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# Enhanced development through microcredit

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*How microcredit, especially targeted at women, can have a positive effect on development*

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# Abstract

Women represent the majority of the world's poor, and are simultaneously discriminated against in access to land, jobs and financial resources. This study demonstrates how increased access to credit can help women circumvent problems of lacking job opportunities, increase their status and lead to enhanced development. The fact that credit to women spurs development to a greater extent than credit to men is an underlying hypothesis in this paper. Microcredit, failing credit markets, development and the targeting of women is thus the main focus, and Bangladesh is used as an illustrative case study of these effects. Data from 104 villages in Bangladesh collected in 1999 is studied through simple regressions examining the effects of microcredit in general, as well as microcredit to women in particular, on education, consumption, and additional measures of standard of living such as access to electricity and sanitary toilets. To catch spillover effects not visible at the household level, an aggregate approach has been chosen, based on village data. The results indicate that microcredit to women has greater effect on the development outcomes compared to microcredit in general.

*Keywords:* Microcredit, Bangladesh, women, development

# Abbreviations

BRAC	Bangladesh Rural Advancement Committee
HDI	Human Development Index
LDMRC	Law of Diminishing Returns to Capital
MFI	Microfinance Institution
NGO	Non-Governmental Organization
OLS	Ordinary Least Squares
RD-12	Rural Development-12 program of the Bangladesh Rural Development Board

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# 1 Introduction

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Over 75 percent of the world population live in poverty (Prabhakar 2003). Six out of ten of the world's poorest people are women (UNDP). As the primary family care takers women must cultivate land, fetch water and cook, in order to produce food to survive (UNDP). At the same time, approximately 75 percent of the women around the globe are refused bank loans because of unpaid or insecure jobs, and they are not entitled property ownership. United Nations Development Program states that this is one of the reasons why women constitute more than 50 percent of the world population and yet only own one percent of the world's wealth (ibid.). This, despite evidence that where equal rights between men and women pervade, women are "better educated, healthier, and have greater access to land, jobs and financial resources" (ibid.). When their earning power increases, household income tends to be allocated differently. This in turn also leads to improved well-being of children, which in the long run helps in reducing poverty of future generations (Pitt & Khandker 2003).

One way of dealing with these issues is by managing the imperfections of credit markets, and raising the awareness of women's right to partake in society. The answer could therefore be microcredit. Microcredit refers to very small loans provided to poor people who lack collateral and thus are refused regular bank loans. With help of microcredit institutions, they can borrow money and invest in order to create a virtuous cycle of increased production, income, savings and further investment. This financial instrument helps to provide financial resources to the ones that need it the most, namely the poorest of the poor. As will be argued in this paper, microcredit can, especially through female channels, have a significant impact on developmental aspects of underdeveloped countries. Through the process of increasing women's participation in previously restricted areas such as banking and business, gender equality will not only be a means to an end, but also an end in itself.

Microcredit originally started in Bangladesh, which will be the illustrative case study of this paper. Through data collected by Bangladesh Institute of Development Studies and the World Bank in 1999, effects of microcredit, both in general and to women specifically, will be studied to explore the relationship with variables regarded as valuable for overall development. These variables are education, food- and non food consumption, as well as standard of living measures such as access to sanitary toilets and electricity. All of these are considered important from a development perspective. As will be discussed, education is imperative for the improvement of human capital and indirectly increases health and life quality. Actual data on consumption

patterns provides a more precise measure of a family's consumption opportunities compared with income. Electricity and sanitary facilities provide additional measures for standard of living, which illustrate how far along a village has come in the development process.

It will be demonstrated that education measured as the share of students, both current and previous, are positively correlated with microcredit in general. It is also significantly correlated with the expectation to achieve higher levels of education. When it comes to microcredit taking only female borrowers into account, variables of significant positive correlation are the attendance of BRAC (Bangladesh Rural Advancement Committee) schools (schools operated by an NGO (non-governmental organization)), electricity, sanitary toilets as well as non-food consumption. An interesting finding is the fact that the expectation of reaching secondary school is negatively correlated with female microcredit borrowers, but as will be discussed, this could be a sign of mutual exclusion.

The work by microfinance institutions influences villages through several channels. Group lending, spillover effects, as well as social norms contribute to affecting not only borrowers of microcredit, but also society in general. The underlying hypothesis of this paper will thus be that microcredit will lead to enhanced development, and especially microcredit to women. As oppose to previous studies on the subject, this paper does not aim at investigating the relationship between microcredit and development variables at household level. Due to the pursuit of understanding the overall development aspects that may result if women receive credit, an aggregated approach has instead been chosen. This means that data will be calculated on a village base and not by household. Accordingly, this makes it possible to incorporate effects that many other studies neglect, namely spillover effects. Even if only a limited number of women receive microcredit, the changes they experience may spur a wave of altering attitudes affecting others who have not taken a loan. These tendencies are harder to find when approaching the subject on household level. Related studies using data at household level are provided by Pitt and Khandker (1998); Pitt, Khandker, Chowdhury and Millimet (2003); Pitt, Khandker and Cartwright (2003); Hashemi, Schuler and Riley (1996) as well as McKernan (2002).

Due to limitations in time and space, as well as restrictions in the data set, the configuration of data will not be adjusted for self-selection issues, even if the implications of these will be discussed shortly. Furthermore, survey data is by nature limited depending on the questions asked. For example, one interesting aspect to include would have been water access and the

quality of water, another crucial part of the development process. The variables will be examined through their correlation at one point in time, which means that the exact causality cannot be identified. It is therefore difficult to prove that one thing necessarily leads to another through the regressions. It is thus complex to state how the causality in a correlation truly works. However, since this paper allows for spillover effects, this may catch complementary effects of self-reinforcing processes initiated by microcredit.

The rest of this paper is structured as follows. Section 2 provides background material on the definition of the concept of economic development and the feminization of poverty, as well as an introduction to the case study country Bangladesh. Section 3 explores microcredit, group lending, and the reasons why women more and more have become the target of microcredit institutions. The section also presents an economic and social perspective of the relationship between microcredit, women and development; expected outcomes, social achievements, and potential pitfalls. Section 4 introduces the household survey data that is used to measure the impact of microcredit from the three major microcredit providers in Bangladesh. Section 5 discusses the empirical approach and provides a description on how data has been organized, calculated and interpreted in order to pursue the overall aim of the paper. Section 6 presents jointly the empirical results with a discussion of every regression, while section 7 concludes.

## 2 Defining Economic Development

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Strictly economically speaking, development has traditionally referred to “the capacity of a national economy, whose initial economic condition has been more or less static for a long time, to generate and sustain an annual increase in its gross national income at rates of 5 % to 7 % or more” (Todaro & Smith 2009:14). This is, however, a fairly restrictive measure and economic growth is by no means a guarantee to achieve overall development. More recent economic views of development enhance a “multidimensional process involving major changes in social structures, popular attitudes, and national institutions, as well as the acceleration of economic growth, the reduction of inequality, and the eradication of poverty” (ibid:16). A third view is provided by Nobel laureate in economics Amartya Sen, who argues that what truly matters is the “capability to function”. In other words, “[d]evelopment has to be more concerned with enhancing the lives we lead and the freedoms we enjoy” (Sen 1999, cited in Todaro & Smith 2009:16). It thus requires the elimination of “major sources of unfreedom, poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation neglect of public facilities as well as intolerance or over activity of repressive states” (economics 4 development). Hence, development is multidimensional and works in interrelation with various aspects of society. This so-called “capabilities” approach suggests that development and poverty should not be measured in terms of income or utility, but rather pay heed to what a person can be or can do – not what it has or can have (Todary & Smith 2009:16).

It is important to point out that economic growth does not equal development or poverty alleviation, just as Sen’s “capabilities” approach illustrates. The expression “growth without development” makes this clear (Todaro & Smith 2009:18). Income – or lack of income - does, however, constitute one of the basic necessities required to improve the way of life. It is thus important to incorporate this measure into the calculations of development. Attention must however be paid as not all households are recorded in official statistics of income, due to the fact that they live on the subsistence level. Even if they do not earn an income in monetary terms it does not imply that they do not consume. It is because of this that consumption is more helpful in terms of measuring what a household actually lives off of. Gross domestic product per capita catches the average living standard – but consumption says more with regard to development and the reality of people’s everyday life.



In 1990, the United Nations Development Program (UNDP) constructed and refined the HDI (Human Development Index), which attempts to rank countries on a scale from 0 to 1 based on a composite index. This measures a country's average achievements with regard to basic aspects of human development, such as longevity/health, knowledge and standard of living (Human Development Report; Todaro & Smith 2009:49). The HDI provides a more nuanced picture than the one given only by gross national products or gross national income.

Longevity/health is measured by life expectancy at birth, knowledge by a weighted average of adult literacy (two-thirds) and mean years of schooling (one-third), while standard of living is measured by real per capita gross domestic product. In the latest ranking of HDI Bangladesh was number 143 of 182 on the list and scored 0.543 (Norway being number 1 with a score of 0.971) (HDR:2009). This study will focus on one of these major issues, namely education. As previously argued, consumption opportunities are more accurate than measures of income, and with regard to additional indicators of standard of living, sanitary aspects and electricity are incorporated.

Education is both a mean for development and an end in itself. It is a fundamental part of having a satisfying and rewarding life and it is also an important tool to help countries prosper as they improve their human capital. Education is often linked to health questions as educated people often are healthier on one hand, and education is hard to achieve without an adequate health. This is why poor and uneducated families might end up in a vicious circle where one missing aspect perpetuates another (Todaro & Smith 2009:369). No health variable is in the focal point of this essay but it is important to consider the implication that improved education can have on people's health and hence on their quality of life.

Access to electricity and sanitary facilities were chosen as variables as they give an indication of the standard of housing in the villages. Income is a more common measure of development, but should by no means be the only one. As discussed above, there exists such a thing as growth without development. Because of this, consumption was chosen as the last variable as it gives a more nuanced picture of what a person actually buys and consumes in daily life – not what he or she earns.

## 2.1 Feminization of Poverty

The term “feminization of poverty” refers to the fact that more than two third of the poorest people in the world are women (UNIFEM). Women are not only poorer in terms of income, but are also “more deprived in health and education and in freedoms in all its forms” (Todaro & Smith 2009:22). This discrimination is further manifested in employment, control of assets and access to credit for business or self-employment (UNIFEM). “Women may – and often enough – work much harder than men (thanks to the rigors of household chores), and also receive less attention in health care and nutrition, and yet the perception that there is an incorrigible inequality here may well be missing in a society in which asymmetric norms are quietly dominant” (Sen 1999:362-63).

Todaro & Smith (2009:241) attribute part of the increased disparities between men and women to development policies by governments, who “tend to exacerbate these inequalities”. The reason lies in the resources directed towards men, both regarding training programs and formal-sector employment, as well as programs to promote male-dominated crops (ibid:242). This bias has not only ethical implications but may also damage the long-term economic growth. As Sen points out, asymmetric norms in society may be exacerbated by both men and women due to long-rooted traditions, culture and religion.

## 2.2 Bangladesh

Bangladesh is situated in South Asia bordering to the Bay of Bengal, between India and Myanmar. It is one of the largest least developing countries (UNDP 2005) but a report from the World Bank states that Bangladesh is on its way to become a middle income country (World Bank 2007). Between 1992 and 2005, poverty rates<sup>1</sup> declined from 58 percent to 40 percent (ibid.). The country ranks seven in the world of the most populous country with approximately 156 million inhabitants, of which 89.5 percent adhere to Islam and 9.6 to Hinduism (CIA World Factbook).

Bangladesh was formerly a part of what is now Pakistan and was then known as East Pakistan. The country declared its independence in 1971 (Todaro & Smith 2009:91). Bangladesh then seemed to be a lost case as it was over-populated and had suffered severe losses, both in

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<sup>1</sup> Measured as people living below the international poverty line of US\$1.25 a day

institutional and physical capital, during the war of independence. But Bangladesh has developed a lot despite its bad initial situation; life expectancy has risen from 50 to 64 years, population growth, child mortality rates and unemployment rates have decreased and adult literacy has increased significantly (World Bank 2007).

What makes Bangladesh an interesting case study, is its unique attributes of nongovernmental organizations and their part of the social progress that took place in the first two decades after independence, long before economic acceleration was initiated (World Bank 2007). This is the reason why human development indicators have progressed more impressively than income growth, a phenomenon that stands out in comparison to other least-developed countries. This legacy has then increased and the “NGOs have brought about institutional changes at the grassroots level and have facilitated the implementation of need-based development initiatives to improve the quality of life of people in general, and especially of people living in rural areas” (Rahman & Zafarullah 2002). In 2002 there was at least one NGO in over 90 per cent of villages. This makes Bangladesh the country with the largest NGO sectors in the developing world (Galef & Gauri 2005). These have had an extensive impact on poverty alleviation, with activities ranging from microcredit, skill development training, human resource development, and women’s development, as well as grassroots institution building (Rahman & Zafarullah 2002).

Nowhere has the expansion of microcredit been more prominent than in Bangladesh. The country has transformed itself “from a symbol of famine to a symbol of hope, due in part to the success of its MFIs [Microfinance Institutions]” (Todaro & Smith 2009:252). Microcredit has since its start in the 1970’s become a vehicle to challenge traditional patterns of gender subordination through their targeting of women. This is especially important in Bangladesh with regard to the religious and cultural norm of *purdah*. *Purdah* refers to the practice of female seclusion which “influences and conditions women’s decisions regarding roles they assume, and remains a dominant influence in women’s lives, showing little evidence of responsiveness to poverty” (Amin 1997). In more economic terms, this means that adherence to *purdah* norms is a constraint to “women's public mobility, limiting their choice of enterprise and their ability to carry out transactions in the market place” (Kabeer 2001). Kabeer explains that notions of *purdah* are often closely interlinked with local understandings of class, social status and gender propriety.

### 3 Failing Credit Markets and Microcredit in Bangladesh

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A widespread problem for the world's poor is the lack of credit. This may lead to poor people not being able to purchase capital goods such as tools that could significantly improve their productivity. Another obstacle is the so-called working-capital poverty trap, a situation in which lack of capital results in the producer not being able to purchase more capital goods and expand, hence the name. (Todaro & Smith 2009:575).

Referring to the law of diminishing marginal returns to capital in basic economic theory, microcredit should be redundant and the aforementioned poverty trap would not occur. The law of diminishing marginal returns to capital (LDMRC) assumes that the production function is concave and therefore that the marginal return to capital will decrease with the level of production. In practice this means that “enterprises with relatively little capital should be able to earn higher returns on their investments than enterprises with a great deal of capital” (Armendáriz & Morduch 2007:5). It would therefore be profitable to lend money to poor entrepreneurs, as their enterprises would give higher returns, and everyone would do this until the returns to capital converged. As this is not the case we need to understand why. The solution lies in the fact that the cost of lending money to a few rich people is less than when lending to many poor people. The higher costs can be explained by administrative costs as many small loans will require more paperwork than a few bigger loans even if the total sum that is being lent is the same. But the main reason for the higher cost is a result of the difficulties that lenders encounter when trying to identify the most reliable borrower. This borrower being someone with a low risk of not making the repayments and who will do their best for the investment projects to be successful. These two problems are often referred to as the adverse selection problem and the moral hazard problem

Adverse selection refers to the situation where banks lack good information about the risk of their clients (Armendáriz & Morduch 2007:37). Since banks cannot distinguish between good and bad borrowers, interest rates become exceedingly high in order to cover potential losses. Too high interest rates will keep safe borrowers from borrowing and only the non-safe borrowers will remain as they do not intend to pay back their loans. This is called a market imperfection as it has a tendency to drive “good” or worthy borrowers out of the market (ibid.). Moral Hazard is instead related to conditions when banks or lenders cannot “observe either the effort made or action taken by the borrower, or the realization of project returns” (ibid:43). Lack of this type of control function can contribute to underperformance and thus undermines

the idea with microcredit. The combination of these two imperfections, poor people lacking collateral and the “information market” being underdeveloped in most developing countries, will therefore make poor people risky with high interest rates as a consequence (ibid:7).

In order to make poor people afford to take loans on a market where they are not accepted due to lacking collateral, something else is needed. This answer was provided by 2006 Nobel Peace prize winner, Professor Muhammad Yunus, when he in the 1970’s started to examine the possibility of creating a system to provide banking services to the rural poor in Bangladesh. He discovered that the people of Jobra, a village close to the university where he was working, did have not enough money to escape poverty despite working hard from dusk till dawn, day after day. The reason was that they had borrowed money from local merchants or money lenders to buy material, upon which they had to sell their daily production back to them for a price arbitrarily decided by the lender, in order to repay the loan. Because of the exorbitant rents they had no chance to advance in their production and work their way out of poverty. (Yunus 1997:20-21). Professor Yunus started to lend money to the poor people in the village himself, and after a while it grew to what is now a well-established and self-sustaining bank, the Grameen Bank (Grameen means “rural” or “village” in Bengali). The Grameen Bank came into existence with the following objectives:

- extend banking facilities to poor men and women;
- eliminate the exploitation of the poor by money lenders;
- create opportunities for self-employment for the vast multitude of unemployed people in rural Bangladesh;
- bring the disadvantaged, mostly the women from the poorest households, within the fold of an organizational format which they can understand and manage by themselves;
- reverse the age-old vicious circle of "low income, low saving & low investment", into virtuous circle of "low income, injection of credit, investment, more income, more savings, more investment, more income" (Grameen Bank 2010)

Today the bank has 8.28 million borrowers around Bangladesh, and the bank ownership is to 90 percents in the hands of the rural poor whom it serves, while remaining 10 percent is owned by the government (Grameen Bank 2010). Another organization that helped in pioneering microcredit in Bangladesh is Bangladesh Rural Advancement Committee (BRAC) that was founded in 1972 as an NGO to tackle poverty in various ways (BRAC 2010). Eventually, microcredit has become a worldwide known phenomenon, and by the end of 2001, 26.8 million poor people were provided with this financial instrument (UNCDF 2005). However, “this represents only about six percent of the estimated number of poor who could effectively use

credit and related financial services including savings, insurance and asset-building systems” (ibid.). There are, in other words, still a lot of people worldwide that could benefit from this financial device.

With time, a new concept named microfinance has been developed. This broader term refers to more than institutions focusing on offering loans to the very poor. It includes everything from savings and insurance to, in some places, helping distributing and marketing client’s output (Armendariz & Morduch 2007:14). Microfinance is consequently a “collection of banking practices built around making small loans (typically without collateral) and accepting tiny savings deposits” (ibid:1). Microcredit is thus included in the concept of microfinance. The purpose of this paper is to focus on microcredit only, but it is important for the reader to be aware of the two separate notions that sometimes are referred to interchangeably.

### 3.1 Lending with no Collateral

The concept of microcredit builds on the belief that no collateral is needed in conventional ways, but can rather be formed by peer pressure, so called “social collateral”. This means that potential borrowers must form a group in order to seek a loan, and no one is allowed further loans until every member has repaid what they have borrowed. In the case of Grameen and BRAC, each member has to attend training sessions before any loan can be accepted. These are often followed up by weekly group meetings with a bank officer<sup>2</sup> (Todaro & Smith 2009:253, Yunus 1997:118). The idea behind group lending is to reduce costs by combining the bank’s resources with the local information that can be obtained freely from neighbors and moneylenders (Armendariz & Morduch 2007:8). “Group members can monitor each other with relative ease as well as train and assist low-productivity members” (Pitt & Khandker 1998). This helps the bank overcome market failures such as moral hazard and adverse selection.

There is no single universal answer as to why group lending works. Some suggest it is because of social sanctions, others the extent of joint liability and social capital (Armendariz & Morduch 2007:106-07). Despite this, one study by Ahlin and Townsend (2003) conducted in Thailand, showed that the greater the extent of cooperation among group members (that is, the more family members within the same group), the greater the default (cited in Armendariz &

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<sup>2</sup> It is not verified that RD-12, the third microcredit program examined in this paper, also used this practice as the project ended at the end of the 1990’s and no source was found on the matter.

Morduch 2007:107). This could be an indication that too much social capital can be contra productive as it may encourage collusion against the bank (ibid.).

Montgomery (1996) has made a case study of BRAC's Rural Development Program in Bangladesh and suggests that group lending can lead to a discipline among borrowers that is both "unnecessarily exclusionary, and which can contradict the broader (social) aims of solidarity group lending". The motivation behind these findings lies in the increased likelihood that the poorest and most vulnerable will be excluded from groups where they are perceived as a greater risk, causing "erosion of mutual trust and willingness to support fellow 'solidarity group' members" (ibid.). Yet, group lending has been shown to be more effective in terms of repayment rates, compared to other options such as individual contracts. According to Armendáriz and Morduch (2007:104), just over 20 percent of customers lending in groups default in contrast to over 40 percent borrowing individually. The problem of potential exclusion of the very poor still remains, but from what literature on the subject can reveal it is so far the most effective and outreaching method.

### 3.2 Microcredit and Social Achievements

A common denominator of both Grameen Bank and BRAC is the stressing of improving other aspects of life besides the ones related to financial questions and credit. In 1984, Grameen Bank declared its "Sixteen Decisions", which every member of the bank is taught when joining the program and has to know by heart, as they "contribute in creating a meaning in the members' lives". (Yunus 1997:125-26). These decisions encourage the members to, among other things, educate their children, limit family sizes, boil water before drinking, not take any dowry at daughters' weddings, and undertake investments for higher incomes (Grameen 2010). BRAC calls its goals "Seventeen Promises" and these contain similar affirmations as just mentioned, which also are supposed to be cited at every weekly meeting (Hulme & Mosely 1996:143)

The fact that microcredit organizations have regular meetings have a great impact on members' lives and also make the messages chanted there an integrated part of their lives. Hashemi, Schuler and Riley (1996) ascribe Grameen's Sixteen Decisions, and BRAC's Seventeen Promises, women's increasing awareness of social and political issues. The fact that women are required to attend weekly meetings lead to a greater mobility within their villages, and is thus a challenge to *purdah* norms. Hashemi *et al.* also state that the regular encounters with new

people help women developing an identity outside of their home. “They interact with men outside the family, and this increases their self-confidence” (ibid.).

It is thus not only the loans *per se* provided by the organizations that may lead to changes in society, but also other features interlinked with microcredit. The social aspects of meetings and group-forming, as well as the awareness of basic decisions in day to day life do affect the outcome just as much as credit alone, if not more. These features are therefore a great source of initiating spillover effects as altering attitudes are easily transmitted among people in their encounters with others.

### 3.3 Targeting Women – Economic and Social Perspectives

When Professor Yunus first launched his lending project, he knew that he wanted at least 50 percent of the loanees to be women. The reason was that he had for a long time complained at the banking system for ignoring this group of potential clients. After the initial experiment period, his team of workers and himself noticed a few crucial and unexpected effects. Apart from counteracting the skewed gender distribution, it turned out that lending to women was advantageous in terms of development. Loans to women simply led to faster results than loans to men. (Yunus 1997:99). He writes in his book: “Being poor in Bangladesh is hard, but being a poor woman is the hardest of all. Therefore, when she is given an opportunity, no matter how small it may be, she will fight even harder to break away from poverty” (ibid. authors’ translation).

With time, the two main credit providers in Bangladesh, Grameen Bank and BRAC, have come to focus almost exclusively on women (BRAC 2010, Grameen 2010). The 95 percent customer base of the Grameen Bank has not only proven to be successful for social impacts, but it may also reduce the financial risk for the bank (Grameen 2010, Armendáriz & Morduch 2007:13). Similar experiences are also recorded by BRAC, who both lends mainly to women (over 90 percent of clients are women) as well as makes sure that women obtain the majority of work positions within the organization (BRAC 2010; Mahbub 2001). The theories behind these decisions will be discussed below.

Neoclassical approaches, focusing on efficiency, argue that households allocate their resources in accordance with every member’s respective comparative advantages. In a society with



higher wages for men in the market sector, it becomes rational for men to work and for women to stay home (Armendáriz & Morduch 2007:185). But microfinance advocates suggest that microcredit can change the nature of basic trade-offs. Instead of taking current structures as given, they “aim to improve opportunities and the economic returns to women’s work, and thus change the economic value of females within the home” (ibid.). Increasing the possibility of earning income may, in the long run, also increase their value in the eyes of their husbands: “Access to loans helped to reduce the burden for men since women were now able to share some of the responsibility of providing for the family. The result was a reduction in levels of tension and conflict and greater affection from their husbands” (Kabeer 2001). Hence, targeting women directly as the beneficiaries of credit can lead to greater changes and improvements in society than no targeting at all. The theories behind these findings can in broad outline be divided into two groups.

The first group consists of development arguments and is based on the benefit of eliminating the inequalities between men and women and improving the vulnerable situation that many women find themselves in (see section 2.1 on the feminization of poverty). Advocates of microcredit hope that they have found a tool to reduce these inequalities as most studies show that women obtain more power within the household if they are given access to credit (World Bank 2000). Studies also show that women are more likely than men to invest in their families’ education and health care, thereby improving the welfare of the family and contributing more to economic development (Armendáriz & Morduch 2007:183). Critics of microcredit claim that women are targeted because they are easier to manipulate and that their situation is worsened by being indebted (Malick 2002:154).

The second group of arguments is strictly economic. One of the main reasons is that women have higher repayment rates. Women often have a higher demand for microcredit as the formal-sector commercial banks rarely serve them. (Armendáriz & Morduch 2007:183). According to the law of diminishing marginal returns to capital, (LDMRC, discussed in section 3) investing in capital for women will give a higher return to capital as they are poorer to start with. This is true only if the woman gets to keep the credit, in other words, if the money is not handed over to her potential husband.

The picture is however not complete, and there are skeptics claiming that the targeting of women does not necessarily have the expected effects laid out by basic economic theory. Goetz and Sen Gupta (1994) investigate the degree to which women themselves control the loans

received from credit institutions, and find that a “significant proportion of women’s loans are directly invested by their male relatives, while women borrowers bear the liability for repayment”. On average, 37 percent of women “retained full or significant control over loan use”, while about 43 percent classify into partial, very limited, or no control, “indicating a fairly significant pattern of loss of direct control over credit” (ibid.). Kabeer (2001) suggests that even though not all women maintain full control over loans, many find that their access to credit and their improved earning capacity have transformed their marginal role into one of joint decision-making.

Mallick (2002) agrees with Goetz and Sen Gupta, but provides an even more pessimistic outcome. “[M]ost of the loans are not for themselves at all but for the husbands, who force their wives to take a loan officially for themselves but actually for their own use”. He argues that the main reason why microfinance institutions target women is because “the threat of physical violence is reversed”. Instead of having aggressive male borrowers threatening bank workers, Mallick argues that the bank worker instead becomes the physically strong one in the new client relation. This violence could be manifested through locking in a woman inside the bank building if she cannot repay her installments in time – which, for a woman, brings bad reputation (*durnam*) “to her household, lineage and village” and may even lead to suicide (ibid.). Montgomery (1996) agrees, saying that “[t]he way in which such pressure is brought to bear increases the perception of risk, and erodes the potential for mutual trust and support arrangement”. In other words, according to the skeptics, in order for the microcredit system to function well something must be done to foster healthy relationships between bank workers and clients.

Despite disagreements on the reasons for targeting women and the following outcome, there seems to exist a bias towards a pro-targeting stance. Hashemi *et al.* (1996) find that both Grameen Bank and BRAC “significantly influence women’s economic security, ability to make small and large purchases, political/legal awareness, contribution to family support, and the composite empowerment score” (ibid.). As mentioned in section 3.2, it is not solely the economic aspect of joining a credit program that influence the persons involved, but also the meetings with social- and awareness-raising outcomes.

Another argument for targeting women is related to risk aversion. Women tend to be more sensitive to peer pressure which lowers the risk of them defaulting as they will choose more conservative investment projects and work harder to repay their debt as they are scared of social

sanctions – and not necessarily in the way Mallick outlined above. It is also less costly for banks to control women as they in many countries are not allowed to move freely and therefore stay at home or at least in the village. (Armendáriz & Morduch 2007:183,189).

In societies where women's wage employment outside the home is restricted, microcredit provides an opportunity for self-employment and “enable poor women to engage in home-based market production” (Khandker 1998a:12). In Bangladesh, where the social, cultural and religious norm of *purdah* prevails, credit provides a unique opportunity to employ these women in market competitive self-employed enterprises – even without leaving their homes.

### 3.4 Targeting Women – Expected Outcomes

Several studies (see for example Pitt & Khandker 2003, Hashemi *et al.* 1996, Hoque & Itohara 2009) have shown that participation in microcredit programs also helps to increase the empowerment of women. The reason for this is multidimensional and takes on various aspects. According to Amin, Bayes & Becker (1998) microcredit has the possibility to help impoverished women in three ways. First, it may help provide independent sources of income outside the home, which lessen women's dependence on their husbands and thus help enhance their autonomy. Second, the exposure to new social networks, ideas, and values increase awareness of their rights. Third, having access to income and resources tend to raise women's status and prestige in the eyes of their husbands. Pitt, Khandker and Cartwright (2003) find that effects of male credit on women's empowerment were “at best, neutral, and at worse, decidedly negative”.

Moyoux (1998) differs in her opinion about female credit outcome, and implies that women's aspirations, knowledge and strategies must be seen in a context where women's subordination limits their ability to challenge their positions; women view their subordination as natural. Moyoux suggests that women “may use credit for dowry payments as a crucial investment in their daughter's future and source of status for themselves” (*ibid.*). This contrasts to the aims of the Seventeen Promises and the Sixteen Decisions, which further shows the need of stressing their importance. Another alternative is that women use credit to invest in their husband's enterprise – upon which no benefits may occur for them, and the “wider effect may be to

reinforce gender subordination and stereotypes” (ibid.). Nevertheless, women are not a homogeneous group and impacts usually differ from woman to woman.

One of the most cited reports in the body of literature on microcredit is written by Pitt and Khandker (1998). They seek to determine if targeting credit toward women really matters for household welfare. The data used is an earlier version of the survey used in this paper, and it has come to be regarded as an important contribution on the subject. The study is adjusted for self-selection, but not for externalities such as spillover effects. Pitt and Khandker show a strong and statistically significant effect of female Grameen Bank credit on the schooling of girls: “A 1 percent increase in Grameen Bank credit provided women is predicted to increase the probability of girls’ school enrollment by 1.86 percentage points” (ibid). A study by Khandker (2003) shows that “a 100 percent increase in the volume of borrowing by a woman would lead to a 5 percent increase in per capita household nonfood expenditure and a 1 percent increase in per capita household food expenditure, while a 100 percent increase in the volume of borrowing by men would lead to just a 2 percent increase in nonfood expenditure and a negligible change in food expenditure” (cited in Armendáriz & Morduch 2007:180)

In another paper by Pitt, Khandker, Chowdhury and Millimet (2003) it is argued that credit to women has a statistically significant impact on the healthiness of both boy and girl children. Furthermore, credit to men was shown to have no statistically significant impact. Pitt and Khandker (1998), Khandker, Khalily and Khan (1995), and McKernan (2001) have reached the conclusion that female lending has a great impact on labor supply, expenditure, fertility, contraceptive use, as well as profits from self-employment. Pitt et. al (2003) also found that a mother’s relative control over resources within the household has an influence on the human capital development among her children.

Some authors (see for example Hashemi et al. 1996; Pitt & Khandker 1998; Pitt et al. 2003) argue that the mere existence of microcredit institution can have a positive effect on development that does not occur at household level. This is due to spillover effects, or demonstrations effects, where the presence of a program can change attitudes and norms in village society and thus affect the empowerment of both participants and non-participants. This paper will however include these kinds of effects as it has a village-based approach.

### 3.5 Potential Pitfalls

The initial idea behind Professor Muhammad Yunus' endeavors was to release the hold local money lenders had on the poor. Exorbitant rents were not acceptable to him, and definitely not constructive for the scope of poverty alleviation. Microcredit institutions might take the rapid spread of credit as a sign of diminishing reliance on informal lending, but there are arguers who suggest that the need for informal credit only has increased with the expansion of microcredit. The reason is that increased indebtedness from microcredit causes a vicious circle where loans from moneylenders finance microloans (Sinha & Matin 1998).

Despite the increased presence of various microcredit organizations over the years, Sinha and Matin (1998) claim that microcredit has been unable to substitute for the informal sector. The reason is that "informal lenders are preferred for their local and timely access, speedy disbursement and flexible repayments" (ibid.). The authors suggest microcredit institutions to adapt to the needs and demand of clients. For example, they ought to be more sensitive to households' initial condition, and "mimic the informal sector when lending to poorer households by accounting for seasonality and providing repayment flexibility and a ceiling in the total loan size per household" (ibid.).

Another goal with microcredit is to use credit for investment, creating a virtuous cycle of growth. Yet, more than 60 percent of the total amount borrowed from microcredit organizations is diverted from this purpose. Instead, 28 percent is used for consumption smoothing while another 35 percent is used to repay loans (Sinha & Matin 1998). But is the smoothing of consumption a bad use of credit? If seasonal variety cause fluctuations in access to food, and there are no insurance against the risk of failing crops – is the using of credit towards consumption really a deviation from the original purpose? The problem is not the end towards which credit is used, but rather that this consumption pattern leads to the need of borrowing even more money to repay the loan, as consumption does not bring in an income the way investments do.

Another way of solving the problem of consumption smoothing is the increasing existence of micro-insurance that can deviate the risks of standing with no income in times of drought, sickness or family members' deaths. In recent years one of the most promising new insurances is rainfall insurance, underway in Morocco and India. The idea is to "avoid moral hazard and adverse selection problems associated with crop insurance" (Armendáriz & Morduch

2007:169-70). One of the major problems of providing insurance related to natural catastrophes or weather outcome is the high correlation between the persons buying such insurance. If one person suffers from failing crops due to drought, it is highly likely that others will do so too.

## 4 Survey Description

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The data used come from a survey carried out by Bangladesh Institute of Development Studies and the World Bank in 1991-92 with follow up visits in 1999 (The World Bank). The main purpose of the survey was to generate data for an analysis of some of the major microcredit programs in Bangladesh. Due to space and time limitations only the latest part of the survey was chosen for this paper. The 1999 survey covered 104 villages resulting in 2,599 households and a total of 15,553 individuals<sup>3</sup>. The gender division was fairly equal with 7029 men, 6596 women and 1928 individuals who did not answer the question. (World Bank 1998/1999).

The majority of villages had access to one or more of the three studied microcredit programs offered by Grameen Bank, Bangladesh Rural Advancement Committee (BRAC), and the Rural Development-12 program of the Bangladesh Rural Development Board. Only two villages did not have any organizations present at all. Where microcredit institutions were present the villagers' degree of participation varied. The survey covered both households eligible for credit programs, as well as households not qualified to participate. In Bangladesh, qualification is normally measured based on the ownership of land, and in order to receive a loan one cannot own more than, or equal to, half of an acre of land. (World Bank 1998/1999). In the survey, 52.7 percent of households were program participants, 20.1 percent were eligible nonparticipants, and 27.3 percent were non-target households (Khandker 1998b). In this survey, the extreme poor comprise 54 percent of participants, which means that the majority of loans are provided to those who need it the most. Women account for 82 percent of all borrowers included in the survey (ibid.).

People in the villages were given questionnaires regarding many different aspects of their lives. Some of these were given to all households and individuals, others to all individuals who had certain attributes<sup>4</sup>.

General problems with survey data can always arise, and it is important to be aware of the implications these can have for the results. One thing that all studies have in common is the difficulty of measurement. First, it is hard to "isolate the effect of credit from other variables such as group membership or training" (Goetz & Sen Gupta 1994). Second, measures depend on the accuracy of respondents' memory, perception and trust for the interviewer. Third, there

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<sup>3</sup> The updated data set used here sometimes differed from the description of the survey given by the World Bank. The results in this paper are based on the data set and disregard the description when necessary.

<sup>4</sup> For example, questions regarding education were only given to individuals five years of age and above.

is the problem of translation, both from local language into the language of the researcher (and vice versa), as well as from qualitative into quantitative data. And last, there are also the already mentioned difficulties in finding out whether an outcome is due to demonstration effects or self-selection bias.

The survey data used in this paper is very organized and easy to follow both in terms of description and results. All questions are provided with instructions on how the precise question was asked and what responses the interviewees could choose from. This makes it easier to come around problems with too detailed (when not wanted) and too far-fetched answers that lead to confusing interpretations. Alternatives to choose from can also help interviewees in structuring their thoughts and not misinterpret the questions. Naturally, the role of the translator is crucial, but since the survey was conducted in cooperation between the World Bank and the Bangladesh Institute of Development, where the latter is a local institution with inherent understanding for the culture and the language, problems with interpretation in contact with the local population ought to be minimized.

The fact that influence from microcredit is hard to distinguish from other variables, such as training, social networks and the like, should not be an obstacle when studying the effects of microcredit on development, as these variables can be considered to be a part of the whole concept of microcredit. There is also a possibility that these effects are mutually reinforcing, that social networks increase microcredit and vice versa. Therefore it can be argued that the existence of microcredit and the effects on developmental variables, are all related to the presence of the microcredit organization, regardless of which aspects of it that lead to the changes. When this survey was conducted, great effort was made to identify program impact through carefully separating the program's eligibility restrictions and its gender based program design (Khandker 1998b).



## 5 Empirical Approach

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The data is categorized into 19 variables designed to measure economic development. The composition of the variables is presented in table 1.

**Table 1: Description of Variables**

<i>Name of variable</i>	<i>Description</i>	<i>Expressed as a percentage of</i>
Client households <i>independent variable</i>	Households in which one or more individuals borrowed money	All households in the village
Female credit index <i>independent variable</i>	The product of the percentage of clients households and the percentage of female borrowers of all borrowers	Not applicable
Primary level	Individuals who finished a grade within primary education as their highest level of education	All individuals aged 5 or above
Secondary level	Individuals who finished a grade within secondary education as their highest level of education	All individuals aged 5 or above
Higher secondary level	Individuals who finished a grade within higher secondary education as their highest level of education	All individuals aged 5 or above
Tertiary level	Individuals who finished a grade within tertiary education as their highest level of education	All individuals aged 5 or above
BRAC/ religious school level	Individuals who finished a grade within BRAC or a religious school as their highest level of education	All individuals aged 5 or above
Expected primary level	Individuals who expect that a grade within primary education is the highest level of education they will finish	All individuals aged 5 or above
Expected secondary level	Individuals who expect that a grade within secondary education is the highest level of education they will finish	All individuals aged 5 or above

Expected higher secondary level	Individuals who expect that a grade within higher secondary education is the highest level of education they will finish	All individuals aged 5 or above
Expected tertiary level	Individuals who expect that a grade within tertiary education is the highest level of education they will finish	All individuals aged 5 or above
Current students	Individuals who are currently attending school	All individuals aged 5 or above
Former and current students	Individuals who have attended or are attending school	All individuals aged 5 or above
Electricity	Households with electricity in their house	All households in the village
No toilet/not sanitary	Households with no toilet or a non sanitary toilet in their house	All households in the village
Slab	Households with a slab toilet in their house	All households in the village
Sanitary	Households with a sanitary toilet in their house	All households in the village
Food consumption	Average household food consumption in the village	Not applicable
Non-food consumption	Average household non-food consumption in the village (no capital goods)	Not applicable

The raw data used to calculate the variables derive from the survey answers. As can be seen, the respondents' replies to the questions are usually measured as a percentage of the number of people/households concerned. For example, all households in every village that had one or more members who answered "yes" to the question "did any member actually join any credit program?" are expressed as a percentage of the total number of households in the village (World Bank 1998/1999). There are only a limited number of possible answers to each question. The gender of the individuals who borrow money was identified and used to calculate the female credit index.

The educational system in Bangladesh is divided into four levels; primary (grade 1-5), secondary (grade 6-10), higher secondary (grade 10-12), and tertiary, which gives a natural division of the data set (discover Bangladesh). One of the microcredit programs, BRAC, also offers a special school aiming at educating the children of the poor, and the landless. BRAC schools, together with religious schools, form another group of education. The education variables are further divided into students who are currently attending school, and individuals who have already left school. There are no current students claiming to be enrolled in any school included in this group, hence there is no group for current BRAC or religious schools among the variables. Food consumption is measured based on the interviewee's answer on one week's market valued food consumption, and then multiplied by 52 to obtain a yearly number. Non-food consumption is already provided on a year basis in the data set, which is why the former measure is adapted to this one in order to make comparisons possible. The consumption values are not expressed in percent but are simple average numbers for a household's yearly consumption.

Two sets of regressions are conducted. The purpose of the regressions in set one is to investigate the effects that microcredit in general (to both men and women) has on the indicators of economic development. The purpose of the regressions in set two is to investigate the effects that microcredit has on the indicators of economic development when gender is considered. An index is created in order to be able to take the gender of the client into account. The female credit index is the product of the percentage of client households and the percentage of female borrowers (of the total number of borrowers). To identify the credit impact of microcredit, with or without gender aspects, on these set of variables, simple individual regressions with an intercept are conducted using the OLS-method.

The regressions are on the form:

$$y_i = a + bx_i$$

where  $a$  and  $b$  are constants, and  $y_i$  is one of the dependent variables.  $x_i$  is the percentage of client households in the first round of regressions, and the female credit index in the second round of regressions.  $i$  corresponds to a village, ranging from village 1 to 104.

**Table 2: Statistic Values**

<i>Variable</i>	<i>Standard deviation</i>	<i>Average</i>	<i>Max value</i>	<i>Min value</i>
Client households	17.90	61.68	90.90	0.00
Female ratio	19.12	45.39	86.20	0.00
Primary level	6.96	12.71	31.65	0.00
Secondary level	5.48	9.08	25.64	0.00
Higher secondary level	2.42	1.03	19.20	0.00
Tertiary level	2.45	0.51	24.07	0.00
Ex brac/religious school	2.00	0.79	10.15	0.00
Expected primary level	8.45	4.35	46.3	0.00
Expected secondary level	13.20	26.76	56.36	0.00
Expected higher secondary level	8.55	7.63	50.00	0.00
Expected tertiary level	14.40	18.06	62.75	0.00
Current students	16.23	56.91	100.00	11.86
Former and current students	18.43	74.81	100.00	6.67
Electricity	24.46	22.26	93.75	0.00
No toilet/ not sanitary	25.24	62.58	100	6.25
Slab	21.00	29.14	85.19	0.00
Sanitary	10.80	8.28	44.83	0.00
Food consumption	3462.53	30597.38	364576.70	11190.0
Non-food consumption	16211.30	15900.42	141452.50	3985.90

Table 2 below shows the standard deviation and the average, max and min values of the variables used in the regressions. It can be seen that the value of most variables varies a lot. This is a sign that the survey covers some villages that are highly underdeveloped.

## 6 Empirical Results

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### 6.1 Results – Regressions Set 1: Microcredit in General

The first round of simple regressions does not take the gender of the borrower into account. The percentage of client households is the independent variable, and the dependent variables are the ones that are introduced in table 1.

**Table 3: Regressions on Percentage of Client Households**

<i>Variable that microcredit is explaining</i>	<i>Coefficient associated with microcredits</i>	<i>p-value associated with microcredits</i>
Primary level	0.04	0.29
Secondary level	0.00	1.00
Higher secondary level	0.00	0.75
Tertiary level	0.02	0.17
Ex BRAC/religious school	0.01	0.22
Expected primary level	0.01	0.86
Expected secondary level	0.04	0.55
Expected higher secondary level	-0.06	0.21
Expected tertiary level	0.14	0.07
Current students	0.13	0.13
Former and current students	0.16	0.11
Access to electricity	0.01	0.96
No toilet/ not sanitary Slab	-0.08	0.59
Sanitary toilet	0.11	0.36
Food consumption	-0.03	0.62
Non-food consumption	53.13	0.78
	118.25	0.19

Table 3 provides results of the coefficients and the p-values belonging to the independent variable, percentage of household clients, for each of the individual regressions. The smaller the p-value the higher the probability that the coefficient is correct and significantly different from zero. The microcredit impact prevails for three development variables at a 10 per cent level or near a 10 per cent level of significance. One can see that only a few regressions had a low enough p-value to be statistically significant; the percentage of people expecting to finish any grade within tertiary education, the percentage of current students, and the percentage of former

and current students. They are all positively affected by the percentage of client households at p-values of 0.07, 0.13 and 0.11 respectively. An increase by 1 percentage point of household clients results in an increase in the percentage of expected tertiary level students by 0.14 percentage points. An increase by 1 percentage point of household clients results in an increase in the percentage of current students by 0.13 percentage points. An increase by 1 percentage point of household clients results in an increase in the percentage of former and current students by 0.16 percentage points.

### 6.1.1 Discussion of Results - Microcredit in General

Our research shows that microcredit has indeed affected development, but it is hard to say whether or not the effects are more important when women borrow money, since different variables are affected.

As one can see in the results section, microcredit in general has a positive effect on the percentage of former and current students, the percentage of students expecting to finish a grade within tertiary education, and the percentage of current students. These are all variables related to education and also closely related to each other. The percentage of current students is included in the percentage of former and current students so a change of the former is likely to have an impact on the latter. That the percentage of household clients has an effect on the percentage of students expecting to finish a grade within tertiary education can be interpreted in many ways. Microcredit programs can effectively have an effect on the percentage of people who will finish a grade within tertiary education. An obvious first explanation for this correlation is that people simply have enough money to keep their children in school when they have access to microcredit. But also, since the effect is based on expectations it could be a mere result of people having more hope for their future. If the expectations are not fulfilled, there will be no positive effect on the percentage of people who actually finish a grade within tertiary education hence no increase in the percentage of highly educated people. Even if the effect is caused by people being more hopeful, this can also be counted as development as hope is important for a better quality of life.

One thing that could explain both the correlation and make the expectations more trustworthy is a program started by Grameen Bank in 1999. Scholarships are given to talented students (though only to children of Grameen members) so that they can stay in education (Grameen

Bank 2010). It must be said that this program started at the same time as the survey was conducted so it could be that some students answered the questionnaire before the scholarship program was started. However, even if this is the case, it is not unlikely that the Grameen members' children had heard about the upcoming program and took the chance of taking a scholarship into account. Grameen's Sixteen Decisions and BRAC's Seventeen Promises have been mentioned before. They may of course have had an effect on borrowers that encourage their children to stay in school and the students then feel their parents' support and expect to be able to stay longer in education.

Grameen Bank also offers a special higher level education loan for talented students. This program started in 1997 and is, as the scholarship program, only available to children of Grameen members (Grameen Bank 2010). This probably affects students' expectations in a similar way as the scholarship. As students know that they can get a scholarship or borrow money they expect to be able to stay longer in education.

The percentage of client households also has an effect on the percentage of current students. This goes well with what other studies cited earlier in this paper have shown before (Khandker, Khalily and Khan (1995), Pitt and Khandker (1998), and Pitt, Khandker, Chowdhury and Millimet (2003)). The effect can be a consequence of parents affording to send their children to school. There are no education fees, and textbooks should be provided by the school at no cost, so the opportunity cost of children not working at home or in the fields to help provide for the family is mainly what needs to be overcome. It can also be that the social benefits discussed previously in this paper have made people more aware of the importance of keeping their children in school. The benefits of an increase in the percentage of current students are many and have been discussed in length before.

The percentage of client households also has an effect on the percentage of former and current students. It can be seen as a sign that microcredit programs encourage education. There is also another way of interpreting the observed effect. Educated people might tend to use microcredit more than uneducated individuals. This is known as self-selection which can bias the results as only a certain kind of individuals will participate. This means that a high percentage of education will lead to a high percentage of client households and not the other way around. However, it can also be a combination of these two explanations. Microcredit can encourage education and education can then further encourage people to use microcredit. This is a self-reinforcing phenomenon and from a development perspective it does not matter whether

microcredit or education is the triggering factor as they reinforce each other as well as create spillover effects.

Another explanation would be that the effect is only related to an increase in the percentage of current students and that the former and current students variable just follow. The effect on the percentage of former and current student is larger than the effect that microcredit has on the percentage of (only) current students. It is therefore likely that there is at least a small relationship between the percentage of client households and the percentage of former and current students. Some of the students who have already left school finished long before microcredit programs were introduced in the village so their percentage of education was not affected by microcredit. What we cannot know is how many of the former students that were affected by microcredit, since we do not take into account when microcredit was first introduced in the different villages. In most of the villages microcredit was present when the first part of the survey was conducted. This means that in most of the villages quite a few people counted as former students in the regression were affected by microcredit.

The effects observed on education are likely to be a combination of direct effects on the client households but also effects on non-client households. When your neighbors' children know how to read the incentive to send your own children increases as you want them to be able to compete with the other individuals in the village, both on the job market and the marriage market. This is a spillover effect that can be seen as this study is conducted on village level as opposed to the many studies conducted on household and individual level.

## 6.2 Regressions Set 2: Microcredit to Women

A second round of simple regressions takes the gender of the borrower into account. The product of the percentage of household clients and the percentage of female borrowers of all borrowers is the independent variable and the dependent variables are still the same as before. Results from these regressions are presented in table 4 below.



**Table 4: Regressions on Female Credit Index**

<i>Variable that the female borrowers ratio is explaining</i>	<i>Coefficient associated with female credit index</i>	<i>p-value associated with female credit index</i>
Current & former students	0.01	0.95
Primary level	0.05	0.16
Secondary level	0.01	0.68
Higher secondary level	0.00	0.75
Tertiary level	0.01	0.52
Ex BRAC/religious school	0.64	0.00
Expected primary level	0.02	0.64
Expected secondary level	-0.11	0.10
Expected higher secondary level	0.04	0.35
Expected tertiary level	0.04	0.61
Current students	-0.10	0.22
Former and current students	0.01	0.95
Electricity	0.34	0.01
No toilet/ not sanitary	-0.08	0.54
Slab	-0.02	0.85
Sanitary toilet	0.10	0.07
Food consumption	220.05	0.22
Non-food consumption	207.40	0.01

As can be seen in table 4, five regressions result in statistically significant results; the percentage of ex BRAC and religious school students, the percentage of households with access to electricity, the percentage of students expecting to finish at least a grade in secondary school, the percentage of households with sanitary toilets, and non-food consumption. The female credit index is positively related to the percentage of ex BRAC and religious school students, the percentage of households with access to electricity, the percentage of households with sanitary toilets and non-food consumption at p-values of 0, 0.01, 0.07 and 0.01 respectively. The female credit index is negatively related to the percentages of students expecting any grade within secondary school to be the highest grade finished at a significance level of 0.10. An increase by 1 percentage point of the female credit index results in an increase in the percentage of ex BRAC and religious school students by 0.64 percentage points. An increase by 1 percentage point of the female credit index results in an increase in the percentage of households with access to electricity by 0.34 percentage points. An increase by 1 percentage point of the female credit index results in an increase in the percentage of households with a sanitary toilet by 0.1 percentage points. An increase by 1 percentage point of the female credit

index results in an increase in household non-food consumption by 207 Thakas. An increase by 1 percentage point of the female credit index results in a decrease in the percentage of students expecting any grade within secondary school to be the highest grade finished by 0.11 percentage points.

### 6.2.1 Discussion of Results – Microcredit to Women

As oppose to the findings of the first regressions on microcredit in general, microcredit weighted for the inclusion of solely female borrowers provides a more nuanced depiction of the developmental effects. The former results focused on education in various forms, while the latter ones are more intriguing in terms of numbers of affected variables. Here, the regressions show that the number of female loanees indeed is related to nearly all development aspects chosen, except for education (with modification) and food consumption.

The negative correlation between female borrowers and expected secondary level can be interpreted as an indication that fewer children expect to finish secondary school, but will instead reach higher education levels such as higher secondary school or tertiary school. The reason why these variables did not give any result on the regressions may be that the diffusion among these categories (higher secondary and tertiary) is too spread out to be defined as statistically significant. The fact that attendance at BRAC-schools is positively correlated with microcredit seems fairly natural. Both because it may function as a source of inspiration to use the organization's other services, as well as altering the attitudes of the students with regard to legal, social and financial rights. This exposure to new settings and ideas, just like the Seventeen Promises of BRAC, and the Sixteen Decisions of Grameen Bank, has already been discussed in this paper. The value of their existence should therefore not be underestimated.

In accordance with these arguments, previously revised studies by Khandker, Khalily and Khan (1995), Pitt and Khandker (1998), and Pitt, Khandker, Chowdhury and Millimet (2003) have showed that increased credit to women do increase school enrollment of both boys and girls. None of these sources however distinguish the different levels of education, as has been presented here. A study by Khandker (1998c:49) shows that microcredit has a significant impact on children's schooling, especially for boys. "The relatively smaller effect of women's credit on their daughters' schooling seems to reflect the close substitution of women's and girls' time in both household nonmarket production and self-employment activity financed by

microcredit programs” (ibid.). However, a difference between boys and girls children has not been made in this paper, but the effect is still visible. The data used in Khandker’s study is the same kind as used here by the Bangladesh Institute of Development Studies and the World Bank, with the difference that it instead was conducted between 1991 and 1992.

Another interpretation of the negative correlation between female credit and the expectation of finishing secondary school could be drawn from Khandker’s (2001:49) findings discussed above. When mothers receive microcredit and start their own business, children may find it plausible to be employed there, or feel motivated to use credit as their mothers did, instead of finishing school. This collides with some of the affirmations of the Seventeen Promises and the Sixteen Decisions promoting that all children should obtain education, but the reasons behind statistical findings are not always clear cut and obvious. As Khandker points out, “[b]oys' time is likely to be a poor substitute for women's and girls' time, and hence boys are less likely to be drawn into self-employment activity or into household nonmarket production as a result of credit provided to women”. (Khandker 1998c:49). The negative effect on expectations of reaching secondary school may thus be female children expecting to help their mothers rather than attending school.

Women’s credit’s positive effect on electricity and sanitary toilets leads to the conclusion that women to a greater extent pay heed to the need of the entire family, as oppose to men. This is also coherent with the findings of many other studies, the reason of which has been discussed in previous sections. We further suggest that an explanation may lie in the fact that women are the primarily family care takers, which means that they spend more time at home. The need of electricity may thus appear more salient and helpful, as it helps to facilitate their chores in everyday life. Respectively, sanitary facilities can be seen as more valued to women since women, generally speaking, may care more about the pride and value of having a hygienic and healthy family.

When a microcredit organization starts operating in a village, expectations can lead to altering prospects in terms of investments and commitments in services and business opportunities. For example, investing in the provision of electricity and sanitary toilets may be seen as more profitable since people’s economic situation is regarded as more optimistic. As Professor Yunus writes in his book, “[m]icrocredit sets of the small economic engines among the lower classes in society. Once a greater number of small engines have been started one can start dealing with greater projects” (Yunus 1997:223 authors’ translation).

Electricity is a valuable source to increase productivity as it makes it possible to work in the dark, as well as allows for more technologically challenging elements in the production function. People working with services such as barbering can prolong their hours of work thanks to access to electric light. Grameen has started a business called “Grameen Shakti” (“Shakti means energy in Bengali) that sells solar energy systems that microcredit borrowers can buy, and then sell electricity to their neighbors (Grameen 2010). This win-win situation not only facilitates the lives of the people in these villages, but it is also a source of economic income for the ones offering this service.

As far as the authors of this paper can conclude, no previous related study has taken aspects like these into consideration before. Most of the prior research is focused on outcomes related to education and financial effects directly linked to microcredit. This paper seeks to widen the notion of economic development in order to see what impact it may have on people’s lives. The fact that indicators of standard of living are incorporated gives a more nuanced picture of everyday life, and increases the understanding of the development process in a more tangible manner. These variables are probably also effected by spillover effects, why it is highly advantageous to approach the subject on an aggregated level.

The attendance at group meetings and the chanting of the Seventeen Promises or the Sixteen Decisions should also be incorporated in the findings from these regressions. Being aware of the importance of good sanitary facilities in order improve health and create a dignifying life increases the likelihood of working towards this goal. If creating awareness symbiotically with the provision of credit, credit can be directed towards other aspects of life that is not purely economic – and consequently enhance quality of life in general. Since the regressions in this paper are based on village level, precisely these kinds of effects are allowed to impact on the result. Unmeasured influence from meetings, social norms and spillover effects is thus not ignored.

The last variable having a positive correlation with microcredit to women is non-food consumption. This can be seen as an indication of the possibility of increasing the consumption of commodities not necessary with the sole aim of surviving, such as food and nutrition. The fact that food consumption does not show a statistically significant effect can depend on when the interviewees answered the questions. Since food consumption is calculated as an average for an entire year based on the market value of one week’s food consumption, that week is crucial to the regression’s outcome. If the questions were answered during the slack season, this

will affect the outcome of the whole year, why the opposite is valid if questions were answered during the prosperous season of harvesting.

Non-food consumption, on the other hand, was already provided in the survey based on a whole year, and thus gives a more accurate understanding of the real consumption patterns. Higher non-food consumption can indicate more money to allocate in areas previously neglected due to lacking incomes, as the possibility of sending more children to school, commodities for the house, clothing and animals. These findings are also in cohesion with other studies where mothers do tend to spend more on their families, and in particular on their children.

## 7 Summary and Conclusions

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Microcredit was initially invented as a way to help poor people escape the vicious circles of moneylender's exorbitant rents, and instead create a virtuous cycle of "low income, injection of credit, investment, more income, more savings, more investment, more income" (Grameen 2010). Through the mechanisms of group lending, the problems of high transaction costs could be evaded. Lending to poor people has not proven to be the disaster commercial banks predicted, but rather a solution to market failures where a great part of the poor did not have proper access to credit.

The extent of poor women in the world stands in no proportion to the amount of assets these women are entitled to. Through increasing their awareness of their rights; by providing an option to circumvent discrimination in business opportunities and in credit markets, a change of this reality has been made possible. Access to credit does not only lead to changes in income but has been shown to have much greater impact on poor people's lives, and especially the lives of women. The focus of this paper has been microcredit's effects on development variables such as education, consumption, and indicators of standard of living measured as access to electricity and sanitary toilettes. A more aggregate approach on village level has been taken as several previous studies examine impacts on household level. This makes it possible to include factors such as spillover effects, or demonstration effects, that micro program participants can have on non-participants.

It has been demonstrated that the provision of microcredit in general, i.e to both men and women, affects the level of education that current students expect to finish, as well as the number of individuals attending school. As education is an important part of the development process, this outcome shows how the presence of microcredit institutions, both in terms of credit but also through their social work, has a great impact on school enrollment.

Credit provided exclusively to women showed a clear positive relationship with the level of former BRAC and religious school students, which indicates that individuals in villages with a high level of microcredit attend these schools to a greater extent<sup>5</sup>. They can in their turn affect their surroundings even among people who do not take microloans. Naturally, the causality of this correlation is hard to decide definitely. The regressions also pointed at a positive correlation between female credit and the percentage of households with access to electricity as

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<sup>5</sup> There are villages where BRAC schools operate but in which there is no microcredit program

well as households with sanitary toilets. The link with non-food consumption was also found to be statistically significant, as oppose to food-consumption, which shows an increased possibility to consume other things besides basic necessities such as food. The fact that female credit had a negative effect on the expectations to reach secondary school can represent higher ambitions of reaching other levels of education. If this is the case, the reason why the regressions did not show this result can be that there was too much diffusion among the individuals and the levels they expected to reach, thus no statistically significant impact was found.

With this in mind, we can still conclude that no matter if it is the credit *per se*, or the mere presence of microcredit institutions that affect poor people, it does lead to enhanced development in the Bangladeshi villages . This paper has confirmed the outlined hypothesis that microcredit, especially to women, has greater effect on society than credit to men. Targeting women is hence not only a means to an end, but also an end in itself – namely to decrease the amount of poor women in the world, and to give them the opportunity to partake in society with their skills, productivity and knowledge.

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