Chapter – I

INTRODUCTION AND METHODOLOGY
1.1 INTRODUCTION

Attainment of higher rate of economic growth is a major goal of national policy in all the countries of the world irrespective of their level of development and differences in their political and social structure. For developing countries, such as those included in the Third World category, particularly a country with massive population and resource problems like India, a higher rate of economic development is more essential for breaking the vicious circle of poverty.

Economic development is a multi-dimensional process involving the complexity of interrelated and inter-dependent factors such as the amount, quality and availability of natural resources, the labour force, the accumulation of capital goods, the amount of innovation in management, investment opportunities plus a desire to invest, a satisfactory equilibrium in the balance of payments so that the needed raw materials and machines can be imported as also certain surplus goods which can be exported. Since all these factors are interrelated it would be a Herculean task to isolate them and to assess the contribution of each factor separately. But, of all the factors, the rate of new capital accumulation plays a role of paramount importance in the process of economic growth. The history of the advanced countries shows that their periods of expansion have always been characterized by the high rate of capital formation. But for a developing country
having a high propensity to consume, it is not possible to
generate sufficient resources internally to sustain the process of
economic development. It is in this context, financial institutions
which are acting as agents for both capital mobilization and capital
investment are gaining considerable significance in the process of
economic growth. Thus, of many structural and institutional
changes that are necessary in the developing countries not the
least important is the adoption of financial institutions to serve the
objectives of development and to bring about greater mobility of
resources to meet the emerging needs of the economy.

1.2 FINANCIAL INTERMEDIATION

Finance and growth are intimately interlinked. As the
economy grows and becomes more sophisticated, the banking
sector has to develop pari passu in a manner that it supports and
stimulates such growth. With increasing global integration, the
Indian banking system and financial system has had to be as a
whole strengthened so as to be able to compete. India has had
more than a decade of financial sector reforms during which there
has been substantial transformation and liberalization of the whole
financial system. It is, therefore, an appropriate time to take stock
and assess the efficacy of our approach. It is useful to evaluate
how the financial system has performed in an objective
quantitative manner. This is important because India’s path of
reforms has been different from most other emerging market
economies: it has been a measured, gradual, cautious, and steady process, devoid of many flourishes that could be observed in other countries.

1.3 REFORMS IN FINANCIAL SECTOR

The initiation of financial reforms in the country during the early 1990s was to a large extent conditioned by the analysis and recommendations of various committees/working groups setup to address specific issues. The process has been marked by 'gradualism' with measures being undertaken after extensive consultations with experts and market participants. From the beginning of financial reforms, India has resolved to attain standards of international best practices and to fine tune the process keeping in view the underlying institutional and operational considerations. Reform measures were introduced across sectors as well as within each sector. Attempts were made to simultaneously strengthen the institutional framework while enhancing the scope for commercial decision-making and market forces in an increasingly competitive framework. At the same time, the process did not lose sight of the social responsibilities of the financial sector. However, for fulfilling such objectives, rather than using administrative fiat or coercion, attempts were made to provide operational flexibility and incentives so that the desired ends are attended to through broad interplay of market forces.
The major aim in the early phase of reforms, known as first generation of reforms, was to create an efficient, productive and profitable financial service industry operating within the environment of operating flexibility and functional autonomy. While these reforms were being implemented, the world economy also witnessed significant changes, 'coinciding with the movement towards global integration of financial services'\(^5\). The focus of the second phase of financial sector reforms starting from the second-half of the 1990s, therefore, has been the strengthening of the financial system and introduction of structural improvements.

Two brief points need to be mentioned here. First, financial reforms in the early 1990s were preceded by measures aimed at lessening the extent of financial repression. However, unlike in the latter period, the earlier efforts were not part of a well-thought out and comprehensive agenda for extensive reforms. Second, financial sector reform in India was an important component of the comprehensive economic reform process initiated in the early 1990s. Whereas economic reforms in India were also initiated following an external sector crisis, unlike many other emerging market economies where economic reforms were driven by crisis followed by a boom-bust pattern of policy liberalization, in India, reforms followed a consensus driven pattern of sequenced liberalization across the sectors\(^6\). That is why despite several changes in government there has not been any reversal of direction in the financial sector reform process over the last 15
years. An important salient feature of the move towards globalization of the Indian financial system has been the intent of the authorities to move towards international best practices.  

1.4 BANKING REFORMS

Commercial banking constitutes the largest segment of the Indian financial system. Despite the general approach of the financial sector reform process to establish regulatory convergence among institutions involved in broadly similar activities, given the large systemic implications of the commercial banks, many of the regulatory and supervisory norms were initiated first for commercial banks and were later extended to other types of financial intermediaries.

After the nationalization of major banks in two waves, starting in 1969, the Indian banking system became predominantly government owned by the early 1990s. Banking sector reform essentially consisted of a two-pronged approach. While nudging the Indian banking system to better health through the introduction of international best practices in prudential regulation and supervision early in the reform cycle, the idea was to increase competition in the system gradually. The implementation periods for such norms were, however, chosen to suit the Indian situation. Special emphasis was placed on building up the risk management capabilities of the Indian banks.
Measures were also initiated to ensure flexibility, operational autonomy and competition in the banking sector. Active steps have been taken to improve the institutional arrangements including the legal framework and technological system within which the financial institutions and markets operate. Keeping in view the crucial role of effective supervision in the creation of an efficient and stable banking system, the supervisory system has been revamped.

1.5 PERFORMANCE OF BANKING SECTOR UNDER THE REFORM PROCESS

Banking sector reform has established a competitive system driven by market forces. The process, however, has not resulted in disregard of social objectives such as maintenance of the wide reach of the banking system or channelisation of credit towards disadvantaged but socially important sectors. At the same time, the reform period experienced strong balance sheet growth of the banks in an environment of operational flexibility. A key achievement of the banking sector reform has been the sharp improvement in the financial health of banks, reflected in significant improvement in capital adequacy and improved asset quality. This has been achieved despite convergence of the prudential norms with the international best practices. There have also been substantial improvements in the competitiveness of the Indian banking sector reflected in the changing composition
of assets and liabilities of the banking sector across bank groups. In line with increased competitiveness, there has been improvement in efficiency of the banking system reflected inter alia in the reduction in interest spread, operating expenditure and cost of intermediation in general. Contemporaneously there have been improvements in other areas as well including technological deepening and flexible human resource management. A more detailed discussion on the performance analysis of the banking sector under the reform process follows.

1.6 SOCIAL OBJECTIVES AND BALANCE SHEET MANAGEMENT

The Indian banking system has acquired a wide reach judged in terms of expansion of branches and the growth of credit and deposits. The expansion of branch network reached a peak in the phase of social banking during the 1970s and 1980s. A more detailed discussion on the performance analysis of the banking sector under the reform process is presented in the Table 1.1.
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</thead>
<tbody>
<tr>
<td>1</td>
<td>No. of Commercial Banks</td>
<td>73</td>
<td>154</td>
<td>272</td>
<td>284</td>
<td>298</td>
<td>292</td>
</tr>
<tr>
<td>2</td>
<td>No. of Bank Offices</td>
<td>8,262</td>
<td>34,594</td>
<td>60,570</td>
<td>64,234</td>
<td>67,868</td>
<td>68,561</td>
</tr>
<tr>
<td></td>
<td>Of which</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Rural and semi-urban</td>
<td></td>
<td></td>
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<td></td>
<td>bank offices</td>
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<tr>
<td></td>
<td>Population per Office ('000s')</td>
<td>5,172</td>
<td>23,227</td>
<td>46,550</td>
<td>46,602</td>
<td>47,693</td>
<td>47,496</td>
</tr>
<tr>
<td>3</td>
<td>Per capita Deposit (Rs.)</td>
<td>64</td>
<td>16</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>Per capita Credit (Rs.)</td>
<td>88</td>
<td>738</td>
<td>2,368</td>
<td>4,242</td>
<td>8,542</td>
<td>12,253</td>
</tr>
<tr>
<td>5</td>
<td>Priority Sector Advances@ (per cent)</td>
<td>68</td>
<td>457</td>
<td>1,434</td>
<td>2,320</td>
<td>4,555</td>
<td>7,275</td>
</tr>
<tr>
<td>6</td>
<td>Deposits (per cent of National Income)</td>
<td>15.0</td>
<td>37.0</td>
<td>39.2</td>
<td>33.7</td>
<td>35.4</td>
<td>33.7*</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>15.5</td>
<td>36.0</td>
<td>48.1</td>
<td>48.0</td>
<td>53.5</td>
<td>51.8</td>
</tr>
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</table>

* Share of Priority Sector Advances in Total Non-Food Credit of Scheduled Commercial Bank, *: As at end-March 2002.

Source: Reserve Bank of India, Mumbai, www.rbi.org.in

Despite the slowdown in branch expansion since the 1990s, the population per bank branch, however, has not changed much since the 1980s, and has remained at around 14,000 to 16,000. It is often asserted that the Indian banking sector is saddled with too many branches, adding to its high intermediation costs. In fact, at about 8,000 -10,000, the population per branch in developed countries is lower than that in India. Therefore, the reform process has mentioned the gains in terms of the outreach of bank branches achieved in the phase of social banking.
Despite a decline, direct lending to disadvantaged segments of the economy under the priority sector advances remained high during the reform period. The decline in priority sector lending since the initiation of reforms in fact reflects greater flexibility provided to banks to meet such targets. Currently, in the event a bank fails to meet the priority sector lending target through direct lending, the bank can invest the shortfall amount with the apex organizations dealing with flow of funds towards agriculture and small-scale industries. While adherence of banks to the norms on direct lending towards the priority sector still remains desirable the current arrangement reflects how the reform process has provided operational flexibility to banks even while meeting social objectives.

The discernible increase in the proportion of bank deposits to national income is reflective of the enhanced deepening of the Indian financial system during the period. Simultaneously, there have been considerable increases in per capita deposits and credit. This also implies an increase in the average business per bank branch, which is likely to have improved the viability of individual bank branches including those in the rural and semi-urban centres.
1.7 THE DISTURBING TRENDS

There are certain other disturbing trends like the decline in the number of rural offices, borrowers account and credit deposit ratio\(^\text{11}\). Table 1.2 shows the credit deposit ratio of the rural offices of the scheduled commercial banks which has suffered a non-stop decline.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Year</th>
<th>No. of Rural Offices</th>
<th>Percentage of Rural Offices</th>
<th>C/D Ratio (Per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1991</td>
<td>35135</td>
<td>56.9</td>
<td>60.0</td>
</tr>
<tr>
<td>2</td>
<td>1992</td>
<td>35254</td>
<td>56.8</td>
<td>57.9</td>
</tr>
<tr>
<td>3</td>
<td>1993</td>
<td>35360</td>
<td>56.3</td>
<td>53.3</td>
</tr>
<tr>
<td>4</td>
<td>1994</td>
<td>35396</td>
<td>55.0</td>
<td>50.0</td>
</tr>
<tr>
<td>5</td>
<td>1995</td>
<td>33017</td>
<td>51.7</td>
<td>48.6</td>
</tr>
<tr>
<td>6</td>
<td>1996</td>
<td>32981</td>
<td>51.2</td>
<td>47.3</td>
</tr>
<tr>
<td>7</td>
<td>1997</td>
<td>32909</td>
<td>50.5</td>
<td>44.1</td>
</tr>
<tr>
<td>8</td>
<td>1998</td>
<td>32854</td>
<td>49.9</td>
<td>43.4</td>
</tr>
<tr>
<td>9</td>
<td>1999</td>
<td>32840</td>
<td>49.2</td>
<td>41.0</td>
</tr>
<tr>
<td>10</td>
<td>2000</td>
<td>32673</td>
<td>48.7</td>
<td>40.4</td>
</tr>
<tr>
<td>11</td>
<td>2001</td>
<td>32640</td>
<td>48.3</td>
<td>39.0</td>
</tr>
<tr>
<td>12</td>
<td>2004</td>
<td>32080</td>
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</tr>
</tbody>
</table>


Table 1.2 gives the details of the rural offices of SCBs. The number of rural offices and its proportion in the total offices of the scheduled commercial banks (SCBs) and credit deposit ratio are on non-stop decline.
1.8 COMMERCIAL BANKS AND AGRICULTURAL CREDIT

The role of the commercial banks in rural/ agricultural credit was negligible till the nationalization of banks in 1969. In 1951-52 their finance to agriculture came to be 0.9 per cent, and it was 2.2 per cent in March 1968. The All India Rural Credit Survey Committee, 1954 had concluded that there was no alternative to the co-operative form of organization. In 1965, the informal Group on Institutional Arrangement for Agricultural Credit emphatically stressed that one could not look to the commercial banks for providing a satisfactory system of supplementary and transitional basis for any large scheme for the cultivating population in Indian conditions. The following were some of the reasons for the failure of commercial banks in meeting the rural needs.

1. Commercial banks in India which had their origin under the British, were urban-oriented with the limited objectives of catering to the needs of trade, commerce and industry. Therefore, agriculture rarely figured in their transaction.

2. Agricultural financing in its nature was risky because of wide variations in income and the absence of suitable security except land, which was subjected to various legal and other procedural complications. And commercial banks did not wish to get entangled with them.
3. Ill-trained and in-experienced in dealing with agricultural financing, the banking staff was not equal to the task.

4. Their recovery performance was very poor.

5. There was huge demand for bank credit from the non-agricultural sector.

6. Absence of an enterprising attitude in the banks to finance agriculture and their unsuitable loan policy and procedures made cultivators reluctant to borrow from the banks.

After two decades of independence, the commercial banks have entered this field to extend liberal credit to the farming sector. They have been financing agriculture since the nationalization of big banks in 1969. Before 1969, these banks were serving primarily the needs of cities and big towns. Using of commercial banks credit to help small farmers holds rich potential. Agriculture appeared to the commercial Banks as an unattractive sector owing to certain characteristics of agricultural sector, namely limited amount of money involved, inadequate securities for loans, low returns and poor repayment capacity.

The nationalization of banks was a major step for canalizing credit to various sectors of economy of which agriculture is a major sector. The banking industry’s concern not only rested with flow of credit to agriculture, but also with the socio-economic development of the rural areas with a view to generating
adequate productive employment and eradication of poverty. In spite of significant achievements by the banking industry, there is still scope to extend credit facilities to agriculture sector in a much greater measure.

After the introduction of financial sector reforms in the nineties, the Reserve Bank of India (RBI) directed these banks to lend 30 per cent of net bank credit to agriculture (including indirect finance not exceeding 4.5 per cent of total credit). With a shift in priorities, these banks failed to get a viable proposition in financing agriculture and as such they were able to reach an estimated outstanding agriculture credit to a level of Rs 80000 crores constituting 14 per cent to net bank credit. Since corporates view rural markets with a huge potential for growth, the government and policy makers should consider giving agricultural lending a boost in order to create a huge market for other industries too. Accordingly, the new government has announced that agriculture credit provided by banks should be increased by 30 per cent and reach an outstanding level of Rs 1,05,000 crores by March 2005. Banks have been advised to provide farm loans to additional five million farmers during the current financial year 2004-05. Each of the rural and semi-urban branches of the commercial banks is expected to bring into its fold, at least 100 new farmers during the current year. As against the ambitious announcements of the government of doubling agriculture credit in next three years, it is essential to
take an overview of trends of flow of institutional credit to agriculture during the last 5-7 years. Institutional credit has grown at the rate of 13 to 14 per cent in the recent past. Learning from past experiences, agriculture financing needs a marketing outlook by the banks as agriculture is under transformation. International trade in agricultural products is poised for faster growth and this sector offers big opportunity for banking business.

Among the essential pre-requisites for achieving significant progress in the agricultural sector, credit occupies an important place. Several studies have emphasized the role of finance in agricultural development. Hence, a large network of institutions has been established and canalized in the direction of agricultural financing, particularly in the developing countries. These institutions have shown a tremendous progress with regard to branch expansion, deposit mobilization and credit disbursement to agriculture. However, there are a number of problems involved in agricultural financing. Various studies have been conducted by the organizations and economists to assess the problems of agricultural finance in India.

1.9 THE PRESENT STUDY

The impact of any economic policy or programme may vary from region to region depending upon the geographical and economic conditions of the area and people. Earlier studies were conducted in various regions with different geographical and
economic conditions. The present study refers to Chittoor District which has different geographical and economic conditions with limited rainfall, frequent occurrence of droughts with poor irrigation facilities which require heavy investments in well irrigation and limited scope for diversification of their economic activities towards gainful occupations. The district represents a typical backward region.

Since the dawn of the independence, there have been improvements in the educational status of the rural farmers, which give scope to be free from the fold and dominance of the money lenders of the un-organised sector of the rural money market. The sound educational background of the farmers has facilitated to go for proper utilization of credit to get good returns without any inclination to go for unproductive investment and to adopt modern methods of agricultural production.

New institutional approaches and economic policies have created scope and awareness among the rural farmers to enter into the new areas of agricultural production which not only fill the gaps in the structure of agricultural production but also give scope to diversify the cropping pattern towards the commercial crops to get adequate market and remunerative price for their products.

At this juncture it is necessary to focus the attention to analyse the performance of the commercial banks at the gross root level for extending credit to strengthen farm sector and to
what extent the credit benefits are reaching the targeted groups like small and marginal farmers. An attempt is also necessary to know the composition of the commercial bank credit in the organized sector of the rural money market.

Under these different geographical and economic conditions, various educational backgrounds, new institutional and economic approaches, the entry of commercial banks to extend credit to the gross root levels in the district have different impact on the performance of the farm sector compared to the earlier studies. Hence, an attempt is made in the present research work to analyse the financing of agriculture by commercial banks during the post-reform period in Chittoor district with the following objectives:

1.10 OBJECTIVES

1. To analyze the role of commercial banks in financing agriculture during the post-reform period in India.

2. To evaluate the performance of commercial banks in extending credit.

3. To assess the impact of bank finance on the generation of employment, production, income, assets and savings among borrowers.

4. To find out the problems of the borrowers and commercial banks.
1.11 HYPOTHESES

1. There is no significant growth in the provision of bank credit to agriculture during the post-reform period in India.

2. There is no significant performance of commercial banks in extending credit to agriculture.

3. The impact of bank finance on the generation of employment, production, income, assets and savings is the same among the different categories of borrowers.

4. The reasons for non-repayment of bank credit are uniform for different categories of sample borrowers.

5. Recovery of bank finance is not satisfactory.

1.12 SAMPLE DESIGN

The sample design of the study is multi-stage random sampling. Mandal is the first stage unit of sampling. Bank finance borrower household is the last stage unit of sampling. Of the 66 mandals in Chittoor district, three mandals namely Chandragiri, Puttur and Kuppam have been selected as the first stage units of sampling in three Revenue Divisions (i.e. Tirupati, Chittoor and Madanapalli respectively) by using random sampling procedure. In each mandal six villages have been selected i.e. 1. Chandragiri mandal: Chanambattla, Durgasamudram, Gungudupalli,
Dwanakanmbala, Itepalli and Buchinayaudupalli, 2. Puttur mandal: Nesanuru, Torooru, Annuru, SBR puram, Battikandriga and Thaduku, 3. Kuppar mandal: Vasanadu, Gundlanainipalli, Thumsi, Sodiganipalli, Kothainiku and Chinnisettipalli. All the villages in the selected mandals have been considered for the selection of the second stage units of sampling. Altogether six villages from each mandal are selected for the study i.e. a total of 18 revenue villages are selected in the district. All the farmers have been listed as borrowers and non-borrowers of bank finance and also classified into various categories. The borrower and non-borrower households of bank finance have been classified into four different occupational groups namely, marginal, small, medium and large farmers depending upon landholdings criteria. Finally 90 marginal farmers, 72 small farmers, 72 medium farmers and 36 large farmers were selected for the study from bank finance borrower households by using random sampling method. To make the comparison more meaningful, among the non-borrower households, 54 marginal farmers, 36 small farmers, 27 medium farmers and 18 large farmers have been selected at random for the study. Thus, the study covers 405 sample households, 270 representing bank finance borrowing households and the remaining 135 representing non-borrower households.
1.13 CONCEPTS:

(a) Classification of Farmers

The farmer beneficiaries of the study have been classified into four, as the following:

1. Marginal Farmers: Farmers who have 0 - 1.25 acres of wet land or 0 - 2.50 acres of dry land.

2. Small Farmers: Farmers who have 1.26 to 2.50 acres of wet land or 2.51 to 5.00 acres of dry land.

3. Medium Farmers: Farmers who have 2.51 to 5.00 acres of wet land or 5.01 to 10.00 acres of dry land.

4. Large Farmers: Farmers who have 5.01 acres and above of wet land or 10.01 acres and above of dry land.

(b) Reference period

For the present study the pre-loan period refers to 2002-03 agricultural year and the post-loan period refers to 2004-05 as the selected agricultural beneficiaries have availed bank finance during financial year 2003-04. Impact of bank finance on borrowers as well as comparative status of non-borrowers was studied during the agricultural year 2004-05.
(c) Pre and Post-reform periods

Secondary data collected for the present study refers to broadly two periods: pre-reform period and post-reform period. Period from 1969 to 1990-91 is referred to as pre-reform period and the period from 1991-92 to 2004-05 as post-reform period.

Many field level studies have amply proved that the contribution of bank finance has a positive impact on the agro-economic conditions of borrower farmers. The purpose of bank loans has tremendous impact on agricultural inputs like irrigation, operational land holdings, cost of cultivation and it also provides an opportunity for the improvement of income and employment generation.

Similarly, an attempt is made in this study to estimate and analyse the impact of bank finance on agro-economic conditions of sample borrowers and also with reference to a sample of non-borrowers. Particularly the impact of bank finance has been studied by adopting the following indicators for measuring the impact.

(i) Impact on operational land holdings

An operational land holding refers to both irrigated and un-irrigated land holdings which are actually cultivated by the farmers during the reference period. It includes own-land holdings – land leased-out + land leased-in during the reference period.
(ii) Impact on net irrigated area

The improvement in the net irrigated area of borrower farmers between pre and post-loan periods and also with reference to non-borrower farmers has been considered as the contribution of bank finance.

(iii) Impact on cropping pattern

Generally access and availability of finance leads to qualitative shift in the cropping pattern of the borrowers. Provision of bank finance enables the farmers to replace higher value crops in the place of subsistence crops. A shift from subsistence cropping to higher value crops has been taken as the indicator for the positive impact of bank finance.

(iv) Impact on production

Bank finance exerts a positive impact on production of crops through the qualitative improvements in operational land holdings, irrigation facilities and remunerative cropping pattern, which significantly influence the total output of the crops raised during the pre and post-loan periods. This has been used as an estimate of the impact of bank finance on borrowers and also with reference to non-borrowers.
(v) Impact of income and employment

The difference between pre and post-loan periods and also between borrowers and non-borrowers with reference to income and employment generation through the crops raised during the reference period has been treated as the impact of bank finance.

(vi) Impact on savings

The improvements in savings during the reference period reflect the impact of bank finance.

(vii) Impact on asset values

Though a number of economic and non-economic factors influence the value of assets, an attempt is made to estimate the improvement in value of assets during the reference period between borrower and non-borrower farmers.

1.14 SOURCES OF DATA

The study is based on two sources of data i.e. secondary data and primary data. The secondary data were collected with regard to production, yield levels and extent of the area of the principle crops in India and Chittoor district. The information has also obtained pertaining to the commercial banks expansion, extending of credit to farmers from the lead bank reports. The secondary data have been collected from various national and international published and un-published sources, which include
the publications of Government of India, CMIE, Five-Year Plan Documents, Census Reports, Statistical Abstracts of Central and State Governments, the publications of the Reserve Bank of India which include Report on Currency and Finance, Trend and Progress of Banking in India, Statistical Tables relating to Banks in India and State Bank of India Reviews and Statistical abstracts of Andhra Pradesh published by the Directorate of Economics and Statistics, Government of Andhra Pradesh. At district level, the data have been collected from Lead Bank credit plans, Annual Action Plans and District Rural Development Agency Annual Reports. National and International web-sites have been utilized to get information and data in order to strengthen the analysis.

The primary data is collected from the sample borrowers and non-borrower households through a pre-tested schedule, specially designed for the purpose. Personal Interview method is adopted to get the required information with the aid of schedules. Scrutiny of schedule is made to ensure reliability of data. After an appraisal of the quality of data, tabulation work is taken-up and the data analyzed by using appropriate statistical techniques.

1.15 TOOLS OF ANALYSIS

The data drawn from various sources are subjected to statistical treatment. The tools and techniques are basically analytical and descriptive. Apart from averages, percentages and
coefficient of variations and other tools like the measures of dispersion are employed at appropriate places. Correlation, regression, paired sample t-test, two sample t-test and ANOVA were also employed. For temporal data, growth rates are computed and their significance is tested. Graphs and diagrams are used at appropriate places. The statistical tools are evaluated through MS-Excel and SPSS (13.0). In this study the following statistical techniques have been used:

**Paired Sample t-test:** \( t = \frac{d \sqrt{n}}{\sigma} \)

where \( d \) = difference between the paired values, \( \sigma \) = standard Deviation of the differences, \( n \) = number of observations.

**Two Sample t-test:** \( t = \frac{|x_1 - \bar{x}_2|}{\sigma \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \)

where \( \bar{x}_1 \) = first sample mean, \( \bar{x}_2 \) = second sample mean, \( \sigma \) = standard deviation, \( n \) = number of observations.

**Correlation Coefficient:** \( r = \frac{\sum xy - n \bar{x} \bar{y}}{n \sigma_x \sigma_y} \)

where \( \bar{x} \) = mean of \( x \), \( \bar{y} \) = mean of \( y \), \( \sigma_x \) = standard Deviation of \( x \), \( \sigma_y \) = standard Deviation of \( y \), \( n \) = number of observations

**Regression line of \( y \) on \( x \):** \( y = a + bx \)

where \( x \) and \( y \) are the variables and \( a \) and \( b \) are the intercept and slope parameters respectively.
1.16 LIMITATIONS OF THE STUDY

The present study is confined to assess the impact of agricultural finance on sample households of three mandals of Chittoor district. Relevant information and data was collected from the sample borrowers and non-borrowers for agricultural year i.e. 2003-04. Therefore, conclusions drawn in the study are area-specific and may not directly be applicable to other areas due to variations in agro-climatic and socio-economic conditions. Efforts were made to collect reasonably satisfactory information from the sample respondents. A large sample than the present one could not be selected due to several constraints on the part of the researcher. The inferences, findings and conclusions are drawn based on the information and data provided by the sample households. The findings of the study will be highly useful for policy makers and planners to take policy decisions and implement plans and programmes to strengthen agricultural finance to promote the agricultural sector. The conclusions arrived at and the generalizations made are specific to sample households in Chittoor district and cannot be generalised.

1.17 PLAN OF THE THESIS

The first chapter deals with an introduction and methodology. The second chapter provides the review of literature. The third chapter contains the financing of agriculture
by commercial banks in India. The fourth chapter examines profile of the selected district - Chittoor. Chapter five analyses the impact of bank finance on employment, production, income, savings and assets besides a comparative analysis of borrowers and non-borrowers. The problems of repayment and commercial banks are presented in the sixth chapter. The last chapter highlights the main summary of the findings, suggestions.
REFERENCES


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