Determinants of Micro-Credit Borrowings Rural SHG Women in North Coastal Andhra Pradesh (A Regression Analysis)

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INTRODUCTION:

Empowering women is an issue of debate not only in the present days but long back also. The eminent personalities and social reformers fought a lot for women empowerment. The efforts of Baba Saheb Dr.B.R.Ambedkar, in the form of Hindu code bill for providing 33 percent of reservations in legislatives, to provide political empowerment to women is worth noting here. Of course, all these efforts were in vain due to the various reasons. In India, women constitute nearly 50 per cent of total population. Majority of them, especially in the rural areas, depend upon men for their livelihood and continue to be voiceless section, though economic value is not attached to women's role. In bringing up the family, their contribution is very significant. Since household health and nutrition are generally in the hands of women, the empowerment of them is necessary for ensuring their own welfare and also the well being of the entire household. Real empowerment of women would happen only by adding more value on their contribution to the family and the society. After India got independence, a large number of efforts have been made to empower the women politically, socially and economically. Among all the efforts of governments both at centre and various states, introduction of Women Self Help Group Movement popularly known as DWACRA Groups or Velugu Groups or Mahila Sangalu by the government of Andhra Pradesh in the United Andhra is successful and role model step in empowering the women economically, socially and politically. The SHG movement of the Andhra Pradesh is role model for all the states of this country.

CONCEPT OF SHGS:

Andhra Pradesh has extensively used the self-help group (SHG) as a tool of poverty alleviation and empowerment of women. An SHG is a small group of persons who come together with the intention of finding a solution to a common problem with a degree of self-sufficiency. sWithin development initiatives, SHGs can be formed around various issues related to livelihoods and resources. One sees groups around watershed management, forest management, livelihood generation, etc. However, largely, the SHG is the conduit through which micro credit is routed to the poor in the belief that it will prove catalytic in helping them to pull out of poverty. Andhra Pradesh is the fifth largest state in India, with a population of 76 million, of which three fourths live, in the 26,500 rural villages. According to the Survey of the IX Five Year Plan (1997-2002) carried out by the Government of Andhra Pradesh (GOAP), the state is among the poorest in India with many indicators below the national level. Income poverty has been reduced in the second half of the 90s but at a slower rate compared to the rest of the country. On the positive side, Andhra Pradesh has been pursuing economic reforms to step up growth and alleviate poverty. Significant strides have been made in participatory management of land, water and forest resources. It is within this state of India that the SHG has constituted a primary route towards poverty alleviation and development. Both state and NGO initiative have recognized the value of forming small groups of poor people who have a common desire to generate livelihood options. Further, micro credit is seen as the key to unlock the poverty trap.

SHGs are also supposed to empower women. Currently Andhra Pradesh has mobilized and organized 48 lakh poor women in the rural areas into 3.7 lakh groups. These women's groups have built up a corpus fund of Rs 750 crores consisting of their savings, borrowings from banks and revolving funds from government programs. The major poverty alleviation project through which SHGs are promoted is the state-sponsored Velugu working in over 860 mandals in 22 districts, aiming to reach 29 lakhs of the poorest of rural poor. With this background, it is proposed to make an attempt is to analyse the determinants of micro credit borrowings of rural SHG women members in the North Coastal Andhra Pradesh Region of the state of Andhra Pradesh, which consists of three coastal districts viz., Visakhapatnam, Vizianagaram and Srikakulam Districts.

OBJECTIVE:
The main objective of the present paper is to analyse the determinants of micro credit borrowings of rural SHG women members in the North Coastal Andhra Pradesh Region of the state of Andhra Pradesh.

SAMPLE DESIGN:
Since the present study addressed itself to analyse the micro credit borrowing of the rural SHG women members, all the women SHG members of the rural areas of North Coastal Andhra Region of the state of Andhra Pradesh is formed universe of the study. A multi stage random sampling technique has been adopted for selecting the respondents to this study. In first stage, North Coastal Andhra Pradesh region of the state of Andhra Pradesh, which consists the three District viz., Visakhapatnam, Vizianagaram and Srikakulam Districts, has been selected for the study purposively. In the second stage From Each district of the region, three mandal have been selected based on the accessability to the district head quarter or ZMS (Zilla Mahila Samakya), which accounts to a total of **Nine Mandals**. In the third stage, from Each mandal three Village have been selected based on the accessibility to the Mandal Head Quarters or MMS (Mandal Mahila Samakya), which accounts to a total of **27 Villages**. In the fourth stage, from Each Village three DWACRA women Self Help Groups have been selected, which accounts to a total of **81** SHGs. In the fifth and last stage, from Each SHG, 5 Members have been selected randomly and interviewed, which made the total sample as **405**.

DATA COLLECTION:
Both primary data and secondary data have been used for the study. The primary data have been collected from around 405 SHG member in the study area i.e., North Coastal Andhra Pradesh, with the help of a pre-tested interview schedule specially designed for the purpose. To elicit the information on the various issues relating to the determinents of micro credit borrowings of rural SHG women members, direct personal interview method has been followed. The secondary information has been collected from various published and unpublished sources like Statistical Abstracts of Andhra Pradesh which is being published by the Directorate of Economics and Statistics, Govt. of A.P., Hyderabad, Hand book of statistics, published by the Chief Planning Officers of Visakhapatnam, Vizianagaram and Srikakulam Districts, various reports of NABARD and so on.

DETERMINANTS OF MICRO-CREDIT BORROWINGS:
In this section, an attempt is made to examine the factors influencing borrowings by using multiple regression analysis. Regression methods may be used for time series data considering historical evidence or cross-section data representing the technological relationships. The purpose of regression model is to quantify the degree of effect of each of the variables under consideration, in explaining the variation in the dependent variable. Since our study is based on cross-section data, the regression analysis will help us to identify the significant factors that influence the dependent variable.

Specification of the Variables and Model:

In the study, total amount of borrowings of rural households is the relevant dependent variable. Accordingly, Y is the total borrowing rural households. Borrowings include all loans by the rural households under the study. The following explanatory variables are considered as the important determinants. Age, Education, marital status, Occupation, Family Size, and Income. By considering the above variables, the regression function adopted in this study is specified as under:

Specification of the Model:

The basic form of the model adopted in the study is of the following nature:

Y = f (Age , Education, Occupation, Family size, Income)

The specific variables used in the equation are

$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + ui$

Micro-Credit Borrowings =Total loan amount borrowed (**Dependent Variable**)

X1 =Age of the respondent

X2 =Number of Years of Education of Respondent.

X3 = Marital status

X4 =Family size of the house.

X5 =Dummy variable, whether the respondent is employee

X6 =Income of the household

Ui = Error term

Based on the above given variables, a multiple linear regression model is presented as follows:

RESULTS OF REGRESSION ANALYSIS:

In the total study area i.e., North Coastal Andhra Region, out of six independent variables, four variables are turned out to be statistically significant at different probability

levels. **Age** of the respondent is observed to have a positive relation in Micro credit borrowings of the sample respondents in the total study area. The hypothesis reveals that the older individuals are more likely to go for Micro credit borrowings since they

have more Micro credit borrowing capacity at higher age group respondents. The estimated coefficient of the age of the respondent is statistically significant at 1 percent level and with expected positive sign and the coefficient indicates that as age of the respondent increases leads to there may be 62.84 percent increases the credit borrowing capacity in the study area.

Education is a variable which is estimated by number of school going years and it specifies the literacy status of the respondent. The literacy level is expected to have a positive significant relation in Micro credit borrowing amount among sample respondents. It is expected that the Micro credit borrowings are more where the literacy levels are high and vice-versa. The regression coefficient of this variable turned out to be statistically significant at 1 percent level with expected positive sign.

Marital status of the respondent is positively associated with borrowings in the study area. If the hypothesis reveals that generally married households are more chance to approach micro-credit borrowing in the rural areas. So it is expected to have a positive relation in Micro credit borrowings, but not at significant level even at 10 percent level. Therefore, it indicates that there is no influence of marital status on Micro credit borrowings.

Family Size is a variable considered as number of persons living together in a single family. Here, the variable is observed to have a negative relation with rural respondents in the study area. The hypothesis indicates, the samples are more likely of family size since they have more micro credit borrowing capacity to maintain their families. But it is not significant even at 10 percent level. Therefore, it indicates that there is no influence of family size on Micro credit borrowings.

Table-1:Regression Results of Determinants of Outstanding Debt in North Coastal Andhra Region			
Independent variables	Co-efficient	Standard error	t-value
Intercept	2.3961	1.2304	1.94733
Age (X1)	0.6284*	0.0986	6.3732
Education(X2)	1.0236*	0.2981	3.4337
Marital status (X3)	0.9896	0.8653	1.1436
Family size (X4)	-0.1236	1.2563	-0.0983
Occupation (X5)	0.1123**	0.0523	2.1472
Income (X6)	0.8672**	0.3623	2.3935
Adjusted R²= 62.51, F-Value =23.56, P-Value=0.000			

*Significant at 0.00 percent level
** Significant at 0.05 percent level
*** Significant at 0.1 percent level

Occupation is a dummy variable and specifies the employment status of the rural respondents. It takes value 1 for employee it is expected to have a positive relation as employee are having more Micro credit borrowings than the others in the study area. The estimated coefficient of the occupational status is statistically significant at 5 percent significance level and it indicates that if the respondent is employee then 11.23 percent increases to have more micro credit borrowing capacity in the study area.

Income of the sample respondents in the study area has positive relation with Micro credit borrowings in the study area. The estimated coefficient of the income of the respondent is positively associated with micro credit borrowings at 5 percent significance level. It indicates that a one percent increase in income leads to there may be 86.72 percent increase the capacity of getting micro-credit borrowing in the study area. Hence, income of the respondents shows influence on Micro credit borrowings of the respondents. This model is also the best fit because F value is 23.56 which is satisfactory at 1 percent significant level. The model also explains 62.51 of variation.

Disaggregate level Regression Analysis:
Srikakulam District:
Srikakulam district, out of six independent variable, four variables are turned out to be statistically significant at different probability levels.

Age of the respondent is observed to have a positive relation in Micro credit borrowings of the sample respondents in the study area. The hypothesis reveals that the older individuals are more likely to go for Micro credit borrowings since they have more Micro credit borrowing capacity at higher age group respondents. The estimated coefficient of the age of the respondent is statistically significant at 1 percent level and with expected positive sign and the coefficient indicates that as age of the respondent increases leads to there may be 98.12 percent increases the credit borrowing capacity in the study area.

Education is a variable which is estimated by number of school going years and it specifies the literacy status of the respondent. The literacy level is expected to have a positive significant relation in Micro credit borrowing amount among sample respondents. It is expected that the Micro credit borrowings are more where the literacy levels are high and vice-versa. But the regression coefficient of this variable is not statistically significant even at 10 percent level.

Marital status of the respondent is positively associated with borrowings in the study area. If the hypothesis reveals that generally married households are more chance to approach micro-credit borrowing in the rural areas. So it is expected to have a positive relation in Micro credit borrowings. But the regression coefficient is negatively associated with microcredit borrowings and it is not significant even at 10 percent level. Therefore, it indicates that there is no influence of marital status on Micro credit borrowings.

Family Size is a variable considered as number of persons living together in a single family. Here, the variable is observed to have a negative relation with rural respondents in the study area. The hypothesis indicates, the samples are more likely of family size since they have more micro credit borrowing capacity to maintain their families. The regression coefficient of family size is statistically significant at 1 percent significance level with expected negative sign.

Therefore, it indicates that there is no influence of family size on Micro credit borrowings.

Table-1: Regression Results of Determinants of Outstanding Debt in Srikakulam District			
Independent variables	Co-efficient	Standard error	t-value
Intercept	4.231	2.2045	1.9192
Age	0.9812*	0.2314	4.2402
Education	0.9745	1.2321	0.7909
Occupation	1.0235***	0.5932	1.7253
Family size	-2.362*	0.5621	-4.202
marital status	-0.1305	0.4253	-0.3068
Income	0.8634**	0.4023	2.1461
Adjusted R^2= 78.43 F-Value =43.26 P-Value=0.000			
*Significant at 0.00 percent level ** Significant at 0.05 percent level *** Significant at 0.1 percent level			

Occupation is a dummy variable and specifies the employment status of the rural respondents. It takes value 1 for employee it is expected to have a positive relation as employee are having more Micro credit borrowings than the others in the study area. The estimated coefficient of the occupational status is statistically significant at 10 percent significance level and it indicates that if the respondent is employee to have more micro credit borrowing capacity in the study area.

Income of the sample respondents in the study area has positive relation with Micro credit borrowings in the study area. The hypothesis reveals that higher income of the households has greater capacity to have micro credit borrowings. The estimated coefficient of the income of the respondent is positively associated with micro credit borrowings at 5 percent significance level. It indicates that a one percent increase in income leads to there may be 86.34 percent increase the capacity of micro-credit borrowing in the study area. Hence, income of the respondents shows influence on Micro credit borrowings of the respondents. This model is also the best fit because F value is 78.43 which is satisfactory at 1 percent significant level. The model also explains 43.26 of variation.

Vizianagaram District:

In Vizianagaram district, out of six independent variables, four variables are turned out to be statistically significant at different probability levels.

Age of the respondent is observed to have a positive relation in Micro credit borrowings of the sample respondents in the total study area. The hypothesis reveals that the older individuals are more likely to go for Micro credit borrowings since they have more Micro credit borrowing capacity at higher age group respondents. The estimated coefficient of the age of the respondent is statistically significant at 10 percent level and with expected positive sign and it indicates that as age of the respondent increases leads to there may be increases the credit borrowing capacity in the study area.

Education is a variable which is estimated by number of school going years and it specifies the literacy status of the respondent. The literacy level is expected to have a positive significant relation in Micro credit borrowing amount among sample respondents. It is expected that the Micro credit borrowings are more where the literacy levels are high and vice-versa. But the regression coefficient of this variable is negatively associated with micro credit borrowings and not statistically significant even at 10 percent level

Table-1: Regression Results of Determinants of Outstanding Debt in Vizianagaram District			
Independent variables	Co-efficient	Standard error	t-value
Intercept	4.0236	2.3602	1.7047
Age	1.2036***	0.6853	1.7563
Education	-0.1756	0.8457	-0.2076
Occupation	0.1262*	0.0234	5.3931
Family size	-0.235**	0.1265	-1.8577
marital status	0.0634	1.2302	0.0515
Income	0.9865*	0.1523	6.4773
Adjusted R^2= 56.23 F-Value =38.45 P-Value=0.0023			
*Significant at 0.00 percent level ** Significant at 0.05 percent level *** Significant at 0.1 percent level			

Marital status of the respondent is positively associated with borrowings in the study area. If the hypothesis reveals that generally married households are more chance to approach micro-credit borrowing in the rural areas. So it is expected to have a positive relation in Micro credit borrowings, but not at significant level even at 10 percent level. Therefore, it indicates that there is no influence of marital status on Micro credit borrowings.

Family Size is a variable considered as number of persons living together in a single family. Here, the variable is observed to have a negative relation with rural respondents in the study area. The hypothesis indicates, the samples are more likely of family size since they have more micro credit borrowing capacity to maintain their families. The estimated coefficient is turned out to be statistically significant at 5 percent level and it indicates that a one percent increase in the size of the family leads to there may be 23.5 percent increase the micro credit borrowing in the study area.

Occupation is a dummy variable and specifies the employment status of the rural respondents. It takes value 1 for employee it is expected to have a positive relation as employee are having more Micro credit borrowings than the others in the study area. The estimated coefficient of the occupational status is statistically significant at 1 percent significance level and it indicates that if the respondent is employee then 12.62 percent increases to have more micro credit borrowing capacity in the study area.

Income of the sample respondents in the study area has positive relation with Micro credit borrowings in the study area. The hypothesis reveals that higher income of the households has greater capacity to have micro credit borrowings. The estimated coefficient of the income of the respondent is positively associated with micro credit borrowings at 1 percent significance level. It indicates that a one percent increase in income leads to there may be 98.65 percent increase the capacity of micro-credit borrowing in the study area.

Hence, income of the respondents shows influence on Micro credit borrowings of the respondents. This model is also the best fit because F value is 38.45 which is satisfactory at 1 percent significant level. The model also explains 56.23 of variation.

Visakhapatnam District:

In Visakhapatnam district, out of six independent variables, four variables are turned out to be statistically significant at different probability levels.

Age of the respondent is observed to have a positive relation in Micro credit borrowings of the sample respondents in the total study area. The hypothesis reveals that the older individuals are more likely to go for Micro credit borrowings since they have more Micro credit borrowing capacity at higher age group respondents. The estimated coefficient of the age of the respondent is statistically significant at 1 percent level and with expected positive sign and the coefficient indicates that as age of the respondent increases leads to there may be 45.72 percent increases the credit borrowing capacity in the study area.

Education is a variable which is estimated by number of school going years and it specifies the literacy status of the respondent. The literacy level is expected to have a positive significant relation in Micro credit borrowing amount among sample respondents. It is expected that the Micro credit borrowings are more where the literacy levels are high and vice-versa. The regression coefficient of this variable turned out to be statistically significant at 10 percent level with expected positive sign.

Marital status of the respondent is positively associated with borrowings in the study area. If the hypothesis reveals that generally married households are more chance to approach micro-credit borrowing in the rural areas. So it is expected to have a positive relation in Micro credit borrowings, but not at significant level even at 10 percent level.

Therefore, it indicates that there is no influence of marital status on Micro credit borrowings.

Family Size is a variable considered as number of persons living together in a single family. Here, the variable is observed to have a negative relation with rural respondents in the study area. The hypothesis indicates, the samples are more likely of family size since they have more micro credit borrowing capacity to maintain their families. The estimated coefficient is turned out to be statistically significant at 1 percent level. Therefore, it indicates that there is significant influence of family size on Micro credit borrowings.

Table-1: Regression Results of Determinants of Outstanding Debt in Visakhapatnam District

Independent variables	Co-efficient	Standard error	t-value
Intercept	10.235	4.326	2.3659
Age	0.4572*	0.0865	5.2855
Education	0.0072***	0.0039	1.8461
Occupation	1.0252	0.6355	1.6132
Family size	-1.8752*	0.5236	-3.5813
marital status	1.2351	1.0234	1.2067
Income	0.0764**	0.0372	2.0537

Adjusted R^2= 63.42
F-Value =41.28
P-Value=0.0001

*Significant at 0.00 percent level
** Significant at 0.05 percent level
*** Significant at 0.1 percent level

Occupation is a dummy variable and specifies the employment status of the rural respondents. It takes value 1 for employee it is expected to have a positive relation as employee are having more Micro credit borrowings than the others in the study area. The estimated coefficient of the occupational status is not statistically significant even at 10 percent significance level. Therefore it indicates that there is no influence of occupational status of the sample households on Micro credit borrowings.

Income of the sample respondents in the study area has positive relation with Micro credit borrowings in the study area. The hypothesis reveals that higher income of the households has greater capacity to have micro credit borrowings.

The estimated coefficient of the income of the respondent is positively associated with micro credit borrowings at 5 percent significance level. It indicates that a one percent increase in income leads to there may be 7.64 percent increase the capacity of micro-credit borrowing in the study area. Hence, income of the respondents shows influence on Micro credit borrowings of the respondents. This model is also the best fit because F value is 41.28 which is satisfactory at 1 percent significant level. The model also explains 63.42 of variation.

CONCLUSION:

It can be concluded from the analysis carried out in this paper that the independent variable considered for analysis are age, education, occupation, family size, marital status and income of the respondents are selected on the basis of the field experience and theoretical literature. The results of the analysis for the overall study area i.e., North Coastal Andhra Pradesh shows that the age, education, occupation and income of the respondents are significantly associated with micro credit borrowings at different probability level. At the disaggregate level, a little bit difference can be found with regard to the explanatory variable, which are turned out to be significant at different probability levels.

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