. The total association with fertility intention is statistically significant as women age (X_1), age at first marriage (X_3) and total family member (X_4).

Figure 6.1 Path Diagram for SCI and Some Selected Socio-Economic and Demographic Covariates in Bangladesh

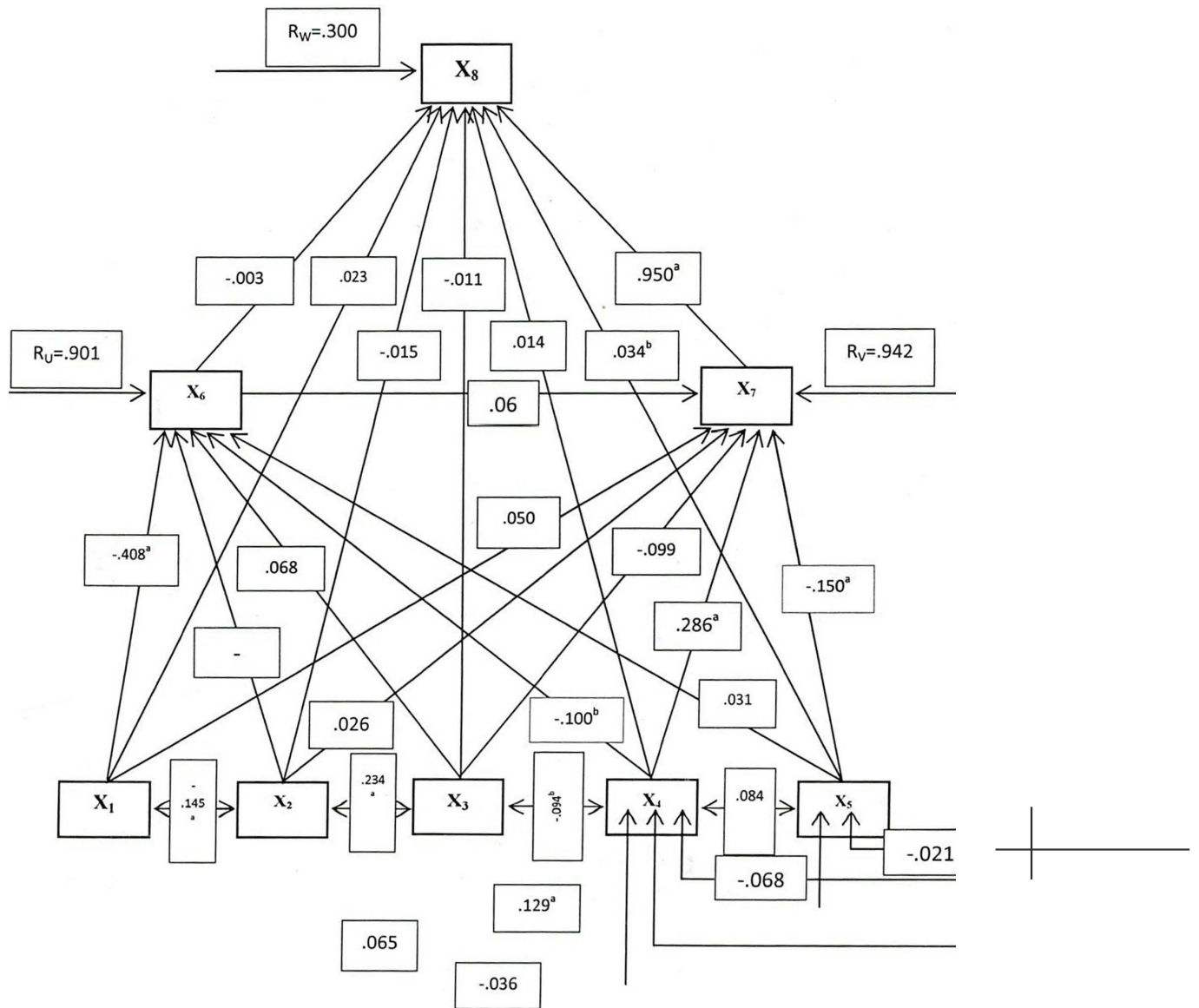


Table 6.2: Effects of Demographic and Socio-Economic Variables on Social Capital through Path Analysis

Endogenous Variable	Exogenous Variable	Total Effect	Non-Casual Effect	Indirect Effect Via		Direct Effect	Total Association
				X ₆	X ₇		
X ₆	X ₁	-0.408	-0.359	-	-	-0.408 ^a	-0.049 ^a
	X ₂	-0.031	-0.082	-	-	-0.031	0.051
	X ₃	0.068	-0.032	-	-	0.068	0.100 ^b
	X ₄	-0.100	0.029	-	-	-0.100 ^b	-0.129 ^a
	X ₅	0.031	-0.006	-	-	0.031	0.037
X ₇	X ₁	0.022	-0.027	-0.028	-	0.050	0.049
	X ₂	0.024	0.050	-0.002	-	0.026	-0.026
	X ₃	-0.094	0.031	0.005	-	-0.099	-0.125 ^a
	X ₄	0.279	0.002	-0.007	-	0.286 ^a	0.277 ^a
	X ₅	-0.148	-0.021	0.002	-	-0.150 ^a	-0.127 ^a
	X ₆	0.068	0.072	-	-	0.068	-0.004
X ₈	X ₁	0.072	-0.001	0.001	0.048	0.023	0.073
	X ₂	0.010	0.052	0.00009	0.025	-0.015	-0.042
	X ₃	-0.105	0.029	-0.0002	-0.094	-0.011	-0.134 ^a
	X ₄	0.286	0.003	0.0003	0.272	0.014	0.283 ^a
	X ₅	-0.109	-0.020	-	-0.143	0.034 ^b	-0.089 ^b
	X ₆	0.062	0.080	-	0.065	-0.003	-0.018
	X ₇	0.950	-0.003	-	-	0.950 ^a	0.953 ^a

Note: (i) X₁=women age, X₂= education, X₃= age at marriage, X₄= total family member, X₅= wealth, X₆=fertility intention, X₇=NGO membership, X₈= social capital index (SCI).

(ii) Non-Causal Effect= Total Effect - Total Association.

Total effect = Direct effect + Indirect effect.

(iii) ^b P < 0.05 and ^a P < 0.01.

In addition, the direct effects of wealth (X₅) and NGO membership (X₇) on SCI are statistically significant (Model 6). Moreover, the direct effects of total family member (X₄) and wealth (X₅) on NGO membership (X₇) are statistically significant (Model 5) as are the direct effects of women age (X₁) and total family member (X₄) on fertility intention (X₆) (Model 4).

Women age, education, total family member and fertility intention have favorable indirect effects and age at first marriage and wealth have adverse indirect effects, on SCI through NGO membership. Women age, education and total family member have favorable indirect effects and age at marriage and wealth has adverse indirect effects, on SCI through fertility intention. Similarly, age at marriage and wealth have favorable indirect effects, and women age, education and total family member have adverse effects, on NGO membership through fertility intention.

Finally, among determinants factors, women age, education, total family member, fertility intention and NGO membership have favorable total effects on social capital; age at marriage and wealth have adverse total effects on social capital.

Table 6.3 shows the percentage of indirect effect and direct effect on SCI through endogenous and exogenous variables. Women age on SCI about 1.39 percent is act through fertility intention and about 66.67 percent is act through NGO membership. Direct effect of women age on SCI is about 31.94 percent.

Table 6.3: Percentages of the Total Absolute Effect on SCI through Endogenous and Exogenous Variables

Dependent Variable	Selected Variable	Percentage of Indirect Effect Via		Direct Effect	
		X ₆	X ₇		
X ₈	X ₁	1.389	66.667	31.944	
	X ₂	0.225	62.500	37.500	
	X ₃	0.190	89.523	10.476	
	X ₄	0.105	95.105	4.895	
	X ₅	0.051	80.790	19.209	
	X ₆			95.588	4.412
	X ₇				100.000

Indirect effect of education on SCI about 0.23 percent is act through fertility intention and about 62.5 percent is act through NGO membership. Education on direct effect is about 37.5 percent with SCI. Age at marriage about 0.19 percent is act through fertility intention and about 89.52 percent is act through NGO membership and direct effect is 10.48 percent. Indirect effect of total family member on SCI is 0.11 percent

act through fertility intention and 95.11 percent is act through NGO membership. Direct effect of total family member is about 4.90 percent. Wealth on SCI about 0.05 percent is act through fertility intention and about 80.79 percent effect through NGO membership. Direct effect of wealth is 19.21 percent. Fertility intention on SCI about 95.59 percent is act through NGO membership and direct effect is 4.41 percent.

6.7: Conclusion

In this chapter, it is observed the interrelationships among important factors with NGO, social capital and fertility intention with the help of correlation analysis and Path model analysis. It also indicates the factors affect on NGO, social capital and fertility intention in this chapter. From the correlation analysis, it has been found that social capital has significantly positively correlated with total family member and NGO membership. On the other hand, age at marriage and wealth are significantly inversely correlated on SCI. To examine the causal link (direct, indirect and total effects) among socio-economic and demographic variables, a multivariate technique known as path model analysis has been applied. It has been found that 6 paths for SCI out of 18 hypothetical paths are found to be statistically significant in this study. The total effects of endogenous variables as women age, education, total family member, fertility intention and NGO membership have favorable total effects on SCI; age at marriage and wealth have adverse total effects on SCI at Charghat Thana in Bangladesh.

Concluding Remarks and Policy Recommendation

7.1 Introduction

Social Capital is the fruit of social relations and consists of the expectative benefits derived from the preferential treatment and cooperation between individuals and groups. In other words, social capital means relationships with others by trust, norms and social networks that an individual can change his/her socio-economic phenomena. Trust, social norms and social networks are the elements of social capital, by these elements one can improve the society and can get economic benefits by which changes his/her status. From various studies it has been observed that NGOs have great impact and contribution to make social capital. Microcredit program of NGOs is a development strategy innovation that has proved to be very effective in poverty reduction and social development (De Aghion and Morduch 2006, Bali Swan 2007). There is also numerous literatures about other impacts of microcredit most notably on social capital (Goetz and Sen Gupta 1996, Mayoux 2002, Kabeer 2003, Bali Swain and Wallentin 2007). This credit is provided to group members for various income generating activities (BRAC 2005). Such access to credit helps NGO members to generate self employment that enhances their earnings, lead to increase mobility, decision making power and greater control over their lives. In addition, microcredit activities help NGO members to improve health and education as well as trying to develop their new life styles.

In demographic research from various studied it is found that, social networks are primarily concerned with communication about fertility, fertility intention and family planning in high fertility contexts. Personal networks are characterized also by exchanges of materials and non material resources such as money, goods, services, power or the capacity to work. They have argued increasingly that social interaction is an important mechanism for understanding fertility intention behavior. In this study, it has been observed social capital, NGOs contribution and by analyzing the density of

the social network and their interactions among network partners and justify about their fertility intention. For this purpose, 498 samples have been collected from at Charghat Thana in Rajshshi district by using purposive sampling plan.

7.2 Results and Discussion

In this study, the Social Capital Index (SCI) is constructed to develop indicators of social capital formation among NGO members. The different indicators are considered for different issues considering the above ideas and different definition. Each of the issues of an indicator is quantified on the basis of the nature of the responses among respondents. The accuracy of the measurement of social capital formation depends on the selection of appropriate indicators. Social capital is consisted of social norm, trust and social networking. For this purpose, the variables considered are: regularly attending group meeting, involvement of NGO with long duration, loan from NGO, Opportunities from NGO, help with each other and assist to neighbor. The above variables express the social capital systems which are norm, trust and network. The SCI index is computed to give score for each category of the variables. The scores are then totaled to get the social capital index. The highest possible score for SCI is 11 and the lowest possible score is 0. Then, the range of score of SCI can be 0 to 11. For the convenience, the SCI have categorized as: lower, middle and upper. It shows that 28.5 % women belong lower, 13.3 % women from middle and 58.2% women from upper social capital index.

The result indicates that 31.7% women have completed primary education and 22.5% women completed secondary education and 18.7% women completed higher education respectively. Among the respondents most of the women (87.6%) are house wife and a few numbers of women (7.6%) are involved with petty business. Most of the husband has completed primary education (31.9%), 21.1% and 23.3% women completed secondary and higher respectively. 30.3% husband of the respondent's is engaged with small business and 29.7% husband is self employed and 20.5% husbands are service holder. Majority of the women are Muslims (77.7%) and and rest of the women are Non-Muslims.

It is observed that 34.1% families have monthly income below 5000 Taka, 37.1% families have monthly income in the range 5000-8000Taka, 11.4% families have monthly income in the range 8000-10000 Taka, and 17.1% families have monthly income above 10000 Taka and the average monthly income is 6171.69 Taka. About 49.4% families have monthly expenditure below 5000 Taka, 30.3% families have monthly expenditure in the range 5000-8000Taka, 12.2% families have monthly expenditure in the range 8000-10000 Taka, and 8% families have monthly expenditure above 10000 Taka and the average monthly expenditure is 5286.75 taka. The result also shows that about 53.8 % women's dwelling place is made of mud, 25.1% is made of building and 21.1% are made of semi building. 75.5% women's house has electricity supply.

Most of the respondent's age comprises 26- 45 years (43.4%) which has said to be middle age group. 20.1 % women are in the young age grouped 15-25 years, 36.5% women are in the older age groups above 45 years. We get 43.4% families have below 4 persons, 50.4 % families have 4-6 persons and 6.2% families have above 6 persons. It is also observed that fifty percent (50%) women's age at first marriage is under 18 years and another fifty percent women's age at first marriage is over 18 years. We observed that among our total respondent's 94.0% have idea about family planning and only 6.0 % has no idea about family planning. The respondents who are involved with NGOs are more used contraceptive method than not involved with NGOs that is the percentage of using contraception involved with NGOs is 76.4% and the percentage of using contraceptive method not involved with NGOs is 69.7%.

The result shows that the percentage of intention to have more children involved with NGOs is 20.8% and the percentage of intention to have more children not involved with NGOs is 21.1%. 34.5 percentage women have 0-1 child, 32.9 % women have two child and 32.9 % women have 2+ children. 64.7% women take treatment from government hospital, 23.1% women take treatment from NGO healthcare clinic and 12.2 % women take treatment from village doctors. Most of the family member use semi-sanitary toilet and their percentage are 44.4 %, 33.7 % family use sanitary toilet and 21.9 % family use row toilet.

The result reveals that 76.9 % women have idea about HIV/AIDS and 23.1% women have no idea about HIV/AIDS. About 55.6% use pills, 19.1% use injection. 17.5% women's husband use condom, 7.4% women have taken permanent method (female sterilization) and only 0.4 % women's husband has been done male sterilization. 68.1% women are exposed to mass media and 31.9% women are not exposed to mass media. In this study, the 356 women (71.5%) are involved with NGOs and 142 women (28.5%) are not involved with any NGO. Among them most the respondent's are engaged with Grameen Bank (48%), 35.1% women are involvement with BRAC and 16.9% women are involved with other NGO. Women who are involved with NGOs at less than five years is 43 % and the greater than or equal five years involved with NGOs is 57% women. Most of the women (87.4%) attend group meeting regularly as a norm of social capital.

It is observed that 84% respondents receive various co-operation and 87.1% respondents give cooperation to others members such as borrow money, small help by giving and taking commodities and shows humanity with each other. all respondents (involved with NGOs and are not involved with NGOs), the percentage of any types of cooperation to neighbors is about 62.7%. About 78.1% respondents have answered their monthly family income has increased after joining with NGOs and the percentage of family solvency not involved with NGOs is 52.1% & the percentage of family solvency involved with NGOs is 64.3% which is greater than not involved with NGOs.

The result exhibits that illiterate women have about 9 times more tendency to take another birth than literate women. About 33.7 percent housewife wants more births whereas 21.1 percent petty business and only 12.5 percent service woman wants another birth. Women who marry at early ages among them 36.9 percent wants more child and 26.5 percent wants more child who married at later ages of 18 years and over. It shows more than two-thirds women (70.0%) have less than two children among upper SCI women and only 30 percent upper SCI women have greater than two children and more. On the other hand, the opposite scenario is seen among middle and lower SCI women. The results indicates that middle aged women 26-35 years have 76 percent less likely and older women aged 35 and over have 98 percent less

likely to have fertility intention respectively than younger women aged less than 25 years.

To know the determinants of fertility intention, the logistic regression has been used. Muslim women are 1.2 times more likely to have fertility intention than their non-Muslim counterparts. The result indicates that primary completed women have 42 percent less likely and secondary and higher educated women have 22 percent less likely to have fertility intention respectively than illiterate women. The women who already exit more than two children have 15 percent less likely to have fertility intention than women who bearing one or two children. Women who are exposed to mass media reported that those women are 38 percent less likely to have fertility intention than those women who are not exposed to mass media. The result indicates that the women who have middle social capital index are 22 percent less likely to have fertility intention than those women who have lower social capital index and the women who have upper social capital index are 31 percent less interested to have fertility intention than those women who have lower social index. age group 15- 25 years women have been found to have lower fertility. The mean number of children ever born is 1.89 for women who are the age group 26-35 years and 1.32 for the ages 15-25 years. It may be that educated women marry latter and have lower fertility within marriage.

To provide the determinants of fertility at Charghat Thana, the multiple classification analysis has been applied. The result indicates that the mean children ever born are 2.12 and 2.01 respectively for Muslim and non-Muslims community. The mean number of children ever born is 2.70 for women who have no education and 1.57 for highly educated women. It may be that educated women marry later and have lower fertility within marriage. Women who marry at less than 18 years have on average 2.21 children, women who marry greater than 18 years have on average 1.98 children per women. It observed that mean (adjusted) children ever born per ever married women are 2.25 and 2.05 respectively for no knowledge about HIV/AIDS and have knowledge about HIV/AIDS. It observed that mean (adjusted) children ever born are 2.16 those who do not use contraceptive and children ever born are 2.08 those who use contraceptive. It is observed that mean (adjusted) children ever born per ever

married women are 2.25 & 2.03 respectively for no access to media and access to media. Results shows that mean children ever born are 2.07 those who are involved with NGOs and 2.15 those who are not involved with NGOs. On average one child is seen among upper SCI, whereas one average two children belong middle SCI and the higher, on average three children gives lower SCI. Social capital index directly influence fertility at Charghat Thana in Rajshahi District.

The role of NGO to form social capital has been observed for Charghat Thana. It shows that the average monthly family income of the respondents had 4125.25 and standard deviation 2979.45 before joining the NGO as a member. at present, the average monthly family income has increased to 6171.69, and the standard deviation to 3297.64 before the membership, the average family expenditure was 3917.35, and the standard deviation 2889.35. However, after membership the average expenditure is measured at 5286.75 and the standard deviation to 3178.19. It also indicates that, the mean and standard deviation of monthly savings had 207.9 and 301.25, respectively before the membership. However, the present, average savings has increased to 884.94 (mean) and 890.37. Before the membership, 74 percent of the members had been familiar with family planning programs, and as of late 98 percent of the respondents have been familiar with incorporating family planning programs.

About 33 percent of the respondents had been familiar with EPI programs such as immunization before the membership of NGO. At the present time, 96 percent of the members have introduced themselves in EPI program. Before the membership, only 34 percent respondents had been familiar with acquiring nutritional necessity, and at the present time, this number has grown up to 95 percent. 50 percent people have knowledge about HIV/AIDS before membership. At present, this number has increased up to 80 percent. It is found that the children, whose parents are literate, are 2.61 times more free from diarrhea and pneumonia, as compared with those whose parents are literate. The children who defecate stool in the field have 59 percent more chances to be free from diarrhea and pneumonia as compared with those, who are habitude to leave stool in the Uthan. On the other hand, children who defecate stool into the toilet are 2.97 times more prone to be free from diarrhea and pneumonia. Children who have Kacha toilets are 82 percent free from facing vulnerability of

diarrhea and pneumonia, as compared with those, who enjoy no toilet facilities. The children of the medium family income (monthly 5000-8000 T.K.) have suffered 1.26 times less, as compared with those children of the family, whose monthly income is less than 5000 T. K. The children whose family earned 8000-10000 T. K. per month, are 3.37 times more free from diseases like diarrhea and pneumonia. Children of the higher income family, i.e., greater than 10000 T.K., enjoy 4.96 times free from these types of diseases.

Members whose monthly family income exists between 5000-8000 T. K, enjoy 65 percent more opportunities to serve some educational skills and facilities to their children, as compared with those whose monthly family income is less than 5000 T. K. On the other hand, the members whose income exists between 8000-10000 T. K have 1.08 times more chances to be delivered with enjoying proper educational facilities. . Coincidentally, the members whose monthly family income is more than 10000 T. K, they have 20.2 times more chance to have their children educated in a proper manner. It indicates the results of multivariate logistic regression analysis. Muslim women are 3.6 times more involve with NGO than their non-Muslim counterparts. Illiterate women are less likely to have involved with NGOs than higher educated women. Primary completed women are 1,20 times more likely to have involved with NGOs than higher educated women and secondary completed women are 1.98 times more likely to have involved with NGOs than higher educated women. The women whose have monthly family income above five thousand taka are 78 percent less interested to have chance involvement with NGOs than the women whose monthly family income below five thousand taka.

To show the determinants of NGO contribution, the logistic regression has been used. Women who marry at aged 18 years and over have 11 percent lower chances of being NGO member than women who marry at ages less than 18 years old. Women who are not exposed to mass media are 1.8 times higher odds being a NGO member than who exposed to mass media. The women who have house hold assets are 50 percent more likely to have chance involvement with NGOs than not have house hold assets. Women who feel solvency are 34 percent higher chances of being NGO member than women are not solvent.

The correlation analysis has been conducted to know the interrelationships among fertility intention, social capital and NGOs at Charghat Thana. The results show that, SCI is significantly positively correlated with total family member (0.283), and NGO membership (0.953) at 1% level of significant. However, the SCI is also significantly inversely correlated with age at marriage (-0.134) at 1% level of significant, and wealth (-0.089) at 5% level of significant. Education (-0.042), and fertility intention (-0.018) are inversely correlated with SCI insignificantly. Women age (0.073) is positively correlated with SCI and relationship is insignificant. It is also found that, NGO membership is significantly positively correlated with total family member (0.227) and NGO membership insignificantly inversely correlated with age at marriage (-0.125) and wealth(-127) at 1% level of significant. Women age (0.049) and education (0.026) are insignificantly positively correlated with NGO membership, whereas, fertility intention is insignificantly inversely correlated with NGO membership. Fertility intention is significantly positively correlated with total family member (0.129) at 1% level of significant and age at marriage (0.100) is significantly positively correlated with fertility intention at 5% level of significant. Women age (-0.416) is significantly inversely correlated with fertility intention at 1% level of significant. Education (0.051) and wealth (0.037) are insignificantly positively correlated with fertility intention. Education (0.129) is significantly positively correlated with wealth at 1% level of significant. Age at marriage (-0.094) is significantly inversely correlated with total family member at 1% level of significant. Education (0.234) is significantly positively correlated with age at marriage and women age (-0.145) is significantly inversely correlated with education at 1% level of significant.

The Path analysis has been employed to provide the factors associated with fertility intention, social capital and NGOs at Charghat Thana. To examine the causal link (direct, indirect and total effects) among socio-economic and demographic variables, a multivariate technique known as path model analysis has been applied. It has been found that 6 paths for SCI out of 18 hypothetical paths are found to be statistically significant in this study. The total effects of endogenous variables as women age, education, total family member, fertility intention and NGO membership have

favorable total effects on SCI; age at marriage and wealth have adverse total effects on SCI at Charghat Thana in Bangladesh. The result exhibits that women age on SCI about 1.39 percent is act through fertility intention and about 66.67 percent is act through NGO membership. Direct effect of women age on SCI is about 31.94 percent. Indirect effect of education on SCI about 0.23 percent is act through fertility intention and about 62.5 percent is act through NGO membership. Education on direct effect is about 37.5 percent with SCI. Age at marriage about 0.19 percent is act through fertility intention and about 89.52 percent is act through NGO membership and direct effect is 10.48 percent. Indirect effect of total family member on SCI is 0.11 percent act through fertility intention and 95.11 percent is act through NGO membership. Wealth on SCI about 0.05 percent is act through fertility intention and about 80.79 percent effect through NGO membership. Direct effect of wealth is 19.21 percent. Fertility intention on SCI about 95.59 percent is act through NGO membership and direct effect is 4.41 percent.

7.3 Policy Recommendation

Fertility intention is the desire or aspiration of a women to bear additional children in context of Social and economic suitability. Throughout the 20th century, the nature of fertility has changed. In modern societies, fertility is very much characterized by people's active demand for children. Due to the prevalence of family planning and contraceptive use, fertility is less dependent on, individuals' natural fecundity, but by their desire for children, i.e. by their willingness to have a particular number of children at particular periods in their life courses. Consequently, fertility became very much an outcome of processes of decision making and purposeful behavior. This is also mirrored by research on fertility, which has become increasingly interested in a more detailed understanding of reproductive decision-making. In this connection, the theory of intention is receiving much scientific recognition. Intention is a central of purposeful behavior. Applied to fertility intention inform about reproductive plans, i.e. about contraceptive behaviors people want to perform in a near future. Social capital is a multidimensional concept and relatively a new term. In general, physical

capital is created by changes in materials to form tools that facilitate production, human capital is created by changes in persons that bring about skills and capabilities that make them able to act in new ways, social capital, however, comes about through changes in the relations among persons that facilitate action. Bangladesh has the strong tradition of NGO activities and Bangladesh's NGOs are among the most active in the world. Successive governments have also developed effective partnerships with the NGOs to improve living condition of the poor. NGO services such as micro-credit for start-up businesses, non formal education, and social mobilization help to strengthen poor communities and amplify their voice. In this way, Micro-credit has allowed millions of poor people to overcome poverty and improve their lives and their health programs has been played important role to reduce fertility in Bangladesh.

Based on the above discussion, the following recommendation should be made:

- Education should compulsory for the women. Education lightens women to realize their life and life styles. It also improves women to make her as a human capital and social capital.
- Age at marriage should be increased. It should follow strictly legal age at marriage for minimum 18 years for women in Bangladesh. It directly and indirectly impact on fertility reduction.
- Mass-media exposure should encourage for various programs such as fertility reduction, social capital formation and different activities for NGO to increase income generating for rural vulnerable women.
- Contraceptive use should be increased. It directly affect on fertility and fertility intention status of women at villages in Bangladesh. For this purpose, NGO activities should enforce strongly.
- Government should provide technical support and should observe the NGOs activities so that every local & International NGO not only run micro credit function but also going on health and family planning activities.

- It may be suggested that attention should be focused on the need of providing educational facilities, particularly in rural areas in order to depress the level of fertility in Bangladesh.
- NGO should supply various materials and instruments such as sewing machine, shallow machine, milk cow, and tools, which is needed for cottage industry. To fulfill such programs, NGO officers and field staffs should be taking proper steps to influence the group members for receiving such kind of items in a proper way.
- Pragmatic enforcement approaches should be implemented to realize the needs and necessity of imparting education among the poor vulnerable people. Likewise, essential policy should be taken and programs to meet the growing demand of education.
- Introduction of delivering mass education programs to the group members and other relevant sectors would also be helpful open up the door for all the people who remain in this category.
- NGO's should take part into implementing health education program by growing conscious efforts, especially in the development of working in reproductive and child health care issue.
- NGO would be ensured with the implementation of imparting sound sanitation facilities. Materials for safe drinking water can be provided for ensuring pure drinking water through awarding monetary incentives at a small interest and installments.
- Government and Non-government organizations should take care to create income generating programs for poor women at villages. It is ultimately to develop social capital among poor women at villages in Bangladesh.

7.4 Conclusion

The NGO group members are cooperative each others and they receive varieties co-operation and give cooperation to others members such as borrow money, small help by giving and taking commodities and shows humanity with each other. On the other hand over, not involved with NGOs are less interested to co-operate each other. Hence, we conclude that the NGOs in Bangladesh are contributing to build-up social capital by their activities (made by group with 6 members and select a leader, a centre is made by this type of 5 groups and a chairman is elected among the 6 leaders who performs ensure weekly group meeting, ensure loan taking qualification and discuss with program officer about various problems of members). So we can say that the NGOs are keeping important role to build social capital, fertility reduction and alleviate poverty by their micro credit activities in Bangladesh. From the beginning, NGOs are working with fertility intention, desires of fertility, contraceptives and family planning. The study entrusts that NGO'S working towards institutional enhancement of resource mobilization have been contributing positively towards considerably overhauling the socio-economic prism of the community. Recently, human resource development is the most important program of government and NGOs. Besides, NGOs are playing a vital role to form social capital among their members. There are many NGO's engaged in poverty alleviation, fertility reduction and control, socio-economic development programs as well as social capital formation in Bangladesh.

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