

A Multivariate Model of Micro Credit and Rural Women Entrepreneurship Development in Bangladesh

Sharmina Afrin

Associate Professor, Business Administration Discipline
Khulna University, Bangladesh
Tel: 880-2-8957994

Nazrul Islam

Professor, Department of Business Administration
East West University, 43, Mohakhali C/A
Dhaka 1212, Bangladesh
Tel: 880-2-9882308/ Ext.229
E-mail: nazrulislam@ewubd.edu

Shahid Uddin Ahmed

Professor, Department of Management Studies
Faculty of Business Studies
University of Dhaka
Dhaka 1000, Bangladesh

Abstract

In Bangladesh, micro credit programs have positive socioeconomic impact on the rural women borrowers. However, it is perceived that the micro credit programs help the rural women borrowers to survive only and do not help them to develop entrepreneurial capabilities. Hence, this paper aims at identifying the factors related to the development of entrepreneurship among the rural women borrowers through micro credit programs. A multivariate analysis technique like Factor Analysis was conducted to identify the entrepreneurship development related factors. Structural equation modeling was used to develop a model of micro credit program and the development of rural women entrepreneurship in Bangladesh. Results show that the financial management skills and the group identity of the women borrowers have significant relationship with the development of rural women entrepreneurship in Bangladesh. The experience from the parent's family of the borrowers and the option limit may also lead to the rural women borrowers to be entrepreneurial.

Keywords: Micro credit programs, Rural women borrowers, Entrepreneurship development, Financial management skills, and Group identity

1. Background

About 84% of 140 million people of Bangladesh live in rural areas and half of this population is women.

Men at the rural areas are directly or indirectly engaged in agricultural activities. But female members are used to remain idle in their houses due to a number of social and other barriers. They are discouraged to work outside their houses because of patriarchy and religious norms (Purdah) of Bangladesh (Ahmed, et. al., 1997; Cain and Khanam, 1979). Along with religious bar, barriers can be attributed by the lack of access to fund, lack of knowledge of agro-based technology, lack of market knowledge and lack of support from the family members.

In last two decades, micro credit programs have been operated by the government (GOs) and non-government organizations (NGOs) in Bangladesh. The prime objective of these programs is to enhance income-earning potentials of female members of the rural families and empower them socially and economically. Rural women can work in paddy husking, poultry farming, petty trading (e.g., grocery), pond aquaculture, animal husbandry, weaving, mini-garments, handicrafts, dairy farming, plant nursery etc. which are primarily home based. These programs are contributing a lot to the socioeconomic development of the rural women in Bangladesh. Research

shows that the micro credit programs sponsored have created significant positive differences in the socioeconomic lives of the rural women (Hashemi, 1996). Micro credit programs helped them to be involved in home-based economic activities, which have created enormous opportunity for them to be more independent and self-sufficient. Various studies show that the involvements of the rural women in home-based economic activities through micro credit programs have positive socioeconomic impact on their lives and their families. However, it is also unclear to different corners whether they are becoming entrepreneurial by the credit or not (Hashemi, 1996). The impacts of micro credit programs might be discussed by two ways. *Firstly*, micro credit programs create employment opportunity, increase productivity, provide economic security, give nutritional and health status, and improve housing condition of the rural women. The positive impact on income has increased their asset position and has created wealth for the family (Hulme and Mosely, 1998). *Secondly*, micro credit program creates a significant influence on social empowerment, awareness and education, self-esteem, sense of dignity, organizational and management skills, mobilization of collective strengths, etc. (Pitt and Khandaker, 1996). This positive socioeconomic change subsequently helps the rural women to be more independent and more financially solvent in their families.

Although, it is claimed by the micro credit borrowers that the important impact of micro credit programs is the sustainable development of the socioeconomic lives of rural women. But the reality is that the developments are hardly prolonged. Observation shows that the rural women are unstable to be self-reliant even they are involved in micro credit programs for a long period of time such as, 10 to 15 years. This indicates that the credit programs are making the women more dependent on the credit provider rather than making them independent. It is not making them self-independent and self-sufficient. Therefore, concerns have been raised by the researchers about the sustainability of socioeconomic developments of the rural women by micro credit programs. These concerns are very much relevant to the development of rural women entrepreneurship in Bangladesh.

The development of rural entrepreneurship depends on socioeconomic development of the people. Experts opined that the essentials to develop rural entrepreneurship are the development of capabilities of the borrowers. Once the rural women are self-sufficient, they will be able to initiate their own projects and consequently it will help them to stand on their own feet. To develop rural entrepreneurship in a developing country like Bangladesh, three main activities could be performed such as, stimulatory activities, supporting activities, and sustaining activities (Rahman, 1979; Rahman 1999, Katz, 1991a). These activities are partially performed by the micro credit providers in Bangladesh. The programs are only helping them to survive not to grow and sustain in future. In addition to that, the magnitude of the differences and their sustainability is diverse in government and non-government programs (Amin, 1994). For the development of rural women entrepreneurship, stimulatory supports are essential as the women are unaware of their capabilities. Interaction with the borrowers, with the people of micro credit provider, direct observation, education and training in selecting product, project, and other techno-economic information stimulate rural women to be entrepreneurial. The second step is to support the entrepreneurs for their different necessities. Once women's are stimulated to engage in homestead economic activities they require further support to start and run their own projects. These supports are related to the supply of scarce raw materials, access to the different facilities such as, fund, technology, production methods and procedures, marketing of products, reinvestment etc. The question of sustainability comes at the third stage of the entrepreneurship development activities. Once the business is run, rural women entrepreneurs require supports for sustaining their projects and continuous growth in future. These sustaining activities are related to the help in modernization, diversification, additional financing for full capacity utilization, deferring repayment/interest, diagnostic industrial extension, product reservation, new adventures for marketing, quality testing and improving services etc. Rural women can be benefited from the credit providers for obtaining these support facilities, which are helpful for them to increase the level of sustainability of their economic activities. Therefore, the research questions of this study are as follows. (i) Are the rural women borrowers becoming independent by the involvement in micro credit programs? (ii) Are they gaining any knowledge from the income-generating projects initiated by the credit? (iii) If not, how the women borrowers could be made entrepreneurial in operating home-based economic activities? (iv) Is there any difference in the rural women entrepreneurship development between government and non-government programs?

This study will primarily focus on to identify the factors related to development of entrepreneurship among the rural women borrowers. The present research will also analyze the sustainability of the socioeconomic impact on rural women, which is termed in this study as rural entrepreneurship development. The specific objectives of the study are as follows:

- (1) To identify and explain the factors related to entrepreneurship development through micro credit programs;
- (2) To test the appropriateness of the factors;

(3) To recommend a policy framework for the credit providers to develop rural women entrepreneurship in Bangladesh.

2. Micro credit program and the entrepreneurship development

Over last two decades, micro credit became an important tool for alleviating poverty in Bangladesh (Khandkar and Chowdhury 1996). The overall success of micro credit program depends not only on immediate alleviation of poverty but also on long-term sustainability and long-term sustainability depends on accumulation assets (Chowdhury 2004). In Bangladesh, Grameen Bank first started micro credit program in 1976 as a pilot project. Now, more than 3000 non-government organizations (NGOs), national commercial banks and specialized financial institutions operate micro credit program in Bangladesh. It is proved as a strong mean to alleviate poverty through social and economic empowerment of the rural poor women (Puhazhendhi and Badatya 2002). It is a group savings program, which helps the rural poor women to bring economic security in their lives (Secretary General, UN, 1998).

Micro credit is a structured program under which micro level loans are given to poor people especially to the poor rural women without collateral security. It is a group-based and intensively supervised loan program. The uniqueness of this loan program is that there is no requirement of collateral security. Anybody can apply for this credit and is eligible to receive credit. It is a small-sized supervised loan varies from Tk.1,000.00 to Tk. 10,000.00 per borrower. The purpose of the micro credit program is to give the loans to the poor people for self-employment that generate income, allow them to care for themselves and their family members (Sankaran 2005).

There are three C's of micro credit program such as, character, capacity and capital (Yunus 2003). *Character* is explained as the historical records of the borrowers such as, how a borrower has handled his past debt obligations, what about his or her background, honesty and reliability to pay the credit etc. *Capacity* is termed as how much debt a borrower can handle easily, what about his or her income streams etc. Capital means current available assets of the borrower, e.g., borrower's real estate, savings and investment that would help him or her to repay the loan in time.

Micro credit program has significant impact on income and economic security on the socioeconomic lives of rural women. It increases income and helps the women to spend more for the development of their lives and families. It helps to increase household income that improves the consumption patterns and lifestyles of the rural families (Hossain, et. al., 1992; Navajas, et. al., 2000). The access to the micro credit program of rural women helps to improve lifestyle through economic self-sufficiency (Apte, 1988). It is the single most important need of destitute women in Bangladesh (Apte 1988). Micro credit encourages women borrowers to save from the profits of their projects for the future, which is an important source of capital accumulation for the economy as well. Increased income indirectly improves the level of education of the borrowers and the awareness about consumption and sanitation needs. The improvement of education among the rural borrowers helps to be more conscious about the health and the future of their next generation. Credit programs increase productive resources of rural families and their housing conditions, which provide economic security for the borrowers.

The main objective of micro credit providers is to create self-employment opportunities for the rural unemployed and underemployed people especially for rural women. This self-employment is largely in non-farm self employment. Before joining the credit program, many of the borrowers were wage labor sellers. Now, they are more self-sufficient and can work in their own businesses. The rural women had a very little opportunity to participate in economic activities. Micro credit programs have created opportunity for them to participate in economic activities and reduced their dependency on others. The immediate effect is to reduce the labor supply and consequently raise wage rate, given the local demand for labor. Wages remain at the high level if the credit program induces a large demand for food and other local products. Thus, the increase of placement in the rural areas is the result of micro credit programs (Ghai, 1984).

Rural wage is the reflection of rural economic condition. Growth of self-employment has been achieved at the expense of wage employment, which implies in rural wage (Shahidur, 1998). Self-employment of borrowers was much higher than the reduction in wage employment in rural areas. The immediate impact of micro-credit is on labor force participation rate and total hours worked. A survey on Grameen Bank shows that micro credit programs had generated new employment for about one third of its members (Hossain, 1986). Most of the new employment was created for the female members of the borrowers. Micro credit programs also reduced the dependency ratio in the village. Micro credit programs increase the use of potentials of the rural poor. Rural development is based on the investments that promote economic growth in rural areas. Increase farm, productivity (Note 1) is the main emphasis for this purpose. Micro credit programs for the rural women can enhance rural productivity (Jha, 1991). Micro credit programs have increased agricultural productivity of small and marginal farm households. The use of high yielding variety is higher among the borrowers, which helps them producing more products (Alam, 1988).

The impact of rural credit programs is more visible in the non-farming sector of Bangladesh. The non-farming activities are livestock, poultry, fisheries, trading, shop keeping etc. Micro credit in rural people increased shop-keeping activities, which has increased volume of trade in the rural areas. It is reported in Grameen Bank report that 46% of total trade loans given to the trade sector by Grameen bank went to crop trading in 1985 and 22% went to livestock and fisheries. Trading and shop-keeping activities have positive impact on the development of local market by boosting local production and creating new market opportunities for selling those products locally (Shahidur et. al., 1998. Simple housewife or a part time farmer has been able to link her through this business to the local production, consumption as well as outside economic activity. The poor people are able to work and increase their working days after joining the rural credit programs (Hossain, 1988).

Women empowerment is other main purpose of micro credit programs. "Empowerment is about change in favor of those who previously exercised little control over their lives. This has two sides. The first is control over resources (financial, physical and human). The second is control over ideology (beliefs, values and attitudes) - Sen (1997). Now, question is "the empowerment is for whom". The answer is, it is for rural women in Bangladesh, who are governed by the two powerful forces such as patriarchy and class structures (Amin, et. al., 1994). The literature on micro credit and women empowerment provides a number of empowerment measures including borrowers control over her loans (Goetz, et. al., 1996; Montgimery, et. al., 1996), her knowledge of the enterprises accounts (Ackerly, 1995), her mobility, intra-household decision making power and general attitudes about her children's lives (Amin and Pebley, 1994; Hashemi, et. al., 1996) as well as on her control over resources and incidence of domestic violence (Naved, 1994).

Social empowerment is essential for the development of poor rural women in Bangladesh. The positive view is that micro credit programs help rural women to be more empowered (Zaman, 1999; Acharya, 1994). Empowerment is characterized as the mobility of women, economic security, ability to make purchase, involvement in major household decisions, relative freedom for the domination within the family, political and legal awareness, and involvement in public protest and political campaign. Women's participation in such programs increased their mobility to visit market place for buying products, medical center for medication, cinema hall for watching movie, other houses in the village, and outside village for more relations. It enhanced the ability to make small and large purchases. Small purchases include small items used for daily in preparation for the family (e.g., kerosene oil, cooking oil, spices), for oneself (e.g., hair oil, soap, glass etc), buy ice-cream or sweets for the children. The large purchases are related to pots and pans, children clothing, own clothing (e.g., Saries), family's daily food etc. the ability to major household decisions is concerned with repairing and innovation of house, buying animals, lease land, buy land, boat, rickshaw etc. Micro credit increases the ownership of productive assets for the women. The micro credits programs also influence legal and political awareness and participation in public campaigns. Campaigns are for the members for chairman for the locality and political leader. The protests are against beating waif by the man, divorcing or abandoning waif, unfair prices, unfair wages, misappropriation of relief goods, misbehavior of police or government officials (Hashemi, et. al., 1996). The longer the involvement of a woman in credit program the greater the likelihood of being empowered. She is likely to contribute more to her family and the society in the long run. The credit programs enable women to negotiate gender barriers. This increases the control of women over their own lives, improves freedom in the family, increased convincing power for both controls which improves relative positions of women in their families and society as well.

The improvement nutrition and health conditions of the rural women and their family members is an important positive impact of micro credit programs on rural women (Srinivasan and Bardhan, 1990; Hossain (1986). Micro credit increases awareness about modern medication. Tube-well water is normally not used by the poor people. Sanitary latrines and urinals are dreams for the villagers. One of the major incidences of poverty is the non-availability of such requirements. The rural credit providers usually try to address this problem to improve the quality of life of the rural poor. A number of studies show that the credit programs have increased daily intake protein and calorie of the rural people (Shahidur, 1996). The children of the borrowers are in better nutrition status compared to the children of non-borrowers. Rural credit projects help increasing the income of the poor women, which lead to higher food security and better life. The ability to spend more on sanitation and the health care activities are increased by the credit programs. Women borrowers can improve their housing conditions from the money they earn from the credit-supported projects. This is often termed as an insurance against rural poverty in Bangladesh.

Rural credit increased education and awareness among the rural woman. The involvement of women in income-generation activities changes their attitudes (Ahmed, et. al., 1997). With the interaction of fellow borrowers and loan providers, women feel the need for education. Education might be for her children, for the husband, and for herself. Credit programs increase girl's schooling for female than for male borrowers (Pitt and Khandoker, 1996;

Kabeer, 2001). It has generated awareness especially among rural women about women's, children's education and the education of the other household members. Due to the increase in income they are able to send their children to school, which increase the literacy rate for the country. Micro-credit programs create awareness among the rural women through the interactions with the group members and health workers. It increases contraceptive use for birth control. The exchange of ideas with other outside a woman's household, social support social legitimization of innovative reproductive behavior, and group formation and interactions encourage rural women to use more contraceptives (Amin, et. al., 1994). Micro credit decreases the level of desire for additional children. Once a woman achieves economic security and is able to contribute to her family, she has freedom of mobility, freedom from domination by the family, better control on her body, and birth control. Free movement in the village and traveling outside the village help women to seek family planning information, advice, methods, and other types of assistance (Schular, et. al., 1997). Women earning independently and contributing to their families are now less insecure and less vulnerable to the threat of abandonment. Cash and other assets make women less fearful of the repercussions of contraceptive side effects. Different studies have been conducted by the researchers regarding the impact of micro credit. It shows that almost all cases the impacts are positive in nature in case of return on investment, household income, employment non-agricultural investment, labor force participation rate, economic empowerment, household expenditure and consumption pattern, and human capital and fixed investment, social empowerment, etc. (Hossain 1988, Rahman 1996).

Rural entrepreneurship is a key to economic development in many countries across the globe (OECD 1998, OECD 2003, UN 2004). About half of the population of Bangladesh is women who usually remain idle and unproductive at the house. They have no scope to participate in the economic and income generating activities except nursing their babies and family members. Thus, these women can be more productive by involving in economic activities of the country. By providing stimulatory, supporting and sustaining supports these women could be made able to initiate businesses and income generating projects. Hence, the developed and developing countries both are focusing more backward group such as, rural women of the society in order to engage them in income generating activities (Chowdhury 2002). They focus on women entrepreneurship development by providing financial and other assistances, which can lead to reduce fertility and increase economic growth of the country.

Research shows that the definition of entrepreneurship has been changed over time. Islam and Mamun (2000) have done compilation of the definition. It shows the shifting focus of global entrepreneurial success factors. Before 1990, the focus was on personal and psychological factors while after 1990 focus was given on managerial and environmental factors. The common themes found in the definitions of entrepreneurship include: the entrepreneur, innovation, organization, creation, value creation, opportunity taking, profit or non-profit, growth, uniqueness, process, flexibility, dynamic, creative, and risk taking. These themes can be put into overlapping typologies, and the remainder of this section sets out five different types of perspectives on what is meant by entrepreneurship such as, (i) an economic function (ii) a form of behavior (iii) a set of characteristics (iv) a small business (v) and as the creation of wealth (Ahmed, and McQuaid 2005). In fact, in almost all definitions of entrepreneurship and entrepreneur, there is an agreement that entrepreneurs have a kind of behavior that includes (i) initiative taking (ii) the organizing and reorganizing of social and economic mechanisms to turn resources and situations to practical account and (iii) the acceptance of risk or failure.

The concept of entrepreneurship has a wide range of meaning. It has been debated among scholars, educators, researchers and policy makers since early 1700s when it was established. It is very difficult to give unanimous definition of entrepreneurship. It is an elusive concept (McQuaid 2002). As the expectations of different stakeholders are different, their views regarding enterprise, entrepreneurship and small business are also different. Therefore, there is no clear-cut definition of these terms. Rosa (1992) argued that the vagueness of enterprise has been to the advantage of both government and academics in the 1990s in their attempts in the UK to change the national culture. Katz (1991b) commented over this debate that small business is sub-set of entrepreneurship, while others argue that small business commencement is an integral part of entrepreneurship. Kearney (1996) defined that enterprise is the capacity and willingness to initiate and manage creative action in response to opportunities or changes, wherever, they appear, in an attempt to achieve outcomes of added value. These outcomes can be personal, social and cultural. Typically enterprise involves facing degrees of difficulty or uncertainty. The associated risks are not necessarily financial but may be physical, intellectual or emotional.

Innovation is a characteristic of any entrepreneur. Austrian Economist Schumpeter (1949) defined entrepreneurship focusing on innovation in four different areas such as new products, new production methods, new markets, and new forms of organization. Anyone combines inputs in an innovative manner to generate value to the society that results in the creating of wealth. According to Schumpeter, the carrying out of new combinations call enterprise and the individuals whose function is to carry them out call entrepreneurs (Cited in Carton, Hofer, & Meeks, 1998).

Industrial revolution also added this dimension in the entrepreneurship concept. Audretsch (1995) and Cunningham and Lischeron (1991) emphasized on innovation issue of an entrepreneur. They identified three levels of the term of entrepreneurship. The levels are: (i) small firms and enterprises level (ii) new firm formation and (iii) innovation and a system-wide coordination of complex production. Innovation and system-wide coordination is also emphasized in other studies (Malechi 1997; Casson 1990, Casson 1999). Behavioral and social scientists also focused on risk taking, innovation, and initiative taking capabilities in their definitions of entrepreneurship (Weber 1930, Hoselitz 1952). These characteristics are related to the cognitive aspects of the entrepreneurship.

Risk taking is the prime factor for the success of an entrepreneur. When an entrepreneur initiates a business venture, he or she has to take risk and face uncertainty. In the 18th century, the French term '*entrepreneur*' was first used by Cantillon (1755) to describe a 'go-between' or a 'between-taker' whereby they bought goods at certain prices but sold at uncertain prices (as when they purchased the goods at a given price they could not be sure what price they would sell them for). So, he or she bore the risk and uncertainty of a venture but kept the surplus after the contractual payments had been made (As cited in Ahmed and McQuaid 2005). Drucker (1971) also emphasized on risk taking capability as an important characteristic of an entrepreneur. Ahmed (1981) identified entrepreneur as a risk taker as he or she invests money, and he or she is involved in making decisions, the success of which brings rewards; and the failure of which could lead to the loss of the rewards, as well as, even the loss of the principal (i.e., invested money). Therefore, it is very logical to place risk taking at the focal point of entrepreneurship. Anybody doing business is not an entrepreneur. The person who takes risk for establishing new venture or who has the capability of taking moderate risk is an entrepreneur (Ahmed 1982; Ahmed 1987). A person is entrepreneurial when he or she has very strong eagerness to achieve, which was emphasized by McClelland (1961). He found *achievement motivation* as an important foundation characteristic of a successful entrepreneur. The person who likes to reach at the top of the success ladder by taking moderate risk is achievement motivation oriented. An entrepreneur not only initiates new business venture but also runs the business efficiently. In this regard, Jean-Baptiste Say identified few dimensions of entrepreneurship with the idea given by Cantillon such as, planning, supervising, organizing, and even owning the factors of production. These activities are primarily related to the managing and running the business.

Opportunity seeking is another characteristic of an entrepreneur. In this regard, Stevenson (2000) explained that entrepreneurship is an approach to management that can be defined as the pursuit of opportunity without regard to resources currently controlled. In this approach, he examined six critical dimensions of business practices such as, strategic orientation, commitment to opportunity, commitment and control of resources, management structure, and reward philosophy, which are related to entrepreneurship development. Entrepreneurship is the pursuit of a discontinuous opportunity involving in the creation of an organization with the expectation of value creation to the participants. The entrepreneur is the individual (or team) that identifies the opportunity, gathers the necessary resources, creates and is ultimately responsible for the performance of the organization. As a catalyst agent, an entrepreneur creates the forces of change and utilizes the same in accelerating the socioeconomic value-addition of a country through resource utilization, employment generation, capital accumulation and industrialization (Rahman 1979; Rahman 1996). Self-employment is the result of the development of entrepreneurship. Entrepreneurs create employment for him and for others to work with innovative and economic projects. People who are self-employed and have the ownership of the business are called entrepreneurs (Chowdhury 2002). They are the owners of the business enterprises. In this regard, women entrepreneurs are defined as conventional or traditional entrepreneurs, innovators, radical proprietors, domestic traders and dynamic groups (Begum 2003).

In conclusion, it is evident that some definitions of entrepreneurship are concerned with business development aspects, while some are related to behavioral aspects of entrepreneur (Ahmed and McQuaid 2005). Business development aspects could be defined by opportunity seeking, initiative taking for establishing new business venture, creating wealth etc. While, behavioral aspects are related to achievement motivation, risk taking propensity, inner urge to do something for him and for the society as well. Essentially, entrepreneurship is the dynamic process of creating incremental wealth, which is created by the individuals by adopting risks in terms of equity, time, career commitment etc. It is the process of creating something new value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks, and receiving the resulting rewards of monetary and personal satisfaction and independence. Entrepreneurship can be emerged through the actions of four actors. The actors are support system, socio-sphere system, resource system, and self-sphere system. First, Support system that includes structure, Organizational goal /policy, program in activities, technical competence, Organizational climate, and style of functioning, Second, *Socio-sphere system*, includes value orientation, which is defined by work, independence, initiative, innovations and risk taking norms. Third, Resource system includes manpower, market, raw material, transport communication, other industries / enterprise, and technology and technical manpower. Fourth, self-sphere system includes motivation and skill. Motivation is explained by personal efficiency, coping

capability and skill is defined by selection of product/process, project development, and establishing and managing enterprise.

The emergence of women entrepreneurs in a society depends mainly on economic, social, religious, cultural and psychological factors (Habib, et. al., 2005). The reasons or motivations for starting business or economic activities by the rural women are enormous. The important reasons are earning money or attractive source of income, enjoying better life, availability of loans, favorable government policy, influence of success stories, personal satisfaction, desire to utilize own skill and talents, unfavorable present working environment, self employment and employment of others, assurance of career and family security, fulfillment of creative urge of the borrowers, experience in family business, self confidence, unable to find suitable job or work, encouragement and advice of the family members, economic necessity, income from business is a supplement of family income, self dependent, self interest, inner feeling to do something or to make difference, utilization of self competence, contribution to economic growth of the locality, do something for social development, gain family and social status, gain technical and business knowledge, etc.

One of the key factors for the development of women entrepreneurship in Bangladesh is recognition (Saleh, 1995). When the activities performed by the family members or by the neighbors, rural women feel encouraged to do it. Therefore, whatever the rural women do must be first recognized by their husbands and then by the family members and others. The types of family in the rural areas have impact on the development of rural women entrepreneurship. Study shows that rural women coming from a nuclear family become more entrepreneurial than joint family (Surti and Sarupia, 1983). The level of family liability can attribute the reason. This family has less liability than the joint family.

Age of the rural women entrepreneur is another factor for developing rural women entrepreneurship in Bangladesh. Study shows that the majority of the rural women entrepreneurs started their business at the age of 20-29 years (Punitha, et.al., 1999). At this age, they do not have many family bindings and as such they can work freely in their projects. There are many places of Bangladesh, where there is no touch of development. Because of their presence of the rural micro credit programs at those areas rural women are becoming more enthusiastic to initiate new economic projects with the help of micro providers. Therefore, properly supervised micro-credit can help to improve socio-economic conditions of the rural poor women in Bangladesh (Begum, 2005). However, lack of economic socioeconomic backwardness of the family, lack of family and community support, ignorance of opportunities, lack of motivation in initiating new projects, shyness and inhibition to involve with economic activities, preference for traditional occupations, etc. are the factors that inhibit the promotion of grass roots entrepreneurship development among rural women (Rao, 1991).

3. Methodology

The respondents of this study are rural women borrowers of two leading organizations such as ASA in private sector and BRDB in public sector. The total number of women borrowers interviewed is 246 of which 198 are from ASA and 48 are from BRDB. All the borrowers of BRDB are Hindu, while the borrowers of ASA comprise 77.60% Muslims and 22.40% Hindus. The age distribution of the borrowers of ASA and BRDB is different. About 29% of ASA's borrowers are between the age of 20 to 25 years followed by 30 to 35 years (24.50%), 35 to 40 years (22.40%), 25 to 30 years (18.40%) and between 15 to 20 years (6.10%). On the contrary, 49% of the borrowers of BRDB are between 35 to 40 years old. About 21% of this group is between the age of 25 to 30 years followed by 20 to 25 years (15.20%), and 30 to 35 years (15.20%). The average age for the borrowers of ASA is 29 years and for BRDB is 32 years. About 88% of the borrowers of BRDB and 98% of ASA are married. The difference between the educational qualification of the borrowers of ASA and BRDB has been observed. About 33% of the ASA's borrowers are self-literate. They become literate after joining micro credit program to manage financial matters. About 29% of them are primary educated followed by illiterate (22.40%) and secondary educated (16.30%). About 36% of the borrowers of BRDB are secondary educated. The illiterates of this group are also similar (36.40%) like ASA. The self-literate borrowers in BRDB are 15.20% and primary educated borrowers are 12.10%. This education status of the women borrowers indicates that the borrowers were self-literate after the involvement with credit programs.

The training status of the rural women borrowers shows that the majority of the respondents have no training on technology or marketing. More than 75% of the borrowers in both the groups did not receive any formal training from the credit providers. Only 18% of the borrowers of ASA and 12% of BRDB have received technical training from other than loan provider. Only 8.20% of ASA's borrowers and 12.10% of BRDB's borrowers obtained non-technical training from the credit providers. The nature of this training is only to give idea about technology and other aspects of the business. This study noticed that ASA and BRDB have no arrangement for organized training in the study area.

BRDB started its credit activities in the study area in 1993, while the inception of ASA was 1996. The target people of BRDB for credit programs are poor farmers and rural women who have at least some productive assets. On the other hand, the focus of ASA is to give credit to the poor women who have no productive assets to earn. ASA provided micro credit to 1,200 women and for BRDB it is 295 in the study area. BRDB gave loans for the purpose of poverty alleviation primarily in the projects of agriculture, fish culture, poultry raising and petty trading. ASA gave credits for poverty alleviation in the projects of paddy husking, rice fry (Muri Vhaza), small hotel (café), petty trading (vegetables trading, molasses trading etc.) purchasing van/rickshaw, purchasing cow, fish culture, and poultry raising. The minimum amount of credit given by BRDB is TK.2, 500 and the maximum is Tk. 7,000. While, the same is for ASA ranged from Tk. 3,000 to Tk.12, 000. Along with micro credit, ASA has micro insurance services. But BRDB does not offer insurance policy. However, BRDB provides advice in family planning along with micro credit but ASA does not. ASA is very much strict about the installments supposed to give every week. BRDB's loanees repay installment in a month, which is less strict compared to ASA.

To select the sample respondents, khulna divisions (Note 2) has been selected. Under this division, Khulna is an important district (Note 3) under this district; there are 10 Thanas (Note 4) such as Khulna Sadar, Batiaghata, Dacope, Daulatpur, Dumuria, Koyra, Paikgacha, Phultala, Rupsa, and Terokhada. The reason for selecting Khulna district is that the most densely populated district in Khulna Division. There are about 2.38 million people living in this district with 375,000 households (BBS, 2005). About 50% of population in this district is female.

Batiaghata Thana was selected as the sampling area which is located adjacent to Khulna City. This Thana consists of 7 Unions with 159 villages. The population of this Thana is 128,184 with 516 persons per sq. km. The plane land is 1,468.38 acres. Only 37.70% of the population is literate. There are 23,698 families in this Thana. The total number of dairy and poultry farms is 12 and 57 respectively. There are 12,088 sanitary latrines and 1,024 tube wells in the Thana. The numbers of deep tube wells are 896. Most of the families are involved in agricultural farming followed by petty trading, fishing, pottering, paddy husking, gold-making business, kamar, and spinning. There are 26 village hat/bazaars in the Thana.

Borrowers who are already engaged in 3-10 years or more with the credit programs are considered as respondents. *Purposive Sampling Method* was used to select the types of activities or projects including fish culture, paddy husking, poultry farming, petty trading, grocery, animal husbandry, weaving, handicrafts, dairy farming, plant nursery etc. of rural women borrowers. All women borrowers of BRDB were selected from the Rajbadh village and 25% of the borrowers of ASA were selected purposively from Hatbati, Wazed Akundi Nagar, Sachibunia villages who have been involved in micro credit programs.

Based on the criteria such as, (i) the intensity of credit programs, (ii) the density of population, (iii) intensity of poverty were used to select two Unions of Batiaghata Thana have been selected purposively for this survey. Under each Union there are about 14 to 17 villages. One village named Rajbadh has been selected for interviewing the borrowers of BRDB and three villages named Hatbati, Wazed Akundi Nagar, and Sachibunia have been selected for interviewing the borrowers of ASA. ASA and BRDB have intensive micro credit programs in these selected villages because of large population size and high poverty.

This study is mainly based on primary data collected from the survey of rural women. A survey has been conducted among the rural women borrowers of BRDB and ASA to collect information about the development of rural women entrepreneurship through micro credit programs with the help of a structured questionnaire. A structured questionnaire in a 5-point scale was developed for the variables relating to the development of rural women entrepreneurship. A five-point scale ranging from 1 to 5 with 1 indicating strongly disagree and 5 indicating strongly agree was used in this regard. This study used 40 entrepreneurship related variables to explain the chance of rural women for being entrepreneurial identified from the literature. The dependent variable is explained by four variables such as, independence, ability to make complex decision, ability to seek & grasp opportunity and ability to take risk & initiative. The survey has been conducted with the assistance of MBA students of Khulna University, who explained the questions to the borrowers in detail. The interviewers were trained on the variables representing the questionnaire for data collection before starting interview. Borrowers were surveyed during January 2006 to March 2007.

Along with descriptive statistics, multivariate analysis techniques such as, Factor Analysis and Structural Equation Modeling (SEM) were used to analyze the relationships of the variables relating to the development of rural women entrepreneurship. A Principal Factor Analysis with an orthogonal rotation⁴ (Varimax) using the SPSS statistical package was performed on the survey data and was used to separate the factors for developing entrepreneurship. The relationship of entrepreneurship factors with the overall entrepreneurship development is assessed through Analysis of Structural Equation Modeling by using Amos version 4.

It was the ultimate intention of this study to test the conceptual model developed from the theoretical analysis and to estimate the parameters for the structural equation model. Hence, data were analyzed through structural equation model using AMOS or *Analysis of MOment Structures* to perform path analysis (Note 5). Amos implements the general approach to data analysis known as *Structural Equation Modeling* (SEM) – also known as *Analysis of Covariance Structures*, or *Causal Modeling*. It is a computer program for estimating the unknown coefficients within a system of structural equations, and is one of several computer-based covariance structure models for conducting such analysis. Amos, as like as LISREL, is useful when the researcher desires to explore the causal relationships among a set of variables. The method is called covariance structure analysis because the implications of the simultaneous regressions are studied primarily at the level of correlations or covariances. Typically, a covariance structure model is specified through a simultaneous set of structural linear regressions of particular variables on other variables. The field of covariance structure analysis actually covers a wide range of topics, including confirmatory factor analysis, path analysis, and simultaneous equation and structural equation modeling. Much research in the social sciences including business involves the measurement of latent constructs. The method is useful for analysis of structural equations involving experimental data. In business applications, theoretical constructs are typically difficult to operationalize in terms of a single measure and the measurement error is often unavoidable. As a result, given an appropriate statistical testing method, the structural equation models are likely to become indispensable for theory evaluation in business research. The approach provides a means for examining causal relationships among multiple variables, the magnitude of hypothesized relationships, and the extent of measurement error of constructs in application of experimental designs (Bagozzi 1977). When researchers attempt to measure constructs such as perceptions to something, they are attempting to gauge unobservable cognitive processes with measurement devices that can only approximate the latent constructs of interest. This process is typically fraught with measurement error. Because of their ability to control or allow for such measurement error when estimating the relationships between variables, covariance structure models have been gaining in popularity in business studies (Bagozzi 1980, Bagozzi 1981). Howard (1977) suggests in this regard that structural modeling sharply highlights the intimate, powerful, mutually reinforcing relationship between theory and measurement. In this study, it was perceived that structural equation modeling would be the best approach to understand the relationships between the constructs.

In this study, covariance and structural modeling program was performed in two distinct. *First*, observed variables are linked to unobserved variables through a confirmatory factor analytic (CFA) model. CFA is a means of discovering an underlying structure in one's data, given some prior theoretical or empirical information. The set of connections between the observed and unobserved variables is often called the measurement model. The measurement model specifies how the latent variables are measured in terms of observed indicators and explicitly introduces measurement error. *Second*, the causal relationships between the resulting latent variables are examined in a structural equation model. The model component connecting the unobserved variables to each other is often called the structural model. The structural equation model specifies the causal relationships among the latent and unobserved variables.

4. The results of factor analysis

Multivariate Analysis technique such as, Factor analysis was used to identify the factors responsible to development women entrepreneurship in the rural areas of Bangladesh with the support of micro credit. A Principal Factor analysis with an orthogonal rotation⁴ (Varimax) using the SPSS statistical package was performed on the survey data and was used to separate the factors. Factor Analysis⁵ of 40 variables in the rural women entrepreneurship survey identified 13 main factors⁶ that account for 75.74% of the variance⁷ in the data (Table 1). The initial factor structure derived from varimax rotation extracted thirteen factors. Scrutiny shows that some of the factors were unclear, particularly when several items loaded simultaneously on more than one factor. The factors are Financial management skill and group identity, Creative urge and self interest, Family fund and gender discrepancies, Family employment and new job, Independence and keeping thyself busy, Business knowledge, Family experience and option limitation, Economic necessity, Self confidence, Technical and non-technical knowledge, Earning money, Unable to find suitable work, Contribute to the economic growth.

The first factor was identified as *financial management skill and group identity* accounts for 18.16% of the variance in the data. The development of financial skill and the creation of group identity by the micro credit is the most important factor for the development of rural women entrepreneurship in Bangladesh. The eigenvalue of this factor is 7.26. Financial management skill and group identity are related to six variables including such as increased family relationships and cohesiveness (0.536), involved rural women-folk (0.822), development of financial management skills (0.866), realized self and collective identity (0.880), getting adult education (0.621), and developing awareness of health and women's rights (0.696), etc. A relatively higher level of factor loading⁹ of almost all the variables

indicates that these variables are very important to constitute the rural women entrepreneurship development factor. The communality¹⁰ values for these variables are 0.705, 0.818, 0.835, 0.901, 0.742 and 0.630 respectively. The higher level of communality of the variables associated to financial management skill and group identity indicates that each variable is very much related to the factor.

The next important factor is *creative urge and self interest* with an eigenvalue of 3.57. The variance of this factor is 8.93%. It indicates that creative urge and self interest is an important factor for the development of rural women entrepreneurship. Seven variables constituted this factor. The variables are creative urge (0.843), self interest and self dependent (0.815), inadequacy of family supplement income (0.538), family support is required (0.534), attractive source of income (-0.441), competent to take and use loan (-0.426), and getting educated (0.416). These variables are highly important for determining the entrepreneurial status of the rural women borrowers. The communality of the variables is also higher.

Family fund and women involvement is the third important factor for the rural women entrepreneurship development with an eigenvalue of 2.76. This factor explains 6.90% of the variance. The women borrowers are concerned with self independent (0.852), family peace (0.787), gaining social prestige (0.664), ability to accumulate family fund (0.525), and alleviation of gender discrepancies (0.488). Another entrepreneurship factor is *employment of family members and the creation of new jobs* with eigenvalue of 2.75 and variance of 6.87%. This factor is constituted by four variables such as, can employ others (0.827), new work and work environment (0.761), training (0.758), and scope to utilize own skills and talents (0.549). Independence and keeping thyself busy is the 5th factor for the development of rural women entrepreneurship in Bangladesh. The eigenvalue and the variance of this factor are 2.205 and 5.515 respectively. The variables formed this factor includes doing something independently (0.920), can keep myself busy (0.825), and career and family security (-0.447). *Family Experience and Option Limitation* is the next important factor for the development of rural women entrepreneurship in Bangladesh. Two variables constituted this factor such as, experience and competencies (0.835) and no other option available (0.764).

Other factors like knowledge of business, economic necessity of the family, self confidence, technical knowledge of business, money earning, unable to find suitable work or job, and contribute to the economic growth were found not significant to build the model.

5. Results of structural equation modeling (SEM) analysis

The data of this study were analyzed in two stages. First, the measurement model was assessed to confirm that the scales were reliable. Second, when the reliability of the measures had been established, the structural model was tested. This testing determined the strength of individual relationships, goodness of fit of the model, and the various hypothesized paths.

The first step of the analysis was a test of the measurement model. Objectives of this test were: (1) to contain the validity and reliability of measures; and (2) to select the best subset of observed measure for use in testing the structural model. The data depicted a normal distribution with acceptable skewness and kurtosis values. Coefficient alpha was computed for each set of observed measures associated with a given latent variable, and a Confirmatory Factor Analysis (CFA). Alpha values of each item in each dimension were performed separately and were found acceptable. Estimation of Measurement model for the six constructs (factors) of interest was performed using AMOS 4.01.

The results of overall structural model fit as indicated by the chi-square statistic (Note 6), which was significant chi-square = 707.80; $df = 168$; $p = 0.000$ (Table 2). The statistic is computed under the null hypothesis that the observed covariances among the answers came from a population that fits the model. A statistically significant value in the *goodness of fit test* would suggest that the data do not fit the proposed model, i.e., that the observed covariance matrix is statistically different than the hypothesized matrix (Note 7).

The fit of the structural model was estimated by various indices and the results demonstrated good fit. For models with good fit, most empirical analyses suggest that the ratio of chi-square normalized to degree of freedom (chi-square/df) should not exceed 3.0 (Carmines and McIver, 1981). In addition, the obtained goodness-of-fit (GFI) measure was 0.809 and the adjusted goodness-of-fit (AGFI) measure was 0.737 respectively, which are both higher than the suggested values. The other two indices of goodness-of-fit – the normalized fit index (NFI) and the comparative fit index (CFI) are recommended to exceed 0.90. The results also meet these requirements. Finally, the discrepancies between the proposed model and population covariance matrix, as measured by the root mean square error of approximation (RMSEA), are in line with the suggested cutoff of 0.08 for good fit (Byrne, 1998). The complete model of micro credit program and the development of rural women entrepreneurship is shown in Figure 1.

Table 3 shows that the relationships of the factors built the model for the women entrepreneurship development in Bangladesh through micro credit programs. After identifying the women entrepreneurship development factors, hypothesis was developed for each construct and the important factors together found significantly associated to the rural women entrepreneurship development.

5.1 Financial management skill and group identity

In hypothesis 1 (H_1), it was predicted that the financial management skill and the group identity has a direct and positive relationship with the women entrepreneurship development (WED) in rural areas of Bangladesh. It was presumed that the higher the financial management skill and group identity will lead to higher level of encouragement among the rural borrowers for taking new initiative of business. The results show that the direct effect of financial management skill and the group identity on the development of women entrepreneurship is positive and significant ($\beta = 0.24, p < 0.008$). This result indicates that the higher the financial management skill and better the group involvement the higher the chance of being entrepreneurial will likely be.

5.2 Family experience and option limitation

Hypothesis 7 (H_7) states that family experience and option limitation has a direct positive effect on the development of rural women entrepreneurship in Bangladesh. This means that if the rural woman has business orientation from her parent's family and if she has some fund from the micro credit providers she will take initiative to do business or she will initiate economic project which will help her to earn money and obtain social status. This hypothesis was supported by the analysis that provides positive and significant values ($\beta = 0.13, p < 0.11$). Although, this factor is significant at 11% of significance it an important factor to be entrepreneurial for the rural women through micro credit programs. As this study a first of its kind, this result can be acceptable.

5.3 Independence of the women and the urge to keep busy

In hypothesis 5 (H_5), we hypothesized that independence of the rural women and the urge to be kept busy can make them entrepreneurial which has positive and significant effect on the women entrepreneurship development in the rural areas of Bangladesh. This indicates that the more the independent and more enterprising the rural women will lead to higher level of entrepreneurial. The results support this hypothesis and is found positive and significant ($\beta = 0.08, p < 0.14$). This means that the higher the independence and enterprising of the rural women the higher the chance to be entrepreneurial will likely be. We also accept this result on the ground of pioneering attempt in this regard even the significant level is 14%.

5.4 Other factors

In hypothesis 2 (H_2), we predicted that the relationship between creative urge and self interest and the rural women entrepreneurship is positive and significant. But the results show that the relationship between these constructs are negative and not significant ($\beta = -0.063, p > 0.38$). This indicates if there is a change in the creative urge and self interest factor it will not lead to the development of rural women entrepreneurship through micro credit program in Bangladesh. That means, through micro credit program the creative urge and self interest is not developed among the rural women borrowers.

In hypothesis 3 (H_3), it was predicted that the relationship between family fund and involvement in business and the rural women entrepreneurship is positive and significant. However, the results show the opposite situation in this regard ($\beta = -0.120, p > 0.21$). This indicates that with the change in financial status and women involvement with money matters will be not change in the entrepreneurship development characteristics among the rural women in Bangladesh.

In hypothesis 4 (H_4), it was perceived that there is a positive and significant relationship between new job and employment of family members with rural women entrepreneurship development. But the results show that there is no significant relationship between the two constructs ($\beta = 0.035, p > 0.67$). This indicates that employment of family members and the new job will not develop any entrepreneurial characteristics among the rural women borrowers through micro credit programs.

6. Conclusions and recommendations

It is generally perceived that the micro credit program helps to develop socioeconomic status of the rural women in Bangladesh. In addition, it is perceived that micro credit is helping not only to bring the socioeconomic change but also to make them entrepreneurial. This study tried to resolve these questions by constructing a model which was supported by the multivariate analysis.

The most important finding of this study is that the financial management skill and the group identity of the borrowers have a direct and significant relationship with the development of rural women entrepreneurship (WED)

through micro credit programs. When rural women receive financial support from the micro credit providers they feel encouraged to involve themselves in the financial projects that subsequently increases the financial management skills of the borrowers. Micro credit also provides group identity to the rural poor women as they are used to participate weekly meeting. When women acquire knowledge of financial management and get the group identity they become more enthusiastic to initiate new business project. The significant relationships indicate that if the micro credit borrowers can enhance this skill among the rural women borrowers it would lead them towards the development of entrepreneurship. As a result, the borrowers will be able to stand on their own feet.

Another important finding of this study is that the experience from the parent's family of the borrower and option limitation has a direct positive impact on the development of rural women entrepreneurship in the rural areas of Bangladesh. This means that if a rural woman has business orientation from her parent's family and at the same time if she has some fund at her hand she will take initiate new business or she will initiate economic project which will help her to earn profit and obtain social status as well.

Rural women who are independent by nature and would like to keep them busy with economic activities could be picked up by the micro credit providers for credit. This section of rural women has the potential to be entrepreneurial. This study supports this observation for the rural women borrowers in Bangladesh.

Therefore, micro credit providers would focus on the development of financial management skills, group cohesiveness and group identity of the borrowers who have business orientation in their families and provide them financial support. This would lead to the rural women borrowers to be entrepreneurial and as a result the women borrowers will be able to stand on their own feet and rural women entrepreneurship will be developed in Bangladesh.

References

- Acharya, J. (1994). *Rural Credit and Women Empowerment: Case Study of the Janashakthi Program in Hambantota District, Srikanta*, M.Sc. Thesis, No. 94-5, Bangkok: Asian Institute of Technology.
- Ackerly, B. (1995). Testing Tools of Development: Credit Programs, Loan Involvement and Women's Empowerment, *IDS Bulletin*, 26(3),56-68, Brighton.
- Ahmed, S. M., Adams, A., Chowdhury, A. M. R., & Bhuiya, A. (1997). Income-Earning Women from Rural Bangladesh: Changes in Attitudes and Knowledge, *Empowerment- A Journal of Women for Women*, 4, 1-12.
- Ahmed, A., & McQuaid, R. W. (2005). Entrepreneurship, Management, and Sustainable Development, *World Review of Entrepreneurship, Management and Sustainable Development*, Vol. 1, No. 1, 6-30.
- Ahmed, S. U. (1981). *Entrepreneurship and Management Practices among Immigrants from Bangladesh in the United Kingdom*, Unpublished Doctoral Dissertation, Brunel University, London.
- Ahmed, S. U. (1982). Entrepreneurship and Economic Development, *Dhaka University Studies, Part-C*, Vol. 3(1), 41-53.
- Ahmed, S. U. (1987). Entrepreneurship Development with Some Reference to Bangladesh, Entrepreneurship and Management in Bangladesh, In Mannan, M. A.(Eds), *Research Monograph*, Bureau of Business Research (BBR), Faculty of Commerce, University of Dhaka, Bangladesh.
- Alam, J. (1988). *Rural Poor Program in Bangladesh*, UNDP, Dhaka.
- Amin, R., Ahmed, A.U., Chowdhury, J., & Ahmed, M. (1994). Poor Women's Participation in Income-Generating Projects and Their Fertility Regulation in Rural Bangladesh: Evidence from a Recent Survey, *World Development*, 22 (4), 555-565.
- Amin, S. & Pebley, A. (1994). Gender Inequality within Households: The Impact of Women's Development Program in 36Bangladeshio Villages. Special Issue on Women, Development and Change *The Bangladesh Development Studies* , The Bangladesh Institute of Development Studies(BIDS),22(2&3), 121-155.
- Apte, Jk. (1988). Coping Strategies of Destitute Women in Bangladesh, *Food and Nutrition Bulletin*, 10(3): 121-155.
- Audretsch, D. B. (1995). *Innovation and Industry Evolution*, MIT Press, Cambridge, MA.
- Bagozzi, Richard P. (1977). Structural Equation Models in Experimental Research, *Journal of Marketing Research*, 14 (May), 209-226.
- Bagozzi, Richard P. (1980). *Causal Models in Marketing*, New York. John Wiley and Sons, Inc
- Bagozzi, Richard P. (1981). Attitudes, Intentions, and Behavior: A Test of Some Key Hypotheses, *Journal of Personality and Social Psychology*, 41, 607-627

- Begum, R.(2003). Determining Entrepreneurial Success Status of Women Entrepreneurs, *Journal of Business Studies*, Vol. XXIV, No. 1, 127-136.
- Begum, R., Uddin, Islam Md., & Ahmed, Masoom Md. (2005). Role of the Grameen Bank in Enhancing the Socio-Economic Condition of Women: A Study on Bazar Para at Gomastapur, *Journal of Business Studies*, Vol. XXVI, No. 1, 15-35.
- BBS (2005). Bangladesh Bureau of Statistics, Dhaka, Bangladesh
- Cain, M., Khanam, S. R., & Nahar, S.(1979).Class, Patriarchy, and Women's Work in Bangladesh, *Population and Development Review*, 5, 405-438.
- Cantillon, R. (1755). *Essai Sur La Nature Du Commerce in General*, London.
- Casson, M. (1990). *Enterprise and Competitiveness*, Clarendon Press, Oxford.
- Casson, M. (1999). Entrepreneurship and the Theory of the Firm, In Acs, Z. J., Carlsson, B., & Larisson, C. (Eds.), *Entrepreneurship, Small and Medium Sized Enterprises and the Macro Economy*, Cambridge University Press, Cambridge, pp. 45-78.
- Chell, E., Haworth, J.M., & Brearley, S.A. (1991). *The Entrepreneurial Personality: Concepts, Cases and Categories*, Routledge, London.
- Chowdhury, M. M. R. (2002). The Emerging Role of Women as Entrepreneurs in Bangladesh, *The Dhaka University Studies, Part-D*, Vol. 19(1), 157-168.
- Chowdhury, M. J. A. (2004). Micro-Credit and Sustainability of Poverty Alleviation: A Case Study of Grameen Bank in Bangladesh, *Social Science Review, The Dhaka University Studies, Part-D*, Vol. 21(1), 105-120.
- Cunningham, J. B., & Lischeron, J. (1991). Defining Entrepreneurship, *Journal of Small Business Management*, Vol. 29, 45-61.
- Deshpande, M., & Joshi, J. V. (2002). Study of Women Entrepreneurship in Marathwada, *Indian Journal of Marketing*, Vol. 32(5 & 6), 14-18 and 32.
- Gartner, W. B. (1988). Who is an Entrepreneur? Is the Wrong Question, *Entrepreneurship Theory and Practice*, Vol. 12, 47-67.
- Ghai, D. (1984). *An Introduction of the Grameen bank Project*, Dhaka: Grameen Bank.
- Goetz, A. M., & Gupta, R. S. (1996). Who Takes the Credit? Gender, Power and Control over Loan Use in Rural Credit Programs in Bangladesh, *World Development*. 24(1), 45-63.
- Habib, Wahidul Md., Roni, Nawazesh Naheed, & Haque, Tanzina. (2005). Factors Affecting Women Entrepreneurship in India: A Multivariate Analysis, *Journal of Business Studies*, Vol. XXVI(1), 249-258.
- Hashemi, S. M., Schuler, S. R., & Riley, A. P. (1996). Rural Credit Programs and Women's Empowerment in Bangladesh, *World Development*, 24(4), 635-653.
- Hashemi, S. M. (1998). Those left Behind: A Note of Targeting the Hard-Core-Poor. In: Wood, G. & Sharif, I. A., (Eds.), *Who needs Credit- Poverty and Finance in Bangladesh*, London: Zed Books.
- Hoselitz, R. F. (1952). Entrepreneurship and Economic Growth, *American Journal of Economics and Society*, Vol. 12(1).
- Hossain, M.& Sen, B. (1992). Rural Poverty in Bangladesh: Trends and Determinants, *Asian Development Review*, 10, 2-34.
- Hossain, M. (1986). *Credit for Alleviation of Rural Poverty: The Experience of the Grameen Bank in Bangladesh*, Washington, DC: International Food Policy Research Institute, and Dhaka: Bangladesh Institute of Development Studies (BIDS), Dhaka.
- Hossain, M. (1988). *Credit for Alleviation of Rural Poverty: The Grameen Bank in Bangladesh*, Research Report 65, International Food Policy Research Institute, Washington, DC, in collaboration with the Bangladesh Institute of Development Studies (BIDS), Dhaka.
- Howard, John. (1977). *Consumer Behavior: Application of Theory*, New York: McGraw-Hill Book Company
- Hulme, D., & Mosely, P. (1998). Micro Enterprise Finance: Is There a Conflict between Growth and Poverty Alleviation? *World Development*, 26(5), 783-790.
- Jha, S. C. (1991). Rural Development in Asia: Issues and Perspectives, *Asian Development Review*, 15(3), 83-99.

- Joreskog, Karl G., & Dag Sorbom. (1986). *LISREL VI*, 4th Ed. Mooresville, Indiana: Scientific Software Inc.
- Kabeer, N. (2001). Conflicts over Credit: Reevaluating the Empowerment Potential of Loans to Woman in Rural Bangladesh, *World Development*, 29(1), 63-84.
- Katz, J. A. (1991a). The Institution The Institution and Infrastructure of Entrepreneurship, *Entrepreneurship Theory and Practice*, 15(3), 85-102.
- Katz, J.A. (1991b). Endowed Positions: Entrepreneurship and Related Fields, *Entrepreneurship Theory and Practice*, Vol. 15(3), Spring, 53067.
- Khandkar, S., & Chowdhury, O. H. (1996). Targeted Credit Programs and Rural Poverty in Bangladesh, *World Bank Discussion Paper*, 336.
- Kearney, P. (1996). *The Relationship Between Developing of the Key Competencies in Students and Developing of the Enterprising Student*, Paper commissioned by Department of Employment, Education, Training and Youth Affairs, Canberra, Australia.
- Kilby, P. (1971). *Hunting the Heffalump in Entrepreneurship and Economic Development*, New York: The Free Press.
- Ledgerwood, J. (1996). *ASA Financial Services*, ASA Publications, Dhaka, 30.
- Leibenstein, H. (1968). Entrepreneurship and Development, *American Economic Review*, Vol. 58, 72-83.
- McClelland, D. C. (1961). *The Achieving Society*, The Free Press, New York.
- Malechi, E. J. (1997). *Technology and Economic Development: The Dynamics of Local, Regional and National Competitiveness*, 2nd ed., Addison Wesley Longman Limited, London.
- McQuiad, R W. (2002). Entrepreneurship and ICT Industries: Support from Regional and Local Policies, *Regional Studies*, Vol. 36(8), 909-919.
- Mitchell, R.K., Smith, J.B., Morse, E.A., Seawright, K., Peredo, A.M., & McKenzie, B. (2002). Are Entrepreneurial Cognitions Universal? Assessing Entrepreneurial Cognitions Cultures, *Entrepreneurship Theory and Practice*, Vol. 26(4), 9-32.
- Montgomery, R. et. al. (1996). Credit for the Poor in Bangladesh- The BRAC Rural Development Program and the Government Thana Resource Development and Employment Program. In: Hossain, et. al., (2000), *Learning NGOs and the Dynamics of Development Partnership*, Dhaka: Ahsania Books.
- Navajas, S., Schreiner, M., Meyer, R., Gonzalez-Vega, C., & Rodriguez-Meza, J. (2000). Micro credit and the Poorest of the Poor: Theory and Evidence from Bolivia, *World Development*, 28 (2), 333-346.
- Naved, R. (1994). Empowerment of Women: Listening to the Voices of Women. In Amin: The Bangladesh Development Studies, Special Issue on Women, Development and Change, 22(2&3), pp. 121-155.
- OECD. (1998). *Fostering Entrepreneurship: A Thematic Review*, OECD, Paris
- OECD. (2003). *Entrepreneurship and Local Economic Development: Program and Policy Recommendations*, OECD, Paris.
- Pitt, M., & Khandaker, S.R. (1996). Household and Intra-household Impacts of the Grameen Bank and Similar Targeted Credit Programs in Bangladesh, *World Bank Discussion Papers*, No. 320, Washington, DC.
- Puhazhendhi, V., & Badatya, K. C. (2002). *SHG Bank Linkage Program for Rural Poor-An Impact Assessment*, National Bank for Agriculture and Rural Development, Mumbai, India.
- Punitha, M., Sangeeta, S., & Padmavathi, K. (1999). Women Entrepreneurs: Their Problems and Constraints, *The Indian Journal of Labor Economics*, Vol. 42(4), 707-716.
- Rahman, A.H.M.H. (1979). *Entrepreneurship and Small Enterprise Development in Bangladesh*, Bureau of Business Research, University of Dhaka.
- Rahman, A.H.M.H. (1996). *Promoting Entrepreneurship Through Micro Enterprises Development in Bangladesh*, Paper presented in AMDIB Seminar held on 16 May 1996 at BIBM, Dhaka.
- Rahman, A. (1999). Micro-credit Initiatives for Equitable and Sustainable Development: Who Pays? *World Development*, 27(1), 67-82.
- Rao, C. Harinarayan. (1991). Promotion of Women Entrepreneurship, *SEDME*, Vol. 18(2) 21-28.

- Rosa, P. (1992). *Entrepreneurial Training in the UK: Past Confusion and Future Promise*, Scottish Enterprise Foundation Conference Paper Series, Nos. 81-92, Sterling University, Scotland.
- Saleh, Abu. (1995). A Profile of the Women Entrepreneurship in Bangladesh, *Dhaka University Journal of Business Studies*, Vol. 16(1), Faculty of Business Studies, University of Dhaka.
- Sankaran, M. (2005). Micro Credit in India: An Overview, *World Review of Entrepreneurship, Management and Sustainable Development*, Vo. 1(1), 91-100.
- Schumpeter, J. A. (1949). *The Theory of Economic Development*, Harvard University Press, Cambridge, MA.
- Secretary General, UN. (1998). *Report on Role of Micro Credit in the Eradication of Poverty*, United Nations, New York.
- Schuler, S. R., Hashemi, S.M. & Riley, A. (1997). The Influence of Women's Changing Roles and Status in Bangladesh's Fertility Transition: Evidences from a Study of Credit Programs and Contraceptive Use, *World Development*, 25(4), 563-575.
- Sen, G. (1997). Empowerment as an Approach to Poverty, *Human Development Report*, Background Paper, UNDP, New York, In: BRAC, ICDDR, Joint Research Project Working Paper No 28(1), 1998.
- Shahidur, R. K. (1996). Grameen Bank; Impact , Cost , and Program Sustainability, *Asian Development Review*, 14(1), 97-130.
- Shahidur, R. K. (1998). *Fighting Poverty with Micro Credit: Experience in Bangladesh*, University Press Limited, Dhaka.
- Shahidur, R., Khondker., Hussain, A. Samad., & Zahid, H. Khan.(1998). Income and Employment Effects of Micro-credit Programs: Village-level Evidence from Bangladesh, *The Journal of Development Studies*, 35(2), 96-124.
- Smiles, S. (1996). *Self-help, with Illustrations of Character and Conduct*, John Murray, London, IEA, London.
- Srinivasan, T. N., & Bardhan, Pranab. K. (1990). Rural Poverty in South Asia, Delhi: Oxford University Press. In: Hasan, Murshid., (1994), *Impact of Grameen Bank Programs on Rural Poverty Alleviation in Bangladesh*, M Sc. Thesis, Bangkok: Asian Institute of Technology.
- Stevenson, H. (2000). The Six Dimensions of Entrepreneurship, in Birley, S. and Muzyka, D. (Eds): *Mastering Entrepreneurship*, *Financial Times Mastering*, Pearson Education Limited, London.
- Surti & Sarupia. (1983). Psychological Factors Affecting Women Entrepreneurs – Some Findings, *Indian Journal of Social Work*, Vol. 44(3), 287-295.
- Timmons, J.A. (1994). *New Venture Creation*, Irwin, Boston.
- UN. (2004). *Unleashing Entrepreneurship: Making Business Work for the Poor*, Report of the Commission of the Private Sector and Development to the UN, Available at: <http://www.undp.org/cpsd/report/index.html>.
- Weber, M. (1930). *The Protestant Ethic and the Spirit of Capitalism*, Charles and Sons, New York.
- Yunus, M. (2003). *What is Micro Credit?* Homepage of Grameen Credit.
- Zaman, H. (1999). Assessing the Poverty and Vulnerability Impact of Micro-Credit in Bangladesh: A Case Study of BRAC, *World Bank Policy Research Working Paper*, No. 2145.

Notes

Note 1. Ability and efficiency are considered here to denote productivity of the rural women borrowers. Through this variable, inquiry was made to know whether productions of goods have been increased by the borrowers after the involvement in credit-financed project.

Note 2. Bangladesh is divided into six divisions, the second level administrative unit of Bangladesh.

Note 3. District refers to third administrative unit of Bangladesh. A group of Thanas constitutes a District.

Note 4. Thana is also called Upa-Zila. It is the fourth level administrative unit of Bangladesh. It consists of a group of Unions and every Union is formed with a group of villages.

Note 5. Amos's method of computing parameter estimates is called *maximum likelihood*. The claim that Amos's estimates are maximum likelihood depends on certain statistical distribution assumptions that have to be met by the input data. Hypothesis testing procedures, confidence intervals and claims for efficiency in maximum likelihood or generalized least squares estimation by Amos depend on certain statistical distribution assumptions. First,

observations must be independent. Second, the observed variables must meet certain distributional requirements. For instance, it will suffice if the observed variables have a multivariate normal distribution.

Note 6. The overall fit of the confirmatory factor analysis model to the sample variance/covariance matrix, as measured by chi-square, provides a test of the overall reliability of observed measure (Bagozzi 1980).

Note 7. The assumptions required to employ chi-square as a significance test (in support of the hypothesis that the predicted covariance matrix does not differ from the sample covariance matrix) are typically violated in most covariance structure analysis. Accordingly, when the results of chi-square analysis are favorable, it is best to say that the fit between predicted and observed covariance matrices is “acceptable” rather than “significant” (Joreskog and Sorbom 1986). In this study, however, both the terms used interchangeably to mean “acceptable”.

Table 1. Women entrepreneurship development factors

Name of the factors	Eigenvalue	Cumulative variance (%)
1. Financial Management Skill and Group Identity	7.26	18.16
2. Creative Urge and Self Interest	3.57	27.89
3. Family Fund and Women Involvement	2.76	33.99
4. New Job and the Employment of Family Members	2.75	40.86
5. Independence and Keeping Thyself Busy	2.21	46.37
6. Knowledge of Business	2.15	51.73
7. Family Experience and Option Limitation	1.80	56,24
8. Economic Necessity of the Family	1.55	60.12
9. Self Confidence	1.47	63.78
10. Technical Knowledge of Business	1.41	67.32
11. Money Earning	1.20	70.32
12. Unable to Find Suitable Work or Job	1.11	73.09
13. Contribute to the Economic Growth	1.01	75.74

Table 2. Fit indices of the model

Fit indices	Recommended values	Observed values	df	Significance
Chi-Square	N/A	707.80	168	0.000*
GFI	≥ 0.90	0.809		
AGFI	≥ 0.80	0.737		
RMR	≥ 0.09	0.083		
NFI	≥ 0.90	0.920		
CFI	≥ 0.90	0.950		
RMSEA	≤ 0.08	0.070		

*Significant

Table 3. Standardized regression weights

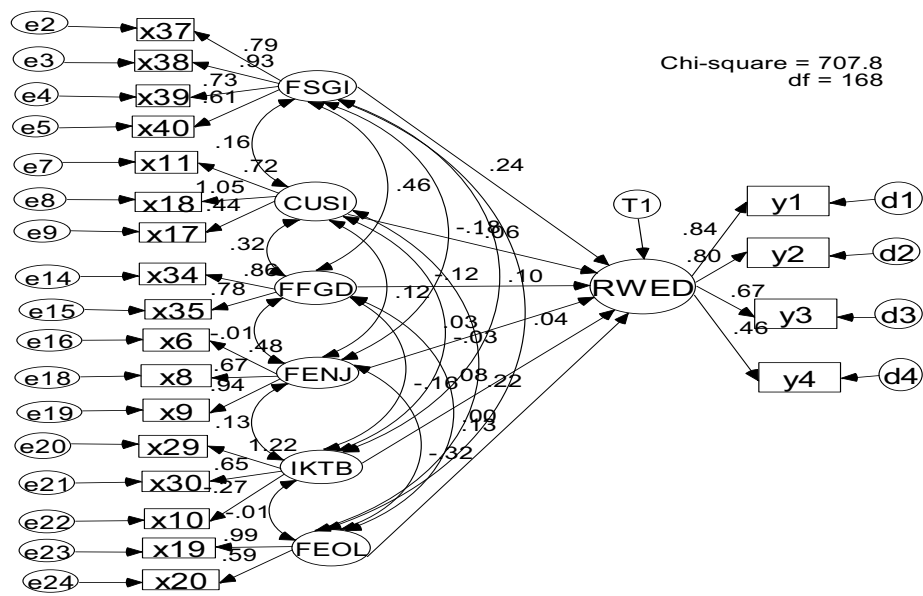
Relations	Estimates (Standardized)	S.E.	C.R.	P
RWED - F1	0.238	0.058	2.670	0.008*
RWED - F2	-0.063	0.078	-0.870	0.384
RWED - F3	-0.120	0.083	-1.252	0.210
RWED - F4	0.035	0.158	0.423	0.672
RWED - F5	0.082	0.030	1.479	0.13**
RWED - F7	0.130	0.101	1.595	0.111**

* Significant at 10% level of significance

** Significant at 15% level of significance

Figure 1

A Model for the Development of Rural Women Entrepreneurship through Micro Credit Program



Notes: FSGI= Financial Skill and Group Identity; CUSI= Creative Urge and Self Interest; FFGD= Family Fund and Gender Discrepancies; FENJ= Family Employment and New Job; IKTB= Independence and Keeping Thyself Busy; FEOL= Family Experience and Option Limitation; RWED= Rural Women Entrepreneurship Development; y's= Observed measures of the endogenous variable; x's= Observed measures of the exogenous variables; d's= errors associated with y's; e's= errors associated with x's