Chapter 2

CONCEPTUAL FRAMEWORK AND METHODOLOGY

2.1 THEORETICAL BACKGROUND

A theoretical framework is expected to perform two major functions, namely, explanation and prediction of a phenomenon. There is no universally acceptable theory of rural indebtedness, which can explain the existing phenomenon of rural indebtedness and predict its future course. What we have is a set of hypotheses and propositions that constitute higher-level generalizations in finding the magnitude of indebtedness in the rural sector. Rural indebtedness is a subset of rural development and therefore, hypotheses of rural development to a certain extent, if not perfectly, also apply to the problem of rural indebtedness. Many such hypotheses emphasize both economic and non-economic determinants. It is also to be noted that most of the hypotheses propounded by development theorists are refractory (Nayyar, 1991).

The Modernization theory or the ‘Free World’ model of development of the capitalist school identified both economic and non-economic factors contributing to the growth and development. The essence of the theory was the transfer of western technology and rationality, without changing class structure as a means of development and removal of all social and ideological obstacles to such a process. Application of western science and technology is assumed to increase production, which is the foremost task to come out of clutches of extreme poverty and indebtedness. The development stage is not sudden but in stages, through which traditional Social and Political institutions are replaced by modern concepts and ideas. Thus, according to the modernization theory, technological transformation of agriculture is needed to free rural families from the grip of indebtedness. The theory asserts that use of modern technology for increasing production will lead to a shift towards greater scientific temper and secular values and norms (Nayyar, ibid).
The *Dependency theory of the Marxist School* stated that 'underdevelopment' in the developing countries (the periphery) is the result of 'development' in developed countries (the core/center). In the context of rural development, it provides a useful condition that, while identifying the determinants of rural development critical examination of various inter-sectoral linkages (both backward and forward) and interactions and determination of their usefulness to rural households is quite necessary. It is also no doubt the fact that urban areas are now more developed at the cost of underdevelopment of rural areas. Rural families are forced to migrate to urban areas, mainly due to their incapability of accessing basic needs of life. In perspective of Rosenstein-Rodan's theory of the 'Big-Push', a minimum quantum of investment is a necessary at least to set on the path of success. Rosenstein-Rodan argue that a big-push in terms of a high quantum of investment is needed to scale the economic obstacles to development created by various indivisibilities and the external economies to which they give rise. Investment by government in the rural areas, in particular, may help stimulate agricultural activities, which in turn increase the per capita income of rural households and they may be in a better position to pay off their debts (Nayyar, ibid).

*Leibenstein’s ‘Critical Minimum Effort Thesis’* is another paradigm, which provides good clues for rural upliftment and development. His theory opines that to attain sustained secular growth, it is essential that the initial stimulant to development be of a certain critical minimum size. Economic backwardness is characterized by a set of interrelated factors, which have a certain degree of stability at their small equilibrium values. The actual values are different from the equilibrium values, because the economy is always being subjected to stimulants or shocks. The stimulant raises per capita incomes above the equilibrium level. Therefore, an effort to escape from economic backwardness, either spontaneous or forced, a level of critical minimum effort is required. This will overcome income-depressing obstacles such as indebtedness and poverty (Nayyar, ibid).

*Cochrane Model* based upon the model of Lewis and of Fei and Ranis observes that there is need of creation of investment capital necessary for employing the surplus workers released
from agriculture. He suggests that the resources to finance the expensive process of agricultural modernization can be obtained in any one or in a combination of three ways – (a) by squeezing more agricultural surplus, (b) by slowing down the rate of investment in the non-farm sector and in basic infrastructure; and (c) by obtaining foreign loans and grants. He emphasized that for growth of agriculture in a developing country, the pull exerted on agriculture through higher market prices will not be enough. Agriculture must be pushed and pushed hard, by a strategy emphasizing the use of modern technology infrastructure and services. Green Revolution introduced in the country in 1960s is a good example showing the technological transformation of agrarian economy, which has not only increased production and productivity manifold but also improved living standards of rural folk. Similarly, the operation flood programme helped in modernizing India’s dairy industry (Nayyar, ibid).

Thus, there is no universally valid theory of rural development; but various paradigm and hypotheses of development furnish valuable insights into the process and determinants of rural development in general and removal of rural indebtedness particularly. It would be better to extract relevant elements from various paradigm and synthesize them into an operational framework of rural development which suits the research period and circumstances. There is a set of elements or factors that is common to most of the paradigms of development. These are natural resources, new technology, capital accumulation and investment, educated, technically trained, enterprising and motivated human labour with values and ethos congenial to rural development, and an appropriate institutional and organizational framework.

2.2 CONCEPTS AND DEFINITIONS

A brief account of important concepts that has been used in the present study is explained as under:
The present study mainly focuses on rural indebtedness of households. **Rural indebtedness** refers to the debts or loans taken by the rural people in order to meet their consumption and non-consumption needs. Indian peasants are proverbially indebted due to their small and marginal holdings and lack of subsidiary occupation, besides many other factors. The most important cause of rural indebtedness is mass poverty of the farmer. A household according to our study is considered as an **indebted household** if it has taken loan from others and part or whole of which remains **outstanding** at the time of investigation. Indebtedness has been calculated on the basis of borrowed amount plus interest at the date of survey (NSSO 48th Round, 1992).

Loan includes borrowings in cash and/or kind and credit purchases made by the households. If the nature, source and purpose of two or more loans are similar, they are treated as a single loan. Borrowings in kind are evaluated at the retail prices prevailing in the local market at the time of borrowing. An advance payment received for forward delivery of goods is also regarded as a loan. The dues on time of credit purchases, like newspaper, milk, services of maid services, etc., are also treated as loans (NSSO, ibid).

In the present study, a household is taken as unit of analysis. A **household** consists of members of a family who partake of meals from the same kitchen. However, per capita estimates may also be used for more meaningful interpretation. **Household size** is taken to be the number of members normally residing in a household. This size will include temporary stay-aways but will exclude temporary visitors and guests of the household. Any person who is a normal resident of the sample household is considered as the **member of the household**. The members of a household may or may not be related by blood to one another. Accordingly, any person who usually lives and takes the principal meals with the household is also considered a member of the household. Every household owns certain physical assets, financial assets and dues receivable on loans assets, which is grouped as **household assets**. All these have money value. All claims against the household held by others are considered as liabilities of the household. Thus, **liabilities of a household** will
include all loans of the household, irrespective of whether they are in cash or kind, unpaid bills of grocers, doctors, lawyers etc. The expenditure incurred by a household on domestic consumption during the reference period is the household’s consumption expenditure. It consists of expenditure on non-durable and semi-durable [food, betel leaves (pan), tobacco, intoxicants and fuel & light, and clothing and footwear] and durable items, services and marriages and other socio-religious ceremonies. The wages received in kind by the agricultural labourers will be included in the total consumption of the household for estimation of household consumption expenditure (NSSO, ibid).

Marginal farmers, small farmers and also agricultural labourers are together referred to as weaker sections. Agricultural Labourer is a labourer who mostly hires out labour in the agricultural sector and whose major source of income is agricultural wages. A person is treated as an agricultural labourer if he/she follows one or more of the following agricultural occupations in the capacity of a labourer on hire, whether paid wholly in cash or kind or partly in cash and partly in kind:

(a) Farming including cultivation, tillage, etc.
(b) Dairy farming;
(c) Production, cultivation, growing and harvesting of any horticultural commodity;
(d) Raising of livestock, bee-keeping, piggery or poultry farming;
(e) Any practice performed on a farm as incidental to or in conjunction with farm operations (including any forestry or timbering and the preparation for market and delivery to storage or to market or to carriage for transportation to market of farm products).

Income of agricultural labourers consists of wages (in cash and in kind) of the members of a household working as casual or permanent workers in and outside agriculture. The receipts in kind are converted into cash by using the market prices of commodities, taking into account average price level. In addition to wages, income from other sources like dairying, poultry, piggery, etc. are also included. Marginal Farmer is a farmer who owns
one hectare or less land and whose major source of income is agricultural production. **Small Farmer** is a farmer who owns more than one hectare but less than or up to five hectares of land and whose major source of income is agricultural production. **Farm income of marginal and small farmers** is calculated by deducting the cost of materials (purchased or home produced), paid labour and sundry costs (mainly rent of land) from the value of gross crop output. **Large Farmer** is a farmer who owns more than five hectares of land and whose major source of income is agricultural production (NSSO, ibid). A person who is engaged in any non-farm business and/or an employee of an organization - either private or government or a professional and whose major source of income is not agricultural production is included in **Others** category.

Rural households find no way but to take loans as their standard of living is extremely low. They are caught in vicious circle of poverty and loans bestow some degree of relief to these poor. Loans/credits are taken from various sources. **Sources of credit/credit agency** are divided into two main categories-institutional sources and non-institutional sources. A **credit agency** is a person, an association of persons or an organization dispensing loans to a household. **Institutional Sources** consist of Cooperative Credit Societies, Regional Rural Banks, NABARD, Village Development Boards and other commercial Banks. **Non-institutional sources** include money-lenders, relatives and friends, doctors and lawyers, and merchants and grocers. The specific forms of **institutional credit agencies** that are considered in the present study are defined below:

(i) **Government**: The Central and state governments may act as an agency for advancing loans. Government may advance loans through Departments like Revenue, Agriculture, Industries or Rural Development etc. Finance from Government may also be channeled through Khadi and Village Industries Commission. All loans received from the above sources are treated as from ‘Government’.

(ii) **Cooperative Society/Bank**: Loan may be obtained from agencies, such as cooperative society/banks like Primary Cooperative Credit Societies, Primary Cooperative Marketing Societies, district or central cooperative banks, primary or
central loan development banks, handloom weavers' cooperative societies and other industrial or other types of cooperative societies etc. Such societies/banks have been treated as 'cooperative society/bank'.

(iii) **Commercial Banks including Regional Rural Bank:** All loans taken from commercial banks, including nationalized banks, regional rural banks and State Bank of India.

(iv) **Village Development Board (VDB):** The VDB is a statutory body, functioning under the Village Council. This is a grass root level institution acting as financial intermediary to manage its own rural credit and loan activities. Grant-in-aid to the VDBs is a state sponsored scheme introduced during 1980-81 for the creation of minimum infrastructure and special employment programme in every recognized village in Nagaland (NSHDR, 2004).

The specific forms of **Non-Institutional Sources** considered in the study are defined below:

(i) **Landlord:** The credit agency for loans given by land lords to their own tenants are taken as 'land lord'. If the tenant takes a loan from a person who is not his landlord, but belonged to the landlord class, the credit agency in such cases are taken as 'agriculturist money lender' or 'professional money lender' etc., depending upon the type of money lending business done by the landlord.

(ii) **Agriculturist money lender:** An agriculturist money lender is defined as one whose major profession is agriculture and whose money lending business is, comparatively, of minor importance.

(iii) **Professional money lender:** A professional money lender is a person who earns a major part of his income from money lending.

(iv) **Trader:** A trader is defined as a person whose principal occupation is trading and lends money to the farmers as a side business.

(v) **Relatives & friends:** If a loan is received from one of the relatives or friends free of interest, it is considered as a loan taken from 'relatives and friends'. If the loan
carries an interest, it is considered as taken from an ‘agriculturist money lender’, ‘trader’ etc., depending upon the type of business carried out by the relative or the friend.

(vi) **Others:** Any non-institutional credit agencies not covered above are considered under this category.

Peasants take loans for various purposes. **Purpose of loans** is divided into two main categories—productive purposes and non-productive purposes. In **productive purposes**, we have included loans taken for purchasing machinery and implements, inputs and repairs and livestock and for irrigating land. These together are called ‘Capital & Current expenditure in agriculture’. Productive purpose also includes loans taken for some kind of non-agricultural business i.e., ‘Non-farm business’ and loans taken for education purpose. In **non-productive purposes**, we include loans for house construction, marriages and other ceremonies and family maintenance and expenditure, medical and repayment of earlier debts. The ability to pay back the loans is known as the **repaying capacity** of the household, which is defined in terms of savings, that is, the net income of the household over and above consumption expenditure and working expenses (NSSO, ibid).

It has been observed through empirical studies that rural households are increasingly being caught in the trap of indebtedness, not only in India but in almost all the less developing countries in particular. This is mainly on account of severe poverty, which has entrapped all LDCs. One of the ways in which income of the rural poor can be raised and bring about improvement in their standard of living is provision of micro-credit. **Micro-credit/finance** is the provision of thrift, credit and other financial services and products of very small amounts to the poor in rural, semi-urban or urban areas enabling them to raise their income levels and improve living standards. Micro credit loans are generally advanced for self-employment projects but they are sometimes advanced for consumption as well.
2.3 METHODOLOGY AND DATA SOURCE

The study is based on empirical analysis of the economic conditions of the rural households in general and weaker sections namely- agricultural labourers, marginal farmers and small farmers in order to examine the magnitude of rural indebtedness and sources and purposes of rural credit in the state. The data pertains to the period 2006-07. The sampling design for collecting primary data used is a multi-stage random sampling explained as below:

(i) Selection of districts
(ii) Selection of blocks and villages
(iii) Selection of households

2.3.1 SELECTION OF DISTRICTS

The state of Nagaland is taken as universe of the study and a random sample of 25 per cent of the total districts is selected on the basis of the level of economic development. Thus, out of eleven districts at present, a total of three districts are selected. These are Dimapur, Kohima, and Mon. Mon is relatively less developed economically than Kohima and Dimapur.

2.3.2 SELECTION OF BLOCKS AND VILLAGES

Of the three districts that are selected, a sample of 25 per cent of total blocks from each district is selected at random. Out of four (4) blocks in Dimapur district, one (1) block is selected. Similarly, out of seven (7) blocks in Kohima district, two (2) blocks are selected. There are six blocks in Mon district, of which two (2) blocks are selected for the purpose of present study. Thus, out of fifty two (52) blocks in Nagaland and seventeen (17) blocks of the sample districts, a sample of five (5) blocks is randomly selected. From each block two (2) villages are selected randomly. Thus, in Dimapur, two (2) villages are selected, and in Kohima and Mon four (4) villages each are selected. In total ten (10) villages of the sample blocks are selected randomly for the present study.
2.3.3 SELECTION OF HOUSEHOLDS

From each sample village, a sample of 30 households is selected at random for the present study. Thus, 60 households from 2 villages in Dimapur, 120 households from 4 villages in Kohima, and 120 households from 4 villages in Mon are selected, which totals to a sample of 300 households from the sample districts. The assignment of percentage criterion is avoided purposefully in case of selection of villages and households in order to restrict the number of families to a manageable sample. Moreover, some of the villages are inaccessible due to difficult terrain, remoteness, and lack of road transportation. There is also the problem of insurgency posing a major limitation during the survey. The number of households investigated is shown in the table 2.1.

Table 2.1

Number of Households Investigated in Nagaland

<table>
<thead>
<tr>
<th>District</th>
<th>Block</th>
<th>Village</th>
<th>A.L</th>
<th>M.F</th>
<th>S.F</th>
<th>L.F</th>
<th>Others</th>
<th>All/Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimapur</td>
<td>Niuland</td>
<td>Nihokhu</td>
<td>1</td>
<td>15</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>30</td>
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<tr>
<td></td>
<td></td>
<td>Hovishe</td>
<td>-</td>
<td>20</td>
<td>5</td>
<td>5</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td><strong>Sub-Total</strong></td>
<td><strong>1</strong></td>
<td><strong>35</strong></td>
<td><strong>25</strong></td>
<td><strong>7</strong></td>
<td><strong>2</strong></td>
<td><strong>0</strong></td>
<td><strong>60</strong></td>
</tr>
<tr>
<td>Kohima</td>
<td>Chiephobozou</td>
<td>Botsa</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chiephobozou</td>
<td>3</td>
<td>13</td>
<td>2</td>
<td>2</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Tseminyu</td>
<td>Tseminyu vill.</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>3</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tseminyu tn.</td>
<td>2</td>
<td>12</td>
<td>9</td>
<td>-</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td><strong>Sub-Total</strong></td>
<td><strong>15</strong></td>
<td><strong>37</strong></td>
<td><strong>25</strong></td>
<td><strong>10</strong></td>
<td><strong>3</strong></td>
<td><strong>0</strong></td>
<td><strong>120</strong></td>
</tr>
<tr>
<td>Mon</td>
<td>Mon</td>
<td>Chui</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>5</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leangha</td>
<td>6</td>
<td>10</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Tobu</td>
<td>Mopong</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yakshu</td>
<td>6</td>
<td>11</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td><strong>Sub-Total</strong></td>
<td><strong>26</strong></td>
<td><strong>35</strong></td>
<td><strong>30</strong></td>
<td><strong>14</strong></td>
<td><strong>15</strong></td>
<td><strong>0</strong></td>
<td><strong>120</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>42</strong></td>
<td><strong>107</strong></td>
<td><strong>70</strong></td>
<td><strong>31</strong></td>
<td><strong>50</strong></td>
<td><strong>300</strong></td>
</tr>
</tbody>
</table>

AL= Agricultural Labourer (Landless labourers), MF=Marginal Farmer (0-1 Ha), SF=Small Farmer (1-5 Ha), LF=Large Farmer (> 5 Ha), Others= Non-cultivators

Source: Field Survey
2.4 SOURCES AND TOOLS OF COLLECTING DATA

The study is based on both secondary and primary data. Secondary data have been collected from various government and private publications, reports, journals and magazines, national and state newspapers, related websites, etc. Primary data were collected from sample households from each sample village in the state through personal interviews using pre-structured questionnaire. The questionnaire has been tested by a pilot survey of 25 households in order to bring in light any modifications or changes in the set of questions. One of the major limitations of the study is that rural households do not maintain the accounts of their money transactions, income and production etc. So they provided data mainly by recollections and out of their memories. Most of the respondents were reluctant to speak anything about the loans they have taken and about the utilization of the same. However, best has been done to take out the most of information from the rural families by explaining them the usefulness of the study. Moreover, asking indirect questions and cross examining have helped a lot in getting right information.

Information relating to over dues/outstanding etc has been collected mainly from Banks, NGO’s and other agencies providing rural credit in the state through direct personal interview method of collecting data. The questionnaire focused mainly on the following:

I. Identification particulars, household characteristics, type, main occupation, household size, tribe and demographic information regarding household.

II. Particulars of landholdings.

III. Household income.

IV. Household debt, sources, and purposes.

V. Reasons for non-repayment of debt and indebtedness.

VI. Expenses of and income/production from agriculture and income from non-agricultural activities.

VII. Income from hiring out permanent and causal labour in agriculture.
VIII. Household consumption expenditure.

IX. Miscellaneous information.

2.5 ANALYSIS OF DATA

Data that were collected through secondary and primary sources were first examined through tabular analysis and conclusions were derived from such analysis. To further substantiate our findings, we tested the following models.

Per capita debt is an important indicator of the burden of indebtedness. It reflects the debt burden of a family, though the real burden would indeed be determined by the reasons for the debt as well as the source of the debt. Therefore, we first tried to identify important factors that determine per capita debt in the state. An important aspect of indebtedness, particularly in the rural areas is that, farmers with lower level of literacy are more susceptible to be exploited by the moneylenders, because of their simplicity and ignorance. Such debtors also fear going to the banks for the fear of fulfilling the formalities, which according to them can be performed only by the literate farmers. The opposite is the behavioural pattern among the literate farmers. Consequently, education which has hardly been considered as an important determinant of indebtedness so far will be used for our purpose as an explanatory variable, and therefore, the first function, that we specified is as follows:

\[ D_b = a - b \text{Lit} \]

Where,

\[ D_b \quad = \quad \text{Debt per capita} \]
\[ \text{Lit} \quad = \quad \text{Literacy rate of the head of the household} \]

The common experience in most parts of the country is that rural debt is incurred mostly by the poorer section and debt is undertaken by the rich mostly for productive purposes. The
simple logic behind this is that if there is sufficient income from all sources the necessity to incur debt may not be too severe. The next model therefore was developed to examine whether income of the family influenced per capita debt in the rural Nagaland.

\[ D_b = a + b \ln \text{Income} \]  

Where,
- \( D_b \) = Debt per capita
- \( \text{Income} \) = Income of the household

The third model attempts to find the combined effect of family size and literacy rate on per capita debt. The model thus specified is as follows:

\[ D_b = a + bFm - c\text{Lit} \]

Where,
- \( D_b \) = Debt per capita
- \( Fm \) = Family size
- \( \text{Lit} \) = Literacy rate of the head of the household

A similar model was developed to find the influence of family size and income of the household together, on per capita debt, which is as under:

\[ D_b = a + bFm + c\text{Income} \]

Where,
- \( D_b \) = Debt per capita
- \( Fm \) = Family size
- \( \text{Income} \) = Income of the household
The next model shown as under incorporates literacy level of the head of the household along with family size and income as explanatory variables to examine whether their combined effect influences per capita debt in any manner.

\[ D_b = a + bFm - cLit + dIn \]  

(5)

Where,

- \( D_b \) = Debt per capita
- \( Fm \) = Family size
- \( Lit \) = Literacy rate of the head of the household
- \( In \) = Income of the household

Debt from non-institutional sources is very common and more prominent in India. To see how important this source among the rural households in Nagaland is, the following models have been used. Model-(6) incorporates literacy level of the head of the family and attempts to see if in any way, it affects the borrowing pattern of a family as far as non-institutional sources are concerned. Borrowing habits largely depends on the educational level. It is seen that in rural India where most of the farmers are not literate, depend on non-institutional loans for their credit requirement.

\[ D_{NI} = a - bLit \]  

(6)

Where,

- \( D_{NI} \) = Debt from Non-Institutional sources
- \( Lit \) = Literacy rate of the head of the household

In the next model, family size is included as the explanatory variable to find how it affected credit borrowing from non-institutional sources. As is the common experience among the
poverty stricken rural people that inspite of knowing to bear the burden of debts from non-institutional sources yet under acute financial pressure for the purpose of maintaining the family they are compelled to resort to such borrowings.

\[ D_{NI} = a + bFm \] \hspace{1cm} (7)

Where,
- \( D_{NI} \) = Debt from Non-Institutional sources
- \( Fm \) = Family size

Total income of the farmers from various sources often determines the volume of debt. If the farmers have income from sources other than agriculture, he may use such income for agricultural production; so that the burden of debt may be reduced. In contrast income only from agriculture may reduce his volume of income and hence increase the burden of debt. Hence, the next function that we have adopted is with income of the household as an explanatory variable for non-institutional borrowings.

\[ D_{NI} = a + bIn \] \hspace{1cm} (8)

Where,
- \( D_{NI} \) = Debt from Non-Institutional sources
- \( In \) = Income of the household

In the following model, family size and income of the family were included to examine the influence on borrowing behaviour of the rural households from non-institutional sources.

\[ D_{NI} = a + bFm + cIn \] \hspace{1cm} (9)
Where,

- $D_{ni}$ = Debt from Non-Institutional sources
- $Fm$ = Family size
- $In$ = Income of the household

In the model below, another factor i.e., literacy level of the head of the family is included besides family size and income of the family to see the combined affect on debt availed from non-institutional sources.

$$D_{ni} = a + bFm + cIn - dLit \quad \cdots \cdots \cdots \cdots \cdots \cdots \cdots \cdots \cdots (10)$$

Where,

- $D_{ni}$ = Debt from Non-Institutional sources
- $Fm$ = Family size
- $Lit$ = Literacy rate of the head of the household
- $In$ = Income of the household

To find the importance of non-institutional sources in total rural credit and see the extent of their usage for various purposes in the state, models-(11) to (16) were used. First, we have adopted the model to examine the extent to which debt from non-institutional sources is for the purpose of investment in the agricultural sector, which is one of their main occupations. This is reflected by model-(11).

$$D_{ni} = a + bAg \quad \cdots \cdots \cdots \cdots \cdots \cdots \cdots \cdots \cdots (11)$$

Where,

- $D_{ni}$ = Debt from Non-Institutional sources
- $Ag$ = Capital & current expenditure in agriculture
The next model shown as under used expenditure for education purpose as an explanatory variable and tried to explain the debt burden in the state.

\[ D_{NI} = a + bEd \]  

(12)

Where,

\[ D_{NI} \] = Debt from Non-Institutional sources

\[ Ed \] = Expenditure on education

Next we have used a composite model and used the explanatory variables such as debt for consumption, for marriage and other social ceremonies and for educational purposes in an attempt to examine the relative weightage of the independent variables.

\[ D_{NI} = a + bConspn + cMrg + dEd \]  

(13)

Where,

\[ D_{NI} \] = Debt from Non-Institutional sources

\[ Conspn \] = Consumption expenditure

\[ Mrg \] = Marriage & other ceremonies

\[ Ed \] = Expenditure on education

The next model combined consumption expenditure, expenditure for social ceremonies and repayment of earlier debts to see if it explains non-institutional debt in Nagaland.

\[ D_{NI} = a + bConspn + cMrg + dRypmt \]  

(14)

Where,

\[ D_{NI} \] = Debt from Non-Institutional sources

\[ Conspn \] = Consumption expenditure

\[ Mrg \] = Marriage & other ceremonies

\[ Rypmt \] = Repayment of earlier debt
Model (15) below uses capital and current expenditure in agriculture and education as explanatory variables to see if rural households in Nagaland availed loans for these purposes from non-institutional sources. Here, education does not refer to educational level or literacy rate but means loans that households have taken for spending on their children's education.

\[ D_{NI} = a + bAg + cEd \]  \hspace{2cm} (15)

Where,

\[ D_{NI} \] = Debt from Non-Institutional sources  
\[ Ag \] = Capital & current expenditure in agriculture  
\[ Ed \] = Expenditure on education

Model (16) is another composite model tried to explain non-institutional debt in the state.

\[ D_{NI} = a + bConspn + cMrg + dRypmt + eEd \]  \hspace{2cm} (16)

Where,

\[ D_{NI} \] = Debt from Non-Institutional sources  
\[ Conspn\] = Consumption expenditure  
\[ Mrg \] = Marriage & other ceremonies  
\[ Rypmt \] = Repayment of earlier debt  
\[ Ed \] = Expenditure on education

Another important source of credit is institutional source which provides a major part of the rural credit in India. We therefore examined the major determinants of the institutional debt and studied whether they are similar to that of the non-institutional debt or they are characterized by different set of determinants. The first model tries to find the relationship between family size and debt from institutional sources.
The next model uses family size and income of the household together to examine their strength as determinants of institutional debt.

\[ D_{\text{inst}} = a + bFm + cIn \]  

Where,

\[ D_{\text{inst}} = \text{Debt from Institutional sources} \]
\[ Fm = \text{Family size} \]
\[ In = \text{Income of the household} \]

The model-(19) below tries to relate literacy rate, family size and income of the family with debt from institutional sources. These are the important determinants which may influence debt of a household significantly.

\[ D_{\text{inst}} = a + b\text{Lit} + cFm + dIn \]  

Where,

\[ D_{\text{inst}} = \text{Debt from Institutional sources} \]
\[ \text{Lit} = \text{Literacy rate of the head of the household} \]
\[ Fm = \text{Family size} \]
\[ In = \text{Income of the household} \]

In models (20) to (29), we included those factors which are related to purpose of debt. We have tried to find if these factors are significant enough to explain debt burden in the state,
either independently or in association with other factors. Since it is the experience of the poverty-stricken rural sector of the Indian economy including that of the North-East that households belonging to lower income groups incur a substantial proportion of debt for consumption purposes, the next function that we specified is as follows:

\[ D_{\text{inst}} = a + b \text{Conspn} \]  

(20)

Where,

- \( D_{\text{inst}} \) = Debt from Institutional sources
- \( \text{Conspn} \) = Consumption expenditure

A problem in the Indian economy is that a significant proportion of debt is incurred for the purpose of repayment of debts incurred earlier. In other words it implies that money is borrowed not for the purpose of investment, which would have considerably reduced the burden of repayment, but only for paying off earlier debts. This practice, which is more common among the lower income groups of the population not only increases the burden of debt, but also results in perpetuation of debt from one generation to another. To examine whether similar problem exists in Nagaland, next model that we specify is as follows:

\[ D_{\text{inst}} = a + b \text{Rypmt} \]  

(21)

Where,

- \( D_{\text{inst}} \) = Debt from Institutional sources
- \( \text{Rypmt} \) = Repayment of earlier debt

The most important purpose of institutional source of borrowing is for productive purposes, particularly agricultural purposes since farmers constitute the bulk of our sample size. The next model is therefore as follows:
\[ D_{\text{inst}} = a + bAg \] ................................. (22)

Where,
\[ D_{\text{inst}} = \text{Debt from Institutional sources} \]
\[ Ag = \text{Current & capital expenditure in agriculture} \]

Since education is an important determinant of non-institutional debt, we wanted to equally determine borrowing from institutional sources and examine whether it explains institutional debt in the state. Therefore the model below uses expenditure on education as an explanatory variable to explain its significance in influencing total debt in the state.

\[ D_{\text{inst}} = a + bEd \] ................................. (23)

Where,
\[ D_{\text{inst}} = \text{Debt from Institutional sources} \]
\[ Ed = \text{Expenditure on education} \]

Model-(24) includes expenditure on marriage and other social ceremonies, which is an important determinant of debt burden.

\[ D_{\text{inst}} = a + bMrg \] ................................. (24)

Where,
\[ D_{\text{inst}} = \text{Debt from Institutional sources} \]
\[ Mrg = \text{Marriage & other ceremonies} \]

Among the poverty stricken people expenses to meet medical expenditure constitutes an important source of debt since medical expenses are hardly compromised by anybody. In an attempt to examine its relative weightage in Naga society the next model that we adopted is as follows:
\[ D_{\text{Inst}} = a + b\text{Med} \]  \hspace{1cm} (25)

Where,
\[ D_{\text{Inst}} = \text{Debt from Institutional sources} \]
\[ \text{Med} = \text{Expenditure on medical} \]

In the next model we have used both expenditure on medical expenses and social ceremonies in the same model to see if both these variables appear to be significant determinants of institutional debts in the state.

\[ D_{\text{Inst}} = a + b\text{Med} + c\text{Mrg} \]  \hspace{1cm} (26)

Where,
\[ D_{\text{Inst}} = \text{Debt from Institutional sources} \]
\[ \text{Mrg} = \text{Marriage & other ceremonies} \]
\[ \text{Med} = \text{Expenditure on medical} \]

Model (27) attempts to examine the extent of debt from institutional sources used for education purpose and expenditure on agriculture by the rural households in the state.

\[ D_{\text{Inst}} = a + b\text{Ag} + c\text{Ed} \]  \hspace{1cm} (27)

Where,
\[ D_{\text{Inst}} = \text{Debt from Institutional sources} \]
\[ \text{Ag} = \text{Capital & current expenditure in agriculture} \]
\[ \text{Ed} = \text{Expenditure on education} \]

Another model with following variables has been used to explain the debt burden in the state.
\[ D_{\text{Inst}} = a + b \text{Conspn} + c \text{Mrg} + d \text{Med} + e \text{Rypmt} \] ................. (28)

Where,
- \( D_{\text{Inst}} \) = Debt from Institutional sources
- \( \text{Conspn} \) = Consumption expenditure
- \( \text{Mrg} \) = Marriage & other ceremonies
- \( \text{Med} \) = Expenditure on Medical
- \( \text{Rypmt} \) = Repayment of earlier debt

In the final model we included all the variables in a single equation of the following type.

\[ D_{\text{Inst}} = a + b \text{Med} + c \text{Mrg} + d \text{Conspn} + e \text{Rypmt} + f \text{Ed} \] .............. (29)

Where,
- \( D_{\text{Inst}} \) = Debt from Institutional sources
- \( \text{Med} \) = Expenditure on medical
- \( \text{Mrg} \) = Marriage & other ceremonies
- \( \text{Conspn} \) = Consumption expenditure
- \( \text{Rypmt} \) = Repayment of earlier debt
- \( \text{Ed} \) = Expenditure on education

The estimated results thus obtained from the above regression equations will be examined for cross section of the population in the state in the light of the results that will be obtained through tabular analysis of the primary data and thus conclusions will be derived in order to capture the essence of the extent of indebtedness and the burden of rural debt in the state.
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