

## Microcredit and Women Empowerment in the Rural Areas of Nepal

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### Abstract

*The study was conducted to examine the empowerment of the rural community through micro credit operation in one of the rural areas of Nepal. The study explored whether the poor and powerless women participants benefited from the micro borrowing in rural areas of Nepal. Women empowerment is measured in terms of nine different dimensions. Household survey and qualitative study from focus groups, as well as key informant interviews were conducted in the study areas to collect the required information. Multiple regression and binary logit model were used to see the impact of credit exposures of Nirdhan Uthhan Bank Limited with family support variable after controlling the background variables. This study found that participation in NUBL led to more empowerment of the participants as compared to the non-participants. Even non-participants from the program areas were found to be more empowered compared to the comparison village women. In most of the cases, family support, respondent education, farm size, household incomes are found to be determinants of women empowerment.*

### Introduction

Micro credit is considered as one of the best tools for women's empowerment. The possession of physical assets by women results in a dynamic change in their psyche. With the possession of asset they can overcome some of the cultural obstacles; they became more confident in themselves which eventually results in their social inclusion and mainstreaming in the development process (Bhattarai and Saikh, 2006). From the last two decades Bangladeshi experience has shown that microfinance institutions(MFI) have been successful in bringing out millions of Bangladeshi women out of the poverty line through the collateral free loan (Morshed, 2006). Bangladeshi MFI not only provides loan to women but also provides useful information on the micro business, marketing of their products, and various training programs on public awareness, saving programs etc.

These MFIs are expanding their outreach to the poorest of the poor and women groups. Many of these programs specifically target women on the basis of the view that they are more likely to be credit constrained than men, have restricted access to the wage

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labor market, and have an inequitable share of power in household decision making (Pitt & Khandker, 1998).

The rapid expansion of these programs has been accompanied by a growing emphasis on achieving high repayment rates and promoting efficiency and financial sustainability. Other components such as social and political consciousness-raising, literacy training and skill development have been increasingly downplayed. Most prominent examples of "minimalist" micro enterprise credit programs for women are running in Bangladesh (Hashemi, et al., 1996). A number of them have been quite successful in providing financial services to the poor rural women on a large scale, with relatively low and diminishing levels of financial subsidy in Bangladesh. But those who advocate holistic approaches opposed that minimalist approach cannot empower women by providing minimal training and others supplementary services to the female participants in the patriarchal society. According to them, it rather worsens the women status in the society. They suggest that gender subordination can best be addressed by making confrontation of patriarchy, rather than credit, the focal point (Goetz and Gupta, 1994; Casper, 1994).

Despite that, different governmental and nongovernmental organizations in Nepal are focusing on minimalist credit programs, claiming that they are getting success on it by empowering women multidimensional way with the credit programs in women groups. Most of the researches done before were focused on qualitative analysis of micro credit in Nepal. But, this study concentrated on both quantitative and qualitative analysis and argue on, do the provisions of micro credit for poor change the social equations in which subsets of the poor village population live ? The study observes the effects on how targeted credit can be used as a mechanism for enhancing poorer women's exiting socio-economic and personal conditions and there by altering the relations between gender and class, to the benefit of weaker parties.

Women comprise more than half of the 27 millions populations in Nepal (CBS, 2001). They are mostly uneducated and work longer hours but have little access to the household resources. In every development plan, government has focused on reducing poverty through the women empowerment. Reduction of poverty is possible only when marginalized subsets of women are empowered in terms of resources, education, and employment in each and every aspect of life. Considering the essence of problems, governments, different MFIs, cooperatives, NGOs and INGOS are giving more priority on it.

Nepal is a setting in which women are severely constrained by traditional patriarchal norms and extreme poverty. Overwhelming majority of household decisions are made by the male; women have less opportunity to participate in the households' decision making. Women's contribution in the household was limited within the child rearing, cooking and agricultural activities. Still vast majority of women are confined within households, they are mostly dependent on male, financially contribute less in the household expenditures, contact with outsiders is very limited except their close relationship, they do not dare to raise their voices against injustice, even do not have self confidence to take the small decision on themselves, and they are forced to cast their votes to those candidates who is

avored by her husband or others males in the family. They are prevented to do any things without her male counterparts' consent. These practices are quite common in the rural areas of Nepal.

After witnessing the success of MFIs in Bangladesh, different Non-Governmental Organizations (NGO), five regional development banks, different cooperatives, independent credit groups are running their programs particularly focusing on women after mid 1990's especially in the rural areas of Nepal. Micro-credit programs have aimed to reduce their dependence on men, strengthen their position within the families and society and help them bring their active participation in the public spheres.

Different independent saving and credit groups have different social awareness raising programs such as children education, sanitation, family planning, legal issues and violence against women. Nirdhan Utthan Bank Limited (NUBL) in Nepal is the replication of Grameen bank model of Bangladesh, established as the micro-finance bank in November 1998. Initially, an NGO called "Nirdhan" used to provide microfinance services and was in operation since 1993. Later it started to work as the development bank. NUBL "the bank for upliftment of poor" provides microfinance services such as loans, deposits, micro-insurance and remittance services to the rural poor of Nepal.

One of the primary goals of the NUBL is to enhance women's "self-respect" through social awareness, proper use and on-time repayments of loans, regular savings and provision of related micro-finance services.

Nirdhan Utthan Bank Limited currently operates in 11 districts out of 75 districts having 90,000 members (Kantipur Daily, 8 march 2008). Nine districts Banke, Chitwan, Nawalparasi, Kapilbastu, Bara, Purnea, Rupendih, Rautahat and Dang are in Terai (Plain) region of Nepal where as Sayangja and Palpa districts are in hilly region.

The eligibility criteria for group membership is maximum 15 Kattha (0.5 hectares) of non-irrigated land and 7.5 Kattha (0.25 hectares) of irrigated land per family of five persons and without permanent or cemented house. Only households owning up to 0.5 hectares of land will be qualified for program participation in Nirdhan bank, but in practice there are some deviations in the cut off margins.

### Objectives of the Study

The overall objective of the study is to assess the impacts of micro credit on women empowerment in rural villages in Nepal. Specific objectives are:

- 1) To compare women participants from the Nirdhan credit program area with non-members from a non-program area of Nirdhan with respect to women's empowerment.
- 2) To examine whether or not variation in empowerment can be explained by variation in memberships.
- 3) To compare non-members of Nirdhan credit program area with non-members from none program areas in order to investigate the diffusion (spillover effects)

effects of Nirdhan credit membership on women's empowerment among non members.

## Methodology and Data

### *Study Approach*

The study adopted "with or without" approach, which is particularly useful while there is no baseline data. Such quasi experimental approaches are conceptually fairly straightforward, but their success hinges on solving a number of often difficult problems, including the measurement of empowerment (Narayan, 2005). This approach was used to assess the impact of intervention on women empowerment of treatment and control groups. Socio-economic variables such as income, land size, family structures, educational attainment etc were examined in those groups (with participation in credit program and without participation in credit program) by applying econometric approaches. In econometric analysis, participants and non participants from Nirdhan bank program villages were compared with the non- participants from comparison village. Participants and non-participants were the two binary explanatory variables in this study.

This study also followed the approach of quasi experimental survey undertaken by Amin et al., (1998), Sukontamarn (2007) and Schuler and Hashimi (1994), but greatly benefited from Hashimi et al., (1996) about the theoretical and methodological aspects of impact evaluation of micro credit intervention on women empowerment.

### Sample Survey and Sample Size

NUBL was selected for the study after observing its history, initiation of program, numbers of clients, condition of providing loans etc. Purposively, Bhandara branch of NUBL in Chitwan district was selected for the study. Data was collected by using the stratified random sampling. A survey of 150 married women under age 63 was conducted in January 2008. Samples were drawn from three different strata. In which, one sample consists of participants of NUBL, second one consists of non-participants from the Nirdhan bank program areas, and the last one consists of non participants from non program areas with no significant presence of any others NGOs' programs. Non program area was selected from the same vicinity on the basis of same geographical region, socioeconomic condition, infrastructural development, literacy rate etc.

From the sixty centers (one center consists of about thirty-five members) of four villages (Pipla, Birendranager, Bhandara and Manahari), seventy program participants were selected out of 2200 participants by using the systematic random sampling. Information on non-participant is really hard to get in the program areas. Among non-participants, some were in the process to become members of the NUBL, while some of them were not eligible and rest of others were eligible, but unwilling to join NUBL. Eligible non- participants' information was collected after consulting neighbors, who were the members (participants) of the program. Forty randomly selected eligible non-participants were interviewed from the program area. From comparison group, same



forty non-participants samples were selected out of 250 sample population by using the systematic random sampling. There was an area, called Manahari village selected as comparison group, consists of 250 households having no any programs. The village is within the close vicinity of program area. People of those areas have equal level of socio-economic characteristics as program villagers' have. Four enumerators were hired and given one day training on filling questionnaire and other aspects of survey. Questionnaire was pre-tested and necessary modification made before collecting data.

### **The Issues of Selection Bias**

Especially in the cross sectional data like this, there is more possibility of selection bias. Selection bias arises due to the non random program placement, self selection of credit participants and non random selection of the samples. If credit programs are allocated across the program areas in nonrandom ways, for example, in villages nearer accessible roads or with inhabitants having more modern attitudes and beliefs, failure to control for village characteristics may lead to selection bias (Amin et al., 1998). Nirdhan selected this area for launching its program which was badly damaged by flood; people did not own their lands and severely needed collateral free loans to initiate new way of livings. Still, these areas are constantly under the threat of floods in the rainy seasons. So comparing those program villages with non program villages with same sorts of socio-demographic and geographical characteristics do not lead to bias results. For instance, if an NGO credit program selects women who are already empowered (prior to intervention), then a positive relationship is found between micro credit membership and women empowerment. The outcome may be the cause of prior empowerment.

In the case of the NUBL, they have some specific criteria of selecting clients; they encourage all the eligible to join the program. The eligibility criteria for group membership is maximum 15 Kattha (0.5 hectors) of non-irrigated land and 7.5 Kattha (0.25 hectors) of irrigated land per family of five persons and without pucca (cemented) house. In order to deal with the problem of selection bias, some of the precautionary measures have been taken. Firstly, researcher tried to control the background variables to minimize the selection bias. While comparing the background variables among three groups, no big difference is found among participants and non-participant from program villages and non-participants residing in non-program village as shown in Table 1. Secondly, by including participants and non-participants from Nirdhan bank villages and compared them with the non-members residing in non-program areas of Nirdhan banks. The data was collected from all the eligible respondents from the program and non program villages to observe the impact of program's intervention on the members and non members. The impact might be direct on members and spill over on non-members residing in program villages.

It is hypothesized that those women who are already empowered are more likely to join the credit programs. If so, that sort of self selection might lead to spurious result. In order to study the village level existing situation, the following data on socioeconomic variables were collected and descriptive statistics is presented in Table 1.

**Table: 1 Socio-economic and Demographic Characteristics of Married Women Aged Less than 63 According to Exposure in NUBL in Rural Areas of Nepal**

	Total(150)	Progrm Area Respondent (N=110)	Nirdhan Bank membebers' (N=70)	Nirdhan Bank nonmembers (N=40)	Comparison Group (N=40)
<b>Socioeconomics variables</b>					
Percentage owing land	84	86.7	85.7	87.5	77.5
Average household income (US \$)	1285	1511	1739	763	660
Average size of land holding (In kattha)	7.3	7.9	8.1	7.6	5.5
Mean years of schooling	2.2	2.5	2.6	2.4	1.07
Percentage ever attended school	42	49.1	49.5	47.5	27.5
Percentage of respondent belongs to upper caste	34	30	34.3	22.5	45
Percentage of mother in law living with respondent	14	14	12.9	15	15.1
Percentage of women main earner in the family	9	11	11.4	10	2.5
Average membership period (In years)			4.6		
Average distance to Nirdhan Bank from their areas (KM)	11.5	3.9	4.4	3.2	31
Mean informal credit (US\$)	31	64	79	37	52
Mean Nirdhan credit (US\$)	127	173	274		
Average credit (In US\$)	188	237	353	37	52
Percentage of people hire in land	21.3	18.1	14.3	25	30
Percentage of women financial support to family partially or fully	61.3	72.7	81.4	57.5	30
Percentage of female headed household	8	11	14.3	5	0
<b>Demographic variables</b>					
Mean age of the respondents	35.1	35.9	35.3	37.2	32.5
Average number of living children	2.7	2.7	2.6	2.9	2.72
Average household population	5.5	5.5	5.4	5.5	5.54
Percentage of respondents having at least one son	85	87.7	89	85	78
Percentage of respondent in nuclear family	74	73	76	68	78

Data sources: Compilation of researcher's own field data.

After reviewing the descriptive statistics of the three groups (Table 1) some differences were found, though the differences were not large in most of the cases. Participants of Nirdhan bank were younger than the non-participants living in the program villages (mean age of participants 35.3 years as compared 37.2 of the non-participants). The average numbers of children of participants were 2.6 against 2.9 of non-participants of program area, but not much difference in household population size in those areas. Average annual income of participants of Nirdhan bank was higher than non-participants in program area (US\$ 1739 vs. US\$ 763). 27.5 percent of the respondents from comparison group were attended the school compared to 47.5 percent non-participants of program area and 49.5 percent participants of program area. Average years of schooling of both participants (2.6 years) and non-participants (2.4 years) of the program area were higher than the average schooling of non-participants of non-program area (1.1 years). 85.7 percent of the participants and 87.5 percent of non-participants of program areas have their own land compared to 77.5 percent of non-participants from the non-program area. Mean size of land holding of the participants (8.1 kattha) and non-participants (7.4 kattha) from the program area of Nirdhan bank were higher than average land holding of non-participants (5.5 kattha) of non-program area. While studying the credit status of the program's participants of program areas, average total credit holding was 188 US\$ (61US\$ from informal credit and 167 US\$ from Nirdhan Credit). More surprising fact was that, average informal credit was high among the participants (US\$ 79) of Nirdhan bank compared to non-participants from the Nirdhan program area (US\$ 37) and comparison group (US\$ 57).

### Operational Definitions of Survey Variables

Malhotra, et al., (2002) argued that, one of the major difficulties in measuring empowerment is that the behaviors and attributes that signify empowerment in one context often have different meaning elsewhere. For example a shift in women's ability to visit a health center without getting permission from a male household member may be a sign of empowerment in rural Bangladesh but not in, for example in Urban Peru.

To the greater extent, empowerment indicators may differ from place to place because of variation in nature and context. Different authors developed various types of indicators to see the impact of micro credit on women empowerment. Pitt et al., (2003) developed economic decisions making, purchasing power, control over loans, control over saving and income, mobility, political awareness and activism, networking and friendships, family planning, attitude and spousal arguments and abuse as the women empowerment indicator to observe the impact. Likewise Hashemi, et al., (1996) used eight indicators. Mizan (1993) developed Household decision making (HHDM) and Amin et al., (1998) defined three indices like interpersonal consultations, autonomy and authoritative index.

Hashemi et al., (1996) said that, developing valid and reliable measures of women's empowerment was one of the most difficult tasks of empowerment study in Bangladesh. Behaviors and attitudes used to measure women's empowerment in one society may have no relevance in other society. However, due to the same sorts of women status, poverty

level, educational level and other kinds of infrastructural and demographic condition (homogeneity in the prevailing women situation in both countries Nepal and Bangladesh). Similar indicators developed by Hashemi, et al., (1996) were used in this study after some necessary modification in Nepalese context. Before adopting these indicators in this study, key informants such as micro credit experts, field staffs of different NGO's, activists, researchers were interviewed to identify the indicators and their views on women empowerment in Nepal by micro credit program intervention. Instead of those eight indicators (mobility, economic security, ability to make small purchases, ability to make large purchases, involvement in major household decision making, relative freedom from domination within family, political and legal awareness and involvement in political campaign and protest), leadership development indicator was added in this study to access women empowerment in term of leadership building. Are women able to take leading positions due to the women's participation on various groups such as forest user groups, mothers groups, saving and credit groups etc? What about their positions, members, treasures, secretary, chairman etc? Two broad empowerment indicators were developed. Different weights have been assigned to nine indicators based on the essence of questions. Ability to make large purchases and involvement in major decision making indices have weight between 0 and 14 compared with 0-3 of voice against injustice and relative freedom from family domination.

#### *Personal Women Empowerment*

- i) **Mobility:** Respondents were presented with the list of places (shopping, medical treatment, entertainment places, outside the village) and asked if they have been to those places before? One point was awarded for each place, if she visited those places and additional one point was assigned if she has been there alone. The index sum of assigned numbers ranges from 0 to 8. Zero indicates no mobility and 8 indicate perfect mobility in those places without escorting.
- ii) **Economic Security:** One point was given to respondent if she has her own land and house, one point for any productive assets, one point for cash, saving and ornaments (silver and gold.....) and one additional point for utilizing saving, cash in productive resources and lending. Economic security index ranges from 0 to 4. 0 indicates no cash, saving, land or productive assets with the respondents while 4 indicates respondents are economically secured in all aspects or has complete control on those economic resources.
- iii) **Ability to make Small Purchases:** One point was awarded for purchasing small items used daily for food preparation (oil, spices, etc), one point for the purchasing small items for herself (bangles, tika, cosmetics, soap, hair oil etc), one point for purchasing sweet, biscuits, ice cream for children and one point for purchasing others small items not included above for instance readymade food for family. Additional one point was awarded if she purchased without taking permission from her husband and another one point was given if she purchased those things partly or fully earned by her. Ability to make small purchases scale ranges from

0 to 12. 0 indicated no contribution at all in household small purchases physically and financially. The highest numbers 12 indicated full autonomy in household purchases. She could buy those items independently without consulting others in the family and even contribute to the expenses fully or partially.

- iv) **Ability to Purchase Larger Items:** One point for purchasing durable household items (utensils), 2 points for children's clothing, 3 for own clothing and four for daily household consumption items (rice, pulse, vegetables, etc). Additional one point was given to each purchase, if she made by her own earning fully or partially. Ability to purchase larger items scale ranges from 0 to 14. 0 means that neither she bought any things in past on her own desires nor contributed financially on those purchases, 14 indicated that she bought those items on her own decision and contributed on it fully or partially.
- v) **Involvement in Major Decisions Making:** One point was given if she made the decision regarding house repair and renovation individually or jointly with her husband within the last few years, two points for purchasing goats and keeping small poultry firm for profit, three points for deciding to lease land, purchase buffalos, oxen, cows etc and four points for deciding to buy lands and expensive items. Additional one point was assigned for each decision made and money spent from respondent's own earnings. Major decision making index ranges from 0 to 14. Weights were assigned on the basis of the expensive items. 0 means no participation at all in the major household decision making and 14 means major participation in household decision making.
- vi) **Relative Freedom from Domination by the Family:** The respondent was asked whether she was prevented to visit her natal house; if money and ornaments were taken from her against her consent, preventing her from going to work in the last few years. If none of these things happened to her, obviously assigned one for each positive answer. This ranges from 0 to 3. 0 indicates that she does not have freedom to take her own decision and her consent is ignored while taking away money and ornaments from the house. 3 means that she has complete freedom to visit natal house whenever she wants, does not have any restriction to go and work outside and her permission was also taken to take money out.
- vii) **Political and Legal Awareness:** One point each was awarded for knowing the name of VDC chairmen, Member of Parliament of the area where they live and prime minister of the country, one point for registering marriage and one point for right about their father's inheritances. The index ranged from 0 to 5. 0, if women did not have any political and legal knowledge. 5, if she had complete political and legal knowledge.
- viii) **Participation in Public Protest and Political Campaigning (voice against injustice):** The respondent was asked whether she raised her voice against house violence, protest against injustice, campaign against liquor in the past. One point

was awarded for each positive response and 0 for each negative response. The index ranged from 0 to 3. 0 if she tolerated all the injustices, 3 if she opposed all the unjust and participated campaign against liquor.

- ix) **Leadership Development Index:** The respondent was asked whether they belonged to any groups (*Nirdhan*, mother groups, saving and credit group, forest users groups, representative of local government etc). Two points was awarded if they were members, and 4 points was awarded for those who worked as treasures, secretary, chairman, centre head, ward chairman, VDC chairman etc and regularly attended meetings and play important role in the group's decision making. The index varied from 0 to 6. 6 indicate that respondent was active members at least in one of the groups.

### *Summary Index of Women Empowerment*

Nine personal empowerment indicators' have their own ranges. Lower ranges 0 indicates that respondent is not at all empowered in the particular category, while upper ranges denotes that respondent is fully empowered. The indicators are given relative weights. Weights are scaled such that the score for each indicator varies between 0 and 1. That is an indicator, mobility with maximum score 8 is given the weight 1/8, economic security indicator with maximum score 4 is assigned the weight 1/4. Likewise, ability to make small purchasing, large purchasing, major decision making, political and legal awareness, voice against injustices, relative freedom from family domination and leadership development indicators with maximum scores 12, 14, 14, 5, 3, 3 and 6 are assigned the weights 1/12, 1/14, 1/14, 1/5, 1/3, 1/3 and 1/6 respectively.

### **Indicators of Contribution to Family Support**

If she partially or fully contributed to household expense was assigned 1 as dummy variable otherwise 0. While testing the correlations among the nine indices and family support indicator to ensure whether they have statistical distinctiveness from each other or not as shown in Table 2, it was found that no intra index correlation coefficient is higher than 0.58. After observing the following correlation matrix, only five out of 45 unequal pairs exceeded 0.50, nine pairs exceeded 0.40 and rests of the pairs are below 0.40. There is some correlation found among mobility and small purchase, mobility and large purchases and large purchases and small purchases (exceeds 0.50). Women empowerment is psychological qualities, which are not clearly observable for others. Those inner qualities or characteristics will be observed by the actions performed by the women. Those actions are classified into different indicators. While classifying the actions of women into different dimensions, some actions which are closely related are also included in different indicators. So, mild correlation among them is obvious. Correlations among these variables may be the cause of multicollinearity if using them as the explanatory variables. But here, these variables are used as the dependent variables.

**Table: 2 Correlation Among the Empowerment Indicators and Family Support Indicators**

	mobili ~n	ecosec ~n	smallp ~n	largep ~n	majord~ n	relafr~ n	polili~ n	injust~ n	leader ~n	familiysu p~t
mobili~n	1									
ecosec~n	0.2	1								
smallp~n	0.58	0.14	1							
largep~n	0.52	0.15	0.57	1						
majord~n	0.27	0.16	0.26	0.38	1					
relafr~n	0.38	0.06	0.36	0.46	0.09	1				
polili~n	0.53	0.32	0.42	0.44	0.22	0.32	1			
injust~n	0.42	0.27	0.31	0.32	0.18	0.32	0.46	1		
leader~n	0.49	0.13	0.42	0.54	0.31	0.46	0.37	0.35	1	
familiysup~t	0.39	0.04	0.35	0.44	0.31	0.24	0.26	0.26	0.39	1

Note: Lists of variables finds in the Annex table1.

### Analytical Models

Multiple regressions and binary logit models were performed to find whether the credit exposure of NUBL affects the different dimensions of empowerment and family support.

#### *Effects of Credit Program on Women Empowerment and Women's Contribution to Family Support*

The first model examined the effects of exposure to NUBL's credit programs and socio demographic variables, on the nine dimensions of empowerment, the summary index and women's contribution to family support. We run different multiple regression models on the dependent variables of women empowerment and a separate binary logit model for the dichotomous dependent variable family support.

Different variables are chosen as independent variables in this study based on previous studies conducted by Hashemi et al., (1996), Amin et.al (1998), Osmani (2007), and some variables on arbitrary judgments.

This study expected that being a member of Nirdhan bank or exposure to the micro credit program or some interventions on local community would lead to positive impact on different aspects of women empowerments as compared to the comparison groups (where there is no significant presence of the credit programs). Likewise, it is assumed that due to the credit program interventions even non-participants from the program area is far better position in term of empowerment compared to the non- participants of control area because of spillover effects.

This study also observed how the credit exposure to the Nirdhan bank affects women's contribution to family support. While there is credit market participation of the women, they will be more likely to contribute to family expenses whatever they earned by investing credit amount something on productive activities.



### *Effects of Contribution to Family Support on Women Empowerment*

Contribution to family support was used as an independent variable. This model examined the effects of credit exposure to the Nirdhan bank along with contribution to family support on different dimensions of empowerment and summary index of women empowerment separately. This model did not reveal about the credit program loan but revealed about the independent earnings that can be used to meet the household needs. Credit program loan is not the income of the borrower at all, which must pay back after some maturity period of time. But here financial support on family expenses indicates that income which she generated after investing in productive activities. It's not necessary that only those who are in credit program help financially to the family expenses but women who are in paid job also contribute to family financially despite not belonged to any credit groups.

This model has taken women financial contribution/support to family expenses as an explanatory variable. In previous model, it was used as a dependent variable

### **Results and Discussion**

Researcher presented and analyzed the quantitative findings of NUBL credit exposures and respondents' contribution to family support on different levels of women empowerment and aggregate empowerment indicator in section1, Section 2 analyzed the effects of Nirdhan credit exposures on nine indicators of women empowerment and women financial contribution to family support. Last section 3 mainly dealt with the qualitative findings of the study.

### *Effects of Nirdhan Credit Exposures and Respondents' Contribution to Family Support on Different Levels of Women Empowerment and Aggregate Empowerment Indicator*

The regression result presented in Table 3 explains how the women's contribution to family support and the credit exposures along with different controlled variables affect the significance of different empowerment indicators. Dependent variables are placed in the horizontal axis and independent variables are in vertical axis. Each of the columns of Table 3 represents a separate multiple regression model. Coefficients and p values of the key variables at different significant levels are presented in the tables.

The results showed that participants and non-participants residing in the NUBL's program area positively and significantly related with mobility. The estimates reveal that variables like respondent education, caste, family support, household head sex have significant positive association with mobility. A woman, who is educated, belongs to the upper caste, household head and supports family financially is more likely to be empowered in term of mobility. Variable age is negatively related with mobility. Other variables such as son, household income, farm size and respondent children do not have valid relation but positively related with mobility and variables like family type and household population are negatively related with mobility.

**Table: 3 Determinants of Women's Empowerment: Standardized Coefficients for Differents Ten Indicators**

	Dependent variables (Empowerment Indicators)									
	1	2	3	4	5	6	7	8	9	10
Independent variables	Mobility (0-8)	Economic security (0-4)	Small purchases (0-12)	Large purchases (0-14)	Major decision (0-14)	Freedom from family (0-3)	Political legal (0-5)	Voice against injustice (0-3)	Leadership (0-6)	Summary (Index) (0-9)
Nirdhan Bank Memberships	1.87*	0.43***	2.18*	3.42*	0.25	0.66*	1.06*	0.90*	1.99*	1.85*
Non members from Nirdhan Program area§	1.48*	0.28	1.87**	2.80*	0.45	0.46**	1.53*	1.07*	0.29	1.51*
Family support	0.90*	-0.17	1.46*	2.69*	1.41*	0.06	0.21	0.16	0.47**	0.68*
Respondent age (in years)	-0.043*	0.009	-0.02	-0.06***	-0.006	0.003	0.008	-0.004	0.006	-0.007
Son	0.59	-0.04	-0.58	0.93	0.65	-0.11	0.11	-0.07	-0.24	0.04
Household's head sex	0.89***	0.12	0.97	0.87	1.25	-0.13	0.38	-0.04	0.28	0.44
Respondent Children	0.19	0.06	0.22	0.21	-0.06	0.14**	-0.06	0.04	-0.12	0.1
Respondent Caste	0.71**	0.19	0.62	0.75	0.09	0.05	0.27	0.1	-0.28	0.3
Respondent Education (years of schooling)	0.11**	0.04	0.24**	0.1	-0.02	0.02	0.11*	0.02	0.03	0.09*
Household Income (Yearly)	0.000003	0.000002**	0.000003	0.000005	0.000001	0.000001	0.000004	0.000001**	0.000001	0.000001
Farm Size (Hectors)	0.003	0.03*	0.03	-0.03	0.04**	-0.004	0.01	0.013***	0.008	0.01***
Family type	-0.12	0.12	-1.32	-2.56**	0.53	-0.45**	0.73**	0.07	0.3	-0.16
Household population	-0.01	-0.03	-0.37***	-0.46	0.06	-0.12**	0.03	0.007	0.42	-0.09
Total credit				0.00004**	0.00003**	0.00001**	0.00009	0.00002	0.00006	0.00001**
R-squared	0.45	0.29	0.36	0.41	0.22	0.24	0.45	0.39	0.53	0.62
Adjusted R-squared	0.39	0.22	0.28	0.35	0.13	0.16	0.38	0.32	0.48	0.58
Prob> F	0	0	0	0	0.0025	0.0004	0	0	0	0
Numbers of observations (N=150)										

§: reference category .Data Sources: Researcher's own data compilation.

\*p<0.05

\*\*\*p<0.1.

Table: 4 Determinants of Women's Empowerment and Family Support:  
Standardized Coefficients for Differents Ten Indicators

Independent Variables	Dependent variables (Empowerment Indicators & Family Support)										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Mobility	Economic security	Small purchases	Large purchases	Major decision making	Freedom from family domination	Political and legal awareness	Voice against injustice	Leadership development	Summary index	Family support	
(0-8)	(0-4)	(0-12)	(0-14)	(0-14)	(0-14)	(0-3)	(0-5)	(0-3)	(0-6)	(0-9)	0/1
2.34*	0.34***	2.94*	4.82*	0.98	0.69*	1.18*	0.98*	2.23*	2.20*	2.79*	
Nirdhan Bank Memberships	1.75*	2.31*	3.61*	0.88	0.48**	1.60*	1.12*	0.436	1.71*	1.45**	
Non members from Nirdhan Program area \$	-0.04**	-0.01	-0.05	-0.001	0.003	0.009	-0.04	0.008	-0.005	0.02	
Respondent age (in years)	0.5	-0.73	0.66	0.51	-0.12	0.09	-0.09	-0.28	-0.02	-0.81	
Son	0.24	0.05	0.3	0.37	0.01	0.15	-0.05	-0.09	0.13	0.4	
Respondent Children	0.81*	0.17	0.79	1.06	0.25	0.06	0.29*	-0.22	0.38***	0.83***	
Respondent Caste											
Respondent Education (years of schooling)	0.11***	0.04	0.23**	0.09	-0.02	0.02	0.11	0.02	0.03	0.09**	
Household Income (Yearly)	0.00002	0.00002**	0.00004	0.00004	0.00001	-0.00009	0.00004	-0.00001**	-0.00001	0.000002	
Farm Size (Hectors)	-0.004	0.03*	-0.06	-0.06	0.03	-0.005	0.01	0.01	0.004	0.01	
Family type	-0.17	0.13	-1.40***	-2.71***	0.45	-0.46**	0.75**	0.06	0.27	-0.2	
Household population			-0.42**	-0.55***	0.02	-0.12**	0.02	0.002	0.027	-0.11	
Total credit				0.00005**	0.00003**	0.00001**	0.00009***	0.00002	0.00007	0.000014*	
R- Squared	0.42	0.29	0.32	0.36	0.17	0.24	0.44	0.38	0.52	0.59	
Adj R-squared	0.36	0.22	0.25	0.31	0.08	0.17	0.38	0.31	0.47	0.55	
Prob > F Numbers of observations (N=150)	0	0	0	0	0.0192	0.0002	0	0	0	0	

\*\*\*p<0.05 \*\*p<0.01

\$: reference category Data Sources: researcher's own data compilation

society? Do they find any changes in their daily life after being the members of Nirdhan bank? Those questions were put in the focus group discussion by the enumerators and field supervisor. Their activities were observed in group meetings and field visits which helped in finding supportive facts to the quantitative study.

After observing women's participation on micro credit program and focus group discussion with the members of Nirdhan Bank, the researcher found that members of credit program are politically and legally aware, largely benefitting from income generating activities from the collateral free loans. At the same time, participants' confidence level was quite high after being the members of Nirdhan. They can speak against injustice and equally being consulted by their male counterparts in households' decision making.

### Summary and Conclusion

The study found that NUBL program played significant role on the women empowerment by increasing their mobility after breaking their isolation from outsiders, raising legal and political awareness, enhancing their leading capacity in the society, making women self dependent in the study area.

The study compared different groups of women populations in terms of women empowerment. When micro credit intervention of NUBL took place in some eastern regions of Chitwan district and Makwanpur district of Nepal, it was found that women participants largely benefited from the program. Furthermore, those non participants who were living in the program villages were also empowered. They became more conscious about their rights, which helped them to become self reliant as compared to women from non-program areas because of the program's spillover effects. NUBL's credit participation has positive effects on all indicators besides major decision making and economic security index. Those who were members of Nirdhan credit bank also significantly contributed to households' expenditure.

Participation in Nirdhan Utthan's credit program along with full and partial contribution to the household expenditure also made the positive impact on all the indicators of women empowerment including summary indicator except major decision making index. The study suggests that women who earn independent incomes and contributes to their families' support are likely to be empowered regardless of their involvement in a credit program.

Members of the Nirdhan bank were more empowered in all dimension of women empowerment as compared to the non members of the comparison village because of direct and spillover effects of the program intervention and even non-members from the program areas were more empowered comparing with non-members of comparison village because of the program impact.

The quantitative study was also supported by the qualitative data collected from the focus group discussion of women participants. The study found that participants benefited

from the program since they joined as members of NUBL. It brought enormous changes in their life such as in autonomy, economic security, and mobility, and leadership development, ability to make small and large purchasing, political and legal awareness and overall empowerments.

Success of Nirdhan's credit program can be replicated to others parts of the Nepal, where women are treated as subject. Minimal efforts in the form of collateral free loans to the needy and helpless poor women both from the government and private sectors will not only help to empower women but also help them to take out from the vicious circle of poverty. It provides policy suggestions to the governments and the private sectors to work on this area.

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## Appendix: 1 List of Variables

Variables Name	Variables Type	Variable Label
hhhsex	Binary	Sex of household head
resage	Discrete	Age of respondent (years)
resedu	Discrete	Education of respondent (years of schooling)
caste	Binary	caste of the respondent (Upper caste=1, Lower caste=0)
dist	Binary	District (1=chitwan, 0=makwanpur)
son	Binary	If she has at least one son=1 otherwise 0
famliytpe	Binary	Type of family that she belongs (1=Nuclear Family; 0=joint family)
Reschild	Discrete	Numbers of children of the respondent
Hhpop	Discrete	Household population
Totincome	Discrete	Annual income of the household in Nepalese currency, (1US\$=64 Rs)
Farmsize	Discrete	Size of the land of household in kattha (1 kattha=0.0339 hectors)
Rentstatus	Binary	Rent status, (1=rent in otherwise 0)
Memperiod	Discrete	Membership period in years
Dcreditins	Discrete	Distance from Nirdhan Utthan Bank (KM)
Incrcdit	Discrete	value of informal credit in Nepalese currency*
Ncredit	Discrete	Value of Nirdhan Utthan bank credit (NRs*)
Tcredit	Discrete	total amount of credits (NRs*)
Mainearner	Binary	Main person who brings income in the family 1=herself, 0 for others
Motherinlaw	Binary	if she is in the family=1 otherwise 0
Mobilityin	Numerical	Mobility index
Ecosecurityin	Numerical	Economic security index
Smallpurin	Numerical	Small items purchasing index
Largepurin	Numerical	large items purchasing index
Majordein	Numerical	Major decision making index
Relafreen	Numerical	Relative freedom from domination by family
Poliligin	Numerical	political and legal awareness index
Injusticein	Numerical	voice against injustice index
Leadershipin	Numerical	leadership development index
Sumindex	Numerical	summary index, sum of nine empowerment indicators.
Famliysupport	Binary	contribution to family support, 1=partial or full support, 0= hardly or any
lmebshipst_2	Binary	1 if non-participants of program area otherwise 0
lmebshipst_3	Binary	1 if members of nirdhan bank otherwise 0

Note: \* (1US\$=64 Nepalese rupees)