FINANCIAL INTERMEDIATION IN AGRICULTURE WITH REFERENCE TO BANKING SECTOR IN COIMBATORE DISTRICT

BY

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A THESIS SUBMITTED TO THE AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND HIGHER EDUCATION FOR WOMEN (DEEMED UNIVERSITY) COIMBATORE - 641 043 IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE **DEGREE OF DOCTOR OF PHILOSOPHY**

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CERTIFICATE

This is to certify that the thesis entitled **'Financial Intermediation in Agriculture with Reference to Banking Sector in Coimbatore District'**, submitted to the Avinashilingam Institute for Home Science and Higher Education for Women, (Deemed University), Coimbatore, for the award of the Degree of **Doctor of Philosophy in Economics** is a record of original work done by **Mrs.C. Jaya**, Lecturer (Selection Grade), Department of Economics , Avinashilingam Institute for Home Science and Higher Education for Women, (Deemed University), Coimbatore, under my supervision and guidance and the thesis has not formed the basis for the award of any Degree /Diploma/ Associateship/Fellowship of similar title to any candidate of any university.

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Signature of the Guide

DECLARATION

I hereby declare that the matter embodied in the thesis entitled ' **'Financial Intermediation in Agriculture with Reference to Banking Sector in Coimbatore District'**, is the result of investigation carried out by me in Avinashilingam Institute for Home Science and Higher Education for Women, (Deemed University), Coimbatore, under the supervision of Dr. G. Ramathilagam M.A., M.Phil.,Dip.Ed.,Ph.D., Dean of Humanities and Professor and Head of the Department of Economics, Avinashilingam Institute for Home Science and Higher Education for Women, (Deemed University), Coimbatore and it has not been submitted for the award of any Degree/Diploma/ Associateship/ Fellowship of any other university or institute.

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I. INTRODUCTION

In the process of economic development, the importance of factors of production such as land, labour, capital and management is emphasised by economists. Recently, technology has also been included as one of the factors of production. Capital though a scarce factor, is nevertheless necessary to activate other factors. Hence, it is given a prime position in the theory of development. Gadsby (1965) maintained that it is the difference in capital resources, more than any other factor, which distinguishes the agriculture of developing countries from that of economically advanced countries.

Nurkse (1963) also emphasised the role of capital formation as a determining factor of economic growth of developing countries. Elaborating on the concept of vicious circle of poverty, he wrote " there is small capacity to save resulting from a low level of real income. The low level of income is a reflection of low productivity which in its turn is due to the lack of capital. The lack of capital is the result of small capacity to save ". However, savings and capital formation are two different things; they are not synonymous. There are several factors which constrain all the savings to get converted into capital. For example, in India the rate of saving has been high and capital formation is, however, low. It is in this context that one should recognise the need for credit and

an effective financial intermediation particularly to increase the rate of agricultural growth. What kind of capital is to be provided ? How is it to be provided ?

Agriculture accounted for 29.5 percent of the Gross Domestic Product (GDP) at constant prices (1980-81) but accommodated 65 percent of the workforce in 1990-1991 (vide Table I). This suggests that the movement of population from agriculture to productive manufacturing sector has been slow. Nearly seven million persons are reported to enter the employment market every year, new jobs in the organised sector apparently does not exceed 500,000 in an year. This means, that most of them get absorbed partially or fully in the agricultural sector. These trends imply that the relative income per worker in agriculture vis-a-vis a worker in the non - agricultural sector is low and on the decline. This decline in income per worker in agriculture implies a larger magnitude of poverty in the rural sector particularly among marginal cultivators and agricultural labourers. Table I gives details of relative income of agricultural workers and Table II gives information on rural poverty.

TABLE I

RELATIVE INCOME OF AGRICULTURAL WORKERS INCLUDING BOTH CULTIVATORS AND LABOURERS

Year	Percentage share of agriculture in GDP at 80 -81 prices	Workforce percentage	Ratio of per worker income in agricultural and non - agricultural sector at 80-81 prices
1960-61	45.8	69.5	0.37
1970-71	39.7	69.8	0.28
1980-81	34.7	66.5	0.27
1990-91	29.5	64.8	0.23

Source: Nadkarni(1993),Agricultural Policy in India - Development Research Group, RBI, Bombay,India,p.4.

TABLE II

STRUCTURE OF RURAL POVERTY - 1983

Household (hh)type	Percentage share share in rural hhs	Incidence of poverty within each hhs	Percentage share of hh type in the total number of unemployed
1) Self employed in agriculture	40.7	24.1	16.3
2) Self employed in non-agriculture	11.7	26.9	8.5
3) Agricultural Labourers hhs	30.7	45.5	59.5
4) Other labourers hhs	6.6	27.9	10.2
5) Other rural hhs	10.3	18.3	5.4
6) All rural hhs	100.0	30.6	100.0

Source: Nadkarni(1993) op.cit,p.10.

One of the strategies to alleviate poverty and improve employment opportunities for the poor is to step up agricultural growth. Studies have shown that agricultural growth would have positive impact on poverty. For instance a World Bank survey in the early eighties showed that one percent increase in agricultural growth in India would result in an internal growth of 0.5 percent and a growth in national income of 0.7 percent. The direct intervention programmes may reduce the extent of poverty but sustainable development of agricultural sector as a strategy for the removal of poverty provides permanent solution to this problem of poverty.

According to Bhattacharya et al (1991), a one percent increase in per capita cereal output could reduce rural poverty by 0.62 percent while one percent rise in the relative price of cereals could increase rural poverty by as much as 1.06 percent. In so far as an increase in agricultural production has a moderating effect on consumer prices, both would help in reducing poverty.

In order to step up agricultural growth and to increase the relative income per worker in agriculture, investment in agriculture should increase for better irrigation and for wide spread adoption of appropriate technologies for rainfed and semi arid areas, which account for 70 percent of the country's arable land. However, the investment in agriculture is declining in

recent years. According to Shetty (1990), the gross capital formation in agriculture which was steadily rising during 1960s in constant terms, became subdued during 1980s. During 1960s the annual compound growth rate was 6.3 percent and during 1980 -88, the real capital formation registered an absolute decline (2.6 percent). Kumar's (1992) estimates are that the real capital formation in agriculture had declined to 7.4 percent in 1989-90 from 10.1 percent in 1979-80. Similarly,expenditures incurred on agriculture and irrigation as proportion of aggregate expenditure of Centre and States declined during 80s. The share of outlay on agriculture which was 36.9 percent during I Five Year Plan declined to 22 percent during VII Five Year Plan and 20.4 percent during 1991-92. But considering the continuing dependence of the bulk of our workforce on it, relatively lower income per worker generated in it and the potential heldout by cereal production in reducing the rate of inflation and the level of poverty in the economy, this sector should have had a major claim over the public outlay. Another justification is that capital output ratio in agriculture is lower compared to other sectors resulting in higher value added from a given unit of investment (Nadkarni,1993). In this context, the flow of funds for agriculture from the institutions becomes significant.

Before the advent of planning, the institutional sources

of finance hardly contributed four percent of the total credit requirements of which three percent was from the co-operatives. Following the Rural Credit Survey in the 50s, several far reaching measures were taken to strengthen, expand and diversify the institutional credit system. The role of commercial banks in rural credit was enhanced following the nationalisation of the major commercial banks in 1969. In 1975, Regional Rural Banks were established to give exclusive attention to small and marginal farmers. As a result, the share of institutional credit increased and about 54 percent of total institutional credit came from commercial banks (Malhotra 1991). The various financial institutions which cater to the credit needs of the rural sector in India are described in Figure I.

INSTITUTIONAL SET-UP FOR

AGRICULTURAL CREDIT IN INDIA

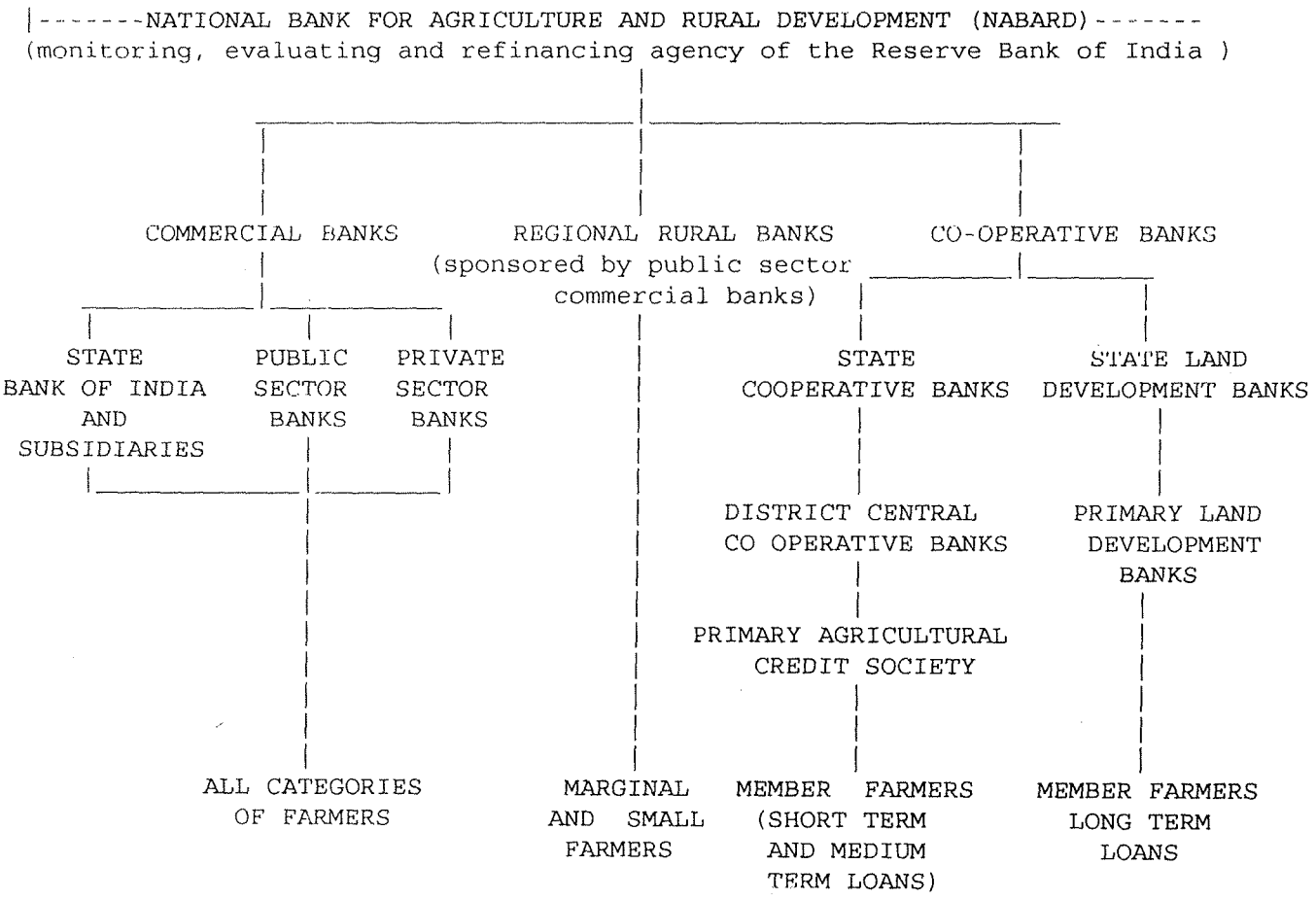

FIG. I

The details of institutional finance for agriculture and allied activities are given in Table III.

TABLE III

DIRECT INSTITUTIONAL FINANCE FOR AGRICULTURE AND ALLIED ACTIVITIES - LOANS ISSUED (JULY - JUNE)

Rs. in millions

Bank Groups	1986-87	87-88	88-89	89-90	90-91
1. Cooperative Banks	37,010	47,100	48,730	54,530	53,920
2. Scheduled Commercial Banks	33,240	35,260	38,140	42,820	46,760
3. Regional Rural Banks	4,770	4,830	420	6,470	2,840
Total	75,020	87,190	87,290	1,03,820	1,03,520

Source: Nadkarni(1993), op. cit, p.10.

During the period 1986-87 to 1991-92, the total institutional credit for agriculture has increased by 38 percent while the growth in the case of commercial banks was even more (41 percent). Earlier, the ACRC (1989) had appreciated the impressive rate of growth of institutional credit which remained positive even after adjusting for the rate of inflation.

Agricultural credit to total bank credit as a proportion was as low as 1.5 percent in 1969; increased to 5.9 percent in June 1975 and 13.8 percent in June 1985. But there was a slight decline in the share of agricultural credit from 15.8 percent in June 1988 to 14.2 percent in June 1992. Sixty percent of bank

credit was by way of short term loans and 40 percent medium term and investment loans. The per account agricultural credit increased from Rs. 2,520 in June 1969 to Rs. 4,710 in March 1992 (Raju, 1994).

The ACRC (1989)had predicted an increase in the credit needs of rural population because of the emerging trends in agriculture:

1) The cereal economy would expand at a higher rate so as to meet the unsatiated demand for food and animal feed as also to meet the export potential and to build up safe level of stocks for all of which large resources would have to be deployed in the cereal sector.

2) The newly emerging high demand subsector - horticulture livestock, poultry etc -would expand rapidly requiring considerable resources.

3) Greater emphasis would need to be placed on the financing of yield increasing inputs - irrigation, seeds, fertilisers, farm machinery as well as on processing, storage, marketing and transportation.

4) The regional imbalances in the application of technology would need to be corrected.

The credit demand profile which emerges from the projections made by the ACRC(1989) forecasts that the direct demand for agricultural credit will rise from Rs. 275.57 billions in 1989 to Rs.1108.73 billions in 1999-2000.It also estimated that the deficit which the credit system will have to fund will be Rs.214.26 billions. Against this backdrop, the rural credit system has the following problems:

1) Regional disparities: Regional imbalances were observed in

the institutional credit. The ACRC (1989) had drawn attention to this problem. The five states of Andhra Pradesh, Maharashtra, Uttar Pradesh, Tamil Nadu and Karnataka accounted for 50 percent of the credit supplied by all credit agencies, whereas eleven other states had a share of 11.5 percent of the credit. The per hectare advance by all credit agencies was the highest in Kerala, Rs. 3,864 and lowest in Gujarat, Rs.1,018.

2) Demand for and supply of credit: The accessibility to credit has been constrained because of the complicated procedures, distant location, indifferent attitude of the bankers, unimaginative lending policy and procedures, cultural gap between bankers and borrowers and political interfernce. In the opinion of Kahlan (1991), the weakness of rural credit delivery system is due to the tendency to grant loans only to meet a part of the cost involved, the practice of arbitrarily cutting short the maturity period of repayment of loans and inadequate grace period. And the quality of the rural credit has not been good. George et al (1985) found that the loan costs due to documentation, lengthy procedures for getting sanction, getting certificates from other institutions and transport charges increased as the size of landholdings increased.

3) Overdues: One of the weaknesses of credit system in India is the poor loan recovery. The ACRC (1989) found no difference

in the recovery performance among the different groups of banks. The decline in the productivity and efficiency of the system came under the direct attack by Narasimham Committee (1991). The overdues have been on the increase. During 1976-86, the overdues increased from Rs.8,530 millions to Rs. 42,620 millions. The overdues increased at a higher rate (17.5 percent) than the bank loans (16.5 percent). In June 1992 overdues amounted to Rs.46,680 millions. Even if legal proceedings were initiated 20 percent of overdues can be recovered, in the opinion of Raju (1992). The net loss will be equivalent to 7.8 percentage of total agricultural credit outstanding. Rajasekar and Vyasulu (1990) found in their study on rural credit delivery system in Pali District of Rajasthan that the recoveries in banks with a higher proportion of amount lent for government sponsored programmes tended to be low. They attributed the poor recovery performance to structural problems such as poor quality of credit and managerial problems. Metha and Prasher (1986) stated that the size of holdings , operational size, area under HYV and per hectare fertilizer used were the major factors that classified the borrowers as defaulters and non defaulters.

4) Profitability of Banks: The increasing quantum of overdues, mandatoriness, the subsidy cum concessionary interest syndrome, and the agricultural and rural debt relief scheme affected the rural credit channel and profitability of the

system. Rangarajan (1990) stated that the published profits ranged from 0.09 percent to 0.17 percent of the working funds. The amount locked up in 1.35 million court cases is of the order of Rs. 34900 millions.The ACRC (1989) estimated that in commercial banks out of the loss of Rs 1280 millions, 40 percent was estimated due to IRDP and other government programmes. Rajasekar and Vyasulu (1991) stated that with mounting overdues, low growth rate in deposits of 20 percent and with the existing refinance facilities, there is a possibility of a half life trap which is dangerous to the banking system.

Thus the rural credit delivery system is beset with a number of systemic problems which it must overcome if it were to be a facilitating financial infrastructure to meet the growing demand for credit made on it. Systemwide studies are needed to give scientific guidelines to the banks to improve their credit planning and implementation. However, the earlier studies had focussed only on select dimensions of the rural credit delivery system: the problem of estimation of credit gap, (ACRC, 1989; Ray, 1987; Desai, 1988; Vyasulu, 1991), utilisation of credit, (Singh, 1987; Rao,1980; Pandya, 1985; Lavanya, 1986), structure of credit (Gadgil, 1986; Rangarajan, 1990; Rajasekhar, 1992; Patel, 1991; Numboodiri, 1992) and causes for overdues (George et al, 1984; Singh, 1985; Pandey, 1989; and Kahlan, 1991) both

at the macro level and micro level.

Two gaps were observed in the body of earlier research. First, though banks were required to formulate and implement credit plans at the district level, no formal study of the factors which they should consider in credit planning and evaluation had been reported. Secondly, they had not used theoretical framework to identify the determinants of demand for and supply of credit among farm households. The current study on "Financial Intermediation in Agriculture with Reference to Banking sector in Coimbatore District " attempts to contribute to an understanding of these two areas in the context of bank credit for agriculture.

The present study endeavours to formulate a model for district credit plan. It analyses the borrowing behaviour of farmers in the context of farm household model, on the basis of the utility maximisation approach, which assumes that the borrowing expands the income of the households directly and reduces it in subsequent periods through repayment obligations and also expands income indirectly in the subsequent periods by making possible investment that pays off in those years. This approach was used since farm households combine in themselves the characteristics of both producers and consumers. Their production decision and outcomes affect their consumption decision and outcomes and vice versa. Farmers are presumed to make borrowing

decision not only on the basis of market conditions defining their production but also on the basis of their own savings and self financing capacity (Iqbal,1986). It is believed that their behaviour can be analysed within an utility maximisation framework.

The specific objectives of the study were to :

1) assess the structure of farm credit across the blocks and the banks;

2) identify the factors determining the extent of credit allocation based on feasibility of area interms of population, size of holdings, bank offices and area operated;

3) examine whether credit allocation has been equal among the blocks;

4) assess the demand for short term credit and the credit gap;

5) find out the optimum area to be covered under major crops within the credit structure and to determine the optimum level of recovery;

6) identify the factors determining the recovery performance of the banks;

7) evaluate the model framework for understanding the borrowing behaviour of farm households, and

8) analyse the extent and causes for overdues at the farm household level.

The hypotheses tested in the study were:

1) The credit allocation across the blocks is independent of their resource potentials.

2) There is an even allocation of credit among the blocks.

3) The funds are optimally allocated among the various crops.

4) The recovery performance of the banks is not affected by type of loans and loans for government sponsored schemes.

5) The borrowing behaviour of farm households is independent of their income, expenditure, area operated, education and technology.

6) There is no association between the extent of overdues and the social and economic conditions of the borrowers.

The findings of the study are expected to be useful to the district credit planning machinery to make its lending policy more rational and to restructure the credit delivery system. The farm household model using utility maximising approach will also help the planners in understanding the factors determining the demand for funds across farm size, thereby effect changes in the lending policy and increase the relative participation of small land owners in the official concessional loan market.

Review of Literature

II. REVIEW OF LITERATURE

The literature pertaining to the study on " Financial Intermediation in Agriculture with reference to Banking Sector in Coimbatore District " has various dimensions namely, estimation of demand for and supply of funds in agriculture, impact of institutional credit on agricultural production, utilisation of credit, lending pattern of the financial institutions in rural areas and recovery performance and overdues.

The studies conducted on the viability of rural financial institutions and the issues relating to institutional credit are reviewed under the following headings:

A. Review of Agricultural Credit Policy in India

B. Demand for and supply of credit in agricultural sector

C. Structure of institutional credit

D. Utilisation of credit

E. Recovery and Overdues

A. Review of Agricultural Credit Policy in India:

During the pre-independence period, formal agricultural credit was given exclusively by the cooperatives. Such credit had no explicit relationship with input supply or fixed farm investment. In the first decade of the 20th Century the agricultural credit policy aimed at the twin objectives of institutionalising credit and enlarging its coverage. The cooperatives were the logical culmination of a long search for an

appropriate institutional device to combat both usury and indebtedness which had become a curse for the Indian peasantry. The Committee of Direction of the All India Rural Credit Survey (1951 -54) which reviewed the credit situation recommended new initiatives and financial support for the cooperatives from government and RBI and efforts were directed towards development of cooperatives. This position continued for long. Until the closing of the 60s, the cooperatives were the sole purveyors of institutional credit (Nair 1991). During the Second Five Year Plan, the need was felt for a separate institution to supplement the long term resources of credit institutions to finance private fixed capital formation in agriculture on the basis of technical and economic feasibility of investments. This led to the establishment of Agricultural Refinance Corporation (ARC) in 1963 which focussed initially on projects for plantation and command area development . The emergence of green revolution in the late 60s highlighted the need for effective credit support to farmers. The agricultural credit projects in different parts of India supported by the World Bank group also emerged at this time. Close on the heels of the transformation in agriculture , came the social control of Commercial Banks followed by the nationalisation in 1969. Meanwhile the All India Rural Credit Review Committee (1969) also found that the cooperatives had not measured upto the expectations in mobilising deposits or disbursing credit. The emphasis on priority sector lending, the opening of rural branches, the scheme for Lead Bank District

credit planning, targetted programmes and establisment of Agricultural branches were the subsequent developments. The transformation of Agricultural Refinance Corporation (ARC) into Agricultural Refinance and Development Corporation ARDC (1975) marked the next phase. The establishment of Regional Rural Banks by the public sector banks in 1975 to focus exclusively on the weaker sections of rural society and of the NABARD in 1982 at the apex of the institutional network completed the evolution of major policies on rural credit institutions (Gadgil 1986).

In 1988, a new strategy of rural lending, Service Area Approach was announced and the banks were asked to adopt this new approach. By December 1988, the banks had ready credit plans for every village in 445 districts of the Country. The NABARD is setting up district level offices in the country in a phased manner. Forty three offices have been opened in the first phase, which would also prepare a potential linked credit plan for each district.

Two committees have recently gone into the system of formal agricultural credit in India.The Agricultural Credit Review Committee (ACRC) chaired by A.M. Khusro , which was appointed by the RBI in 1986 in pursuance of an agreement between the World Bank and the Government of India submitted its report in 1989. The Committee on the Financial Reforms chaired by Narasimham which was appointed in 1991 submitted its report in November 1991. Both the committees had made recommendations among

other things on modifying the rural banking structure, interest rates and directed lending programme.

The ACRC(1989) estimated the gross interest margins as varying between five percent to 8.65 percent. The Committee also made two recommendations having a bearing on the structure of agricultural credit institutions:

1) The merger of RRBs into sponsor commercial banks .

2) The creation of a National Cooperative Bank to provide leadership in banking operations.

The Narasimham Committee had suggested some fundamental structural changes:

1) Setting up of rural banking subsidiaries by the public sector commercial banks.

2) Those RRBs that wish to retain their identity should be allowed to engage in all types of banking business but their focus should continue to be to lend to the target groups.

The ACRC recommended continuance of directed lending for agriculture but suggested that concessional rates should be applied to small and marginal farmers. The Narasimham Committee recommended the phasing out of directed lending on the ground that the growth of agriculture and small industry has now reached a stage where the credit needs of these sectors could be met by the banks on the basis of the banks' commercial judgement. In its opinion the upward revision of interest on agricultural loans

accompanied by an improvement in the quality of lending will not affect the demand for credit. Gadgil (1992) believes that the need for giving the RRBs a wider mandate may also vanish with the adoption of rational interest rate policy as recommended by the Narasimham committee.

B. Demand for and Supply of Credit in Agricultural Sector:

The estimation of the demand for and supply of funds in agriculture is important for the formulation of credit policies. There has been considerable technical change in agriculture and the pace and spread of such change depend on the availability of funds and terms of financing. Several studies had been conducted in estimating the demand for and supply of funds in agriculture. The National Commission on Agriculture (NCA), the ACRC (1989) and Lead banks have evolved their own methodologies for making demand and supply projections for agricultural credit. The NCA has worked out Rs. 600/ hectare for irrigated and Rs.400 /hectare for unirrigated area (Rangarajan 1990). The ACRC adopted a model to estimate the short term loans (crop loans). The model is given as

$$I\ C2(i,j,t)\ LS + I\ C1(i,j,t)\ LM + 0.5\ I\ C1(i,j,t)\ LI$$

assuming that credit will be available to small and marginal farmers to cover not only their cash and kind expenditure but also the imputed value of family labour involved in the production of the crops C2(i,j,t), the medium farmers will get credit to cover cash and kind expenditure C1(i,j,t), and the large farmers will get credit to the extent of 50 percent of

cash and kind expenditure C1(i,j,t), LS, LM and LI denote the proportion of area operated by small , medium and large farmers respectively.

The demand for investment credit at the aggregate level has been estimated from the data published by the CSO on Gross Capitial Formation (GCF) for both private and public sectors. The data on capital formation by the private sector include, farm investment items such as land development, irrigation works, farm implements and equipments. Estimated growth rates of different activities of gross capital formation in agriculture were worked out at constant prices. On the basis of growth rates at constant prices and value of purposewise GCF, the values of GCF were estimated for the future period (Kahlan, 1991).

The Lead Bank 's estimation procedure (DCP 1992 -93) is as given below :

1) In microlevel planning , the district/ village was the unit of planning , based on the potential of the village for which village profile was used.
2) The District Level Consultative Committee considered the factors, such as farm extension programme, preparedness of farmers, past experience of the banks, recovery trend and availability of fertilizers.
3) The financial requirement /demand for credit, was estimated on the basis of gross cropped area under different crops, use of HYV and the scale of finance as approved by the

District Level Consultative Technical Committee. The supply of funds estimation was done by assuming certain rate of growth in deposits, changes in credit deposit ratio, the rate of recovery, the statutory requirements of RBI, SLR and CRR, the proportion of resources that will be available for financing agriculture and refinancing facilities provided by National Bank for Agriculture and Rural Development (NABARD).

Micro level studies and case studies on demand, supply estimation had used primary data.

The ACRC (1989) had projected the demand for and supply of funds in agriculture by taking into account the credit needs of Agricultural Production System (APS), which will generate the demand for inputs from Agricultural Input Subsystem (AIS). Adequate credit for AIS inturn will encourage the Agricultural Marketing and Production System (AMPS). Keeping these linkages in view, the credit requirements were projected for the year 1995-96 as Rs.573,160 millions and the deficit will be Rs.52,870 millions. In 1999 - 2000 the demand will be Rs.1108,730 millions and the deficit will be Rs. 214,260 millions. The supply of credit was estimated on the basis of CD ratio of 55 percent and 52 per cent at the end of June 1995 and 2000 respectively and the sources that will be available for financing agriculture at 18 percent in 1995 and in 2000.

Recognising the difficulty faced in projecting long

term inflation growth rates, the demand for credit was estimated at constant prices and supply at current prices.

Iqbal (1986) analysed the demand for and supply of funds among agricultural households in India and assessed the borrowing behaviour of farmers in the context of the assumption that farmers make borrowing decisions not only on the basis of market conditions defining their production but also on the basis of the self financing conditions. The data for the empirical analysis were taken from a survey conducted by the NCAER . The variables used in the model were consumption expenditure, leisure, net market labour supply of farm labour, initial endowment of capital on farm investment, price of output, market wage rate, interest rate, amount borrowed, technical improvement and total time available. The major findings of the study were:

* Land ownership did not affect the demand for credit.
* The wage rate effect was negative but strong.
* The research expenditure and the education variables were positively related to demand for funds
* Education played a stronger role for small farmers than it was for large farmers with respect to stimulating demand for funds.
* The larger the family size, the greater was the demand for funds.

Ray(1987)estimated the demand for and supply of credit by using a parametric linear programming approach in a block in

West Bengal. The step demand function for borrowing was derived by allowing the interest rate to vary in a systematic manner. The study revealed that existing level of credit supply from all sources was inadequate for optimal allocation of limited farm resources on small group , but the net return per rupee of working capital was higher for small farmers .The credit gap estimated was higher for small farmers than for large farmers.

Desai's (1988) estimation of credit requirement for agriculture based on the data collected from the Reserve Bank of India Reports on All India Investment Survey for the period from 1951-52 to 1981-82 has revealed that the short term credit would rise to Rs.490,000 millions in 2000 AD, in which the share of small farmers will be more than that of the large farmers. The credit requirement for rice and wheat will be 43 percent. The states of Uttar Pradesh and West Bengal will have the highest share in the credit requirement. The only state in which the credit supply will equal the credit requirement will be Kerala. The Eastern India will have the lowest share of the credit requirement.

Patel and Desai(1988) maintained that labour intensive farm cultivation requires 100 percent credit. With 75 percent, credit margin will be low, hence not desirable from the view point of cultivators. The credit gap was more for small farmers than for large farmers. The data for the study were collected from 40 villages spread over eight taluks in Central Gujarat.

They had estimated the cost of cultivation of crop and the expected return from the crop to find out the viability of the crop finance.

Satyasai et al (1988) estimated the flow of institutional credit to agriculture in Godavari District in Andhra Pradesh. The proportion of institutional credit to agriculture increased with farm size. Availability of short term credit per hectare decreased with the increase in farm size. It was found that higher credit requirement on lower farm size classess was due to lower surplus farm income on those farms. The shortage of credit was more acute on marginal and small farms mainly because of credit to non farm activities.

In a study by Kaliaperumal et al (1989) in a village it was found that , the institutions provided only 80 percent of the credit requirement. The credit provided was found to be inadequate to meet the cost of cultivation.

Ramadas(1989)had analysed the equity and efficiency aspect of institutional credit within the union territory of Pondicherry for the period of 1977-1989. His study revealed that:

- # the short term credit predominated the institutional credit and the proportion of long term credit increased from 7.4 percent to 14.8 percent during 1976-77 and 1988 - 89 ;
- # the commercial bank credit to agriculture increased at a rate of 32 percent when compared to 6.91 of growth rate in credit by co-operatives ;
- # the share of small farmers in credit increased and the credit to large farmers declined;

the average credit received by the small farmers was higher than that of large farmers;

large farmers had better access to cooperative credit than small farmers indicated the powerful hold of dominent landlord classess on the cooperative sector. The per holding commercial bank credit also showed a skewed distribution in favour of large farmers and

the institutional credit as input in agricultural production had a high positive elasticity coefficient. The marginal productivity of credit was higher than the interest rate implied the under utilisation credit.

According to Reddy (1990) per acre demand for credit was the highest for agricultural labourers , poor peasants and middle peasants. It was the lowest for landlords. For the agricultural labourers , poor peasants and middle peasants supply of credit per acre was lower than the demand. The landlords and rich peasants had a positive supply demand gap. The landlords and rich peasants met their credit demand chiefly from commercial banks and cooperative societies. They used the credit for non agricultural purposes, whereas the agricultural labourers and poor peasants used their credit mainly for agricultural purposes. The rate of repayment of middle peasants was 57.2 percent, poor peasants 53.6 percent and agricultural labourers 51.4 percent whereas for rich peasants and landlords was 41.6 percent and 35.7 percent respectively. He also found inequalities of various kinds in the credit deployment. Hence,his suggestion was that credit be linked with production needs rather than with the assests of the borrowers.

Rajasekar and Vyasulu (1991) elaborated the concept of

half life of credit analytically and estimated the time needed for the funds to reach their half life by simulating flow of loanable funds under different assumptions and examined the factors contributing the length of the half life of credit in Indian Banking.

This concept of half life of credit will be useful in fund allocation and management. In any year the loanable funds available in the bank was equivalent to the proportion of deposits available after observing Cash Reserve Ratio and Statutory Liquidity Ratio requirements , the funds recovered, growth rate of deposits and the amount refinanced by NABARD. Hence, based on these factors the time taken by a credit to become half was worked out. In priority sector credit differential interest rates are charged. Cost of funds rate as 10 percent and commercial rate as 18 percent were used in the simulation exercises. Half life of credit was worked out with various levels of recovery and also for different rates of interest. The major findings were:

* Overdue at the level of 10 percent to 15 percent will not normally lead to fund flow problems.
* Refinance facilities have helped banks in prolonging the half life of credit.
* Banks will enjoy a comfortable funds position only with a high growth rate in deposits.
* The half life of credit in India had declined due to the increase in the non performing assets in the banks.
* With more professional functioning, the recovery percentage

can be increased.

The supply and demand projections can not be done very precisely. The attempts made on this aspect of rural credit have not explained the causes for borrowing in the context of a theoretical approach except Iqbal (1988). In sum, the financial institutions had not been able to meet the requirements of farmers, particularly the marginalised sections of the farmers, the credit allocation and deployment were not at optimal level.

B) Structure of Institutional Credit :

The involvement of credit institutions in the rural areas through the period ranging from social control to service area approach had undergone substantial changes of diverse dimensions. However , throughout the changing scenario , there was a sharper emphasis on small and marginal farmers and on the weaker sections. The studies and review articles relating to the changing structure of credit had presented in terms of statewise distribution of credit, farmer categorywise distribution of credit, share of production and term credit in the total institutional finance and bank group wise distribution of credit.

The data for the studies on the structure of institutional credit were drawn from the Report on Currency and Finance published by RBI , statistics on RRBS published by NABARD, District Credit Plan documents and annual reports of the banks, RBI Bulletins, statistical statements maintained in cooperatives, Government of India National Income Accounts,

statistics on RRB , RRB division, NABARD and Tamil Nadu - An Economic Appraisal published by the Finance Department of the Government of Tamil Nadu.

Minger(1983) explained the credit delivery system of California. There was commercial banking system with 150 national and state branch banking. California had a highly competitive lending environment. Debt grew 2.95 times during 1970-79. Seasonal loans for crop production and livestock production, medium term loans, equipment loans, pledging loans and dairy loans were provided by the banks. The state had a good system of ancillary services like legal, accounting and insurance services. The commercial banks had a major share in the agricultural loans (58 percent). Credit takers were fewer in number but borrowed more money. Production Credit Associations were the most important institutions providing seasonal credit to farmers. Important providers of long term funds were individual Federal Land Bank Associations and Insurance companies. The Farmers Home Administration was a government lending agency operating within the USA Department of agriculture. Farmers had chosen their lending institutions based on the degree of difficulty or ease in settling their debts, the amount of loan, the length of loan, the cost of borrowing, mode of documentation and speed of response to a loan request.

Gadgil (1986) reviewed the credit performance and policies in India. There has been a spectacular increase in the

supply of formal agricultural credit in India. There was a switch over from security oriented to production oriented lending . The establishment of RRBSs in 1975 to focus on weaker sections and NABARD in 1982 were the major changes effected in institutional credit in India. The credit per hectare as a proportion to value added per hectare had increased from six to eight percent during 1973-83. The small farmers had received more than the others. The growth rate of investment credit had been higher than production credit. The states with the highest yield happened to be the states with the largest availability of formal credit. The viability of agricultural credit activity referred to as the sufficiency of interest revenue to meet the financial and transactional costs was better for PACs and PLDBs. The PACs appeared to be comfortably placed. In all cases, the margins were too narrow to permit the accumulation of surplus to cover bad debts. The interest spread was not adequate to cover the transaction costs as well as the risk of repayment default.

Rajagopal and Mohanan (1986) examined the working and viability of rural credit institutions of Bihar in two districts by comparing the performance of Farmers Service Society (FSS) and RRBs. The credit demand among the small farmers group varied according to quantum of agri business. The level of repayment was low in both the districts for the reasons of uncertainity in production, domestic and overhead expenditure. The services of FSS was satisfactory and a majority of farmers reported

difficulty in getting loans from RRBs. The FSS provided long term and medium term loans and RRB concentrated on medium term loans. The profitability of FSS was higher when compared to RRBs.

Pathak and Shukla (1987) had examined the regional variations in the flow of funds and studied the functionality of rural financial market of India for the period 1974-1984, using the secondary data - Banking statistics published by Ministry of Finance Government of India and Asset and Liabilities of rural and urban households published by NSS.The CD ratio in rural areas had increased in all regions , but the share of deposits mobilisation in rural areas had been relatively less and also the advances. The level of performance in terms of compound growth rate was the highest among rural branches. In Eastern States variations in CD ratio were found to be higher. The per branch deposit was higher than that of credit in the case of Bihar, Andhra Pradesh and Tamil Nadu. The rural bank credit showed a high correlation with average value of assets, state recovery percentage for agricultural advances, per capita state income and per capita rural income. The authors concluded that targetted approach had not impaired the functioning of the rural financial market. Social responsibility of the banks did not affect their viability.

Prihar and Narinder Singh (1988) studied the structure of the institutional credit in Ludhiana district in Punjab

which is agriculturally well developed, is known for its well developed network of financial institutions . They found that :

* Higher percentage of the medium and large farmers obtained crop loans and tractor loans as compared to small farmers.

* The medium term loans were obtained by eight percent of small farmers compared to 3.65 percent of the medium and large farmers.

* All the farmer borrowers obtained an equal amount of long term loans from institutional agencies.

* The fixed cost per hectare and per capita consumption expenditure were the important factors affecting the share of institutional credit in total farm investment.

* As the farm size incresed the percentage of farm loans also increased.

* The borrowed funds were preferred to owned funds for investment in the farm.

A study on the viability of rural credit structure, a case study of RRBs by Sangwan (1989) revealed that out of 196 RRBs in India 152 were operating under loss. He found that the banks were reluctant to undertake rural lending activity in the absence of profit incentives. A minimum of 11.5 percent average lending rate was suggested to make the branch viable.

Rangarajan (1990) analysed the rural credit structure in Tamil Nadu and estimated its credit requirements. The state ranked 5th in India in terms of crop loans serverd per bank office (Rs.12000). When compared to RRBS and cooperatives, commercial bank's performance was higher. Regarding district performance, the study noted that the banks have achieved

targets in all the districts, except Dindigul Anna and Trichirapalli. He estimated the financial requirements of all crops as Rs. 34,650 millions (cash and kind expenditure plus imputed value of family labour) for the state .

Nagarajan et al (1990) had examined the physical and operational performance of the formal financial institutions in Tamil Nadu for the period 1968-1987 , in terms of deposit mobilisation, CD ratio, advances and branch expansion.

The findings were :

Tamil Nadu was among the leading states in rural credit delivery system.

The share of rural branches had increased from 1.18 percent to 12.3 percent.

The share of deposits mobilised in rural branches to total deposits had shot up from 2.44 percent (1969)to 12.3(1989).

The CD ratio of the RRBs within the state was consistently higher than the national level.

Regarding the cost of borrowing, the survey revealed that there was a leakage of Rs. 21 for every 1,000 rupees of subsidy availed by a weak borrower.

Political interference was an important factor for the poor recovery performance.

A study sponsored by NABARD was conducted by Vyasulu and Rajasekar (1991) in the five states of Karnataka, Madya Pradesh , Uttar Pradesh , Rajasthan and Orissa. The study focussed on the structure of rural credit system, the cost effectiveness, the problem of overdues and the benefits to the target groups. The major results were:

* The rapid growth of overdues was due to the growing

importance of the government scheme loans. The selection procedures were indiscriminant and haphazard. There was a view among borrowers that IRDP loans were not meant for repayment. There was very little coordination between different agencies at the district level.

* The cost effectiveness was better assessed with reference to developmentally relevant variables like the cycle of credit and not by the bureaucratic variables like growth in deposits or number of accounts.

* Many poor farmers faced the problems of inadequate and untimely loans. Group lending can be one way in which the marginalised groups may get loans. Micro credit agencies may be involved in the scheme .

* If 40 percent of the loans should be disbursed in rural areas, this may be deposited in a special fund in RBI and made available to RRBs and co-operative banks.

Ghose and Patel (1991) reviewed the structure of institutional credit in India with reference to small and marginal farmers for the year 1986 -87. They found that:

* In Punjab and Kerala , cooperatives and commercial banks had covered a sizable proportion of the farmers.

* In Tripura , Haryana , Gujarat and Madya Pradesh the performance of cooperatives was better than the commercial banks.

* In Andhra Predesh and Tamil Nadu both the sectors had more or less similar coverage. Marginal and small farmers did not have any specific discrimination interms of allocation of credit.

* An average marginal and small farmer obtained an institutional credit of Rs.2,240 per borrower, Rs. 476 per farmer and Rs.753 per hectare for all purposes put together.

* The average amount of credit given by commercial banks to medium and large farmers was comparatively larger than the cooperative banks.

Nayak (1991) had analysed the functioning of cooperatives in India for the period 1951-52 to 1985-86.

He found that:

The rural population covered by credit cooperatives had phenominally increased from 7.8 percent to 65 percent.

Since 1970, there was a rapid expansion of the branches of commercial banks and RRBs and the cooperatives were left far behind.

Land Development Banks were not designed to act as deposit mobilising institutions and were dependent on the refinance support of the RBI and NABARD. This has imposed a resource constraint on their lending relating to their loan recovery performance and they began to loose their primacy in rural lending.

The politisation took the form of interference within the interest rate regime and through write off of loans. The indiscipline among rural borrower had caused financial loss.

The cooperative banks failed to create confidence in the rural population both as lenders and as custodians of deposits.

Desai and Namboodiri (1992)had critically analysed the performance of Institutional Finance for Agricultural Development in India by utilising long time series data from 1961-62 to 1985 -86 collected from statistical statements relating to cooperative movement in India statistical tables relating to banks and Report on currency and banking interms of size operations, association of Rural Financial Institutions (RFIs) in the agricultural development and the scale of economies in transaction costs.

The major findings of the study were:

* The rural institutional finance system had performed well interms of financial deepening of rural credit.

* Its performance was modest with respect to the increase in agricultural output

* The RFI had been viable and not suffered from scale diseconomies in transaction costs.

* The high delinquency in India affected the scale economies.

Rajasekar and Vyasalu(1992) studied the functioning of the rural credit delivery system in Pali District of Rajasthan. The data on deposits, advances, overdues coverage, loans to government sponsored programmes and administrative costs of banks were collected from the banks. They found that :

* There was a substantial quantitative growth in deposits and advances.

* The recovery performance of PACs was better when compared to commercial banks and RRBs. The chronic overdues of loans increased. More than 60 percent of the farmers were identified as wilful defaulters.

* The govenrment sponsored loans and the recovery performance were negatively related.

George and Banu(1992) had examined the lending pattern of Quilon Agricultural Development Bank with the data collected from annual reports and receipts and disbursement registers of the bank for the period 1976-77 to 1984-85.

The findings of the study were :

* The normal lending prodominated the schematic lending with 85 percent of the ordinary loans. The total loans recorded a growth rate of 9.9 percent , 8.1 percent in ordinary loans and 18.1 percent in scheduled loans.

* Amount wise and coverage wise small farmers had a lesser share in ordinary loans compared to schematic loans.

* The overdue position of the bank over the years had been brought down to 16 percent.

Desai and Namboodiri (1992) have analysed the performance of Indian Commercial Banks in terms of size of operations and structure of agricultural loans . The period of study was between 1968 and 1982. They found that:

* The CD ratio was 50 percent and the rural deposits increased by 13 percent.
* The agricultural output per hectare and Net Domestic Product were positively related to density of rural branches, rural deposits and direct agricultural loans.
* Loan delinquency rate was negatively related with deposits and advances.
* The commercial banks suffered from scale diseconomies in the transaction costs. The transaction costs increased more proportionately than the increase in the scale of their operations.

Narayana (1992) examined the institutional credit programmes for rural development interms of risk management concept. He found that :

* The commercial banks had reached the small and marginal farmers.
* The credit performance of the institutitions had been affected by poor recovery.
* The crop insurance scheme had failed to compensate the crop loan liability of the farmers.
* The introduction of Group Lending Programme (GLP) had only limited application.

In summary, the studies on the structure of credit focussed on the spatial distribution of credit and indicated the uneveness in the credit distribution . The role of commercial banks and cooperatives in financial intermediation was

highlighted. The commercial banks had diseconomies and the transaction costs increased with the increase in their operations. The commercial crops had a major share in the total agricultural loans.

D. Utilisation of credit:

Studies relating to utilisation of credit and the impact of credit on agricultural production were mainly undertaken with a view to assess the impact of credit on technology transformation in agriculture and the resulting changes in income , saving , land productivity and cropping pattern. These studies used primary data collected at the farm level. The rate of return on capital and profit function approach had been used to assess the impact of credit on farm production.

Balishter and Singh (1987) studied the impact of credit on farm income, finance and saving and the utilisation of funds in a block in Agra District. In this block 82 percent of the credit was used for productive purposes and the remaining funds on unproductive purposes. The diversion of loans to unproductive purposes showed an inverse relationship to farm size. The average income had increased in all size of farms. The rise in income of the borrower farmer had resulted in a marginal increase in the deposits of the medium and large farmers. The credit gap was much less in the case of marginal and small farmers when compared to

large farmers.

Subba Rao (1980) had examined the utilisation of institutional credit for adopting HYV technology in Eastern Uttar Pradesh and Western Uttar Pradesh. The role of short term cooperative credit in the adoption of HYV technology was significant among borrowers than the non borrowers. The credit absorption capacity was lower in eastern region . There was a positive relationship between the rate of recovery and short term credit . The cooperative credit had played a positive role in the attainment of higher levels of fertiliser use with assured irrigation. The short term credit had a positive and significant relation with fertilizer. The area under HYV paddy had a significant relation with the term credit. However, the adoption levels of the small farmers were lower.

Rao et al (1985) analysed the relative operational efficiency of Sri Visaka Grameen Bank (SVGB) and Agricultural Development Bank of SBI (ADB) and studied the impact of finance on farm income and cropping pattern. They found that :

Eighty percent of the borrowings were utilised for working capital expenses.

SVGB loans were more productive compared to ADB loans.

The impact of SVGB finance was relatively greater than that of ADB finance. The finance had resulted in a shift in the cropping pattern towards commercial crops.

According to Munshi and Pandya (1985) the short term credit given to farmers of various groups in Junagadh

District by the PAC had been used more for stipulated purposes, particularly for the purchase of input, pesticides, seeds, fertilizers etc. The farmers had misutilised cash credit than the credit in kind. The credit deployment even to household expenditure and to repay the old debts may reduce the extent of misuse of funds , was suggested in the study.

Lal and Lavanya (1986) had analysed the impact of cooperative credit on agricultural production and income of the farmers in a block in Allahabad district. The impact of credit on production and net income had been worked out on the basis of the cost of cultivation, yield and income.There was a positive relation between utilisation of credit for unproductive uses and size of holdings . The cost of cultivation and yield per hectare were higher for member farmers than the non members. The large farmers were generally the greatest beneficiaries of the cooperative credit.

Bhende (1986) had analysed some aspects of rural financial markets in three villages of three agro climatic zones of South India . The institutions had concentrated on the richer households having higher education, larger family size and larger farm size. The households with more lands and less education relied more on informal credit. The farmers diverted the credit money to other uses. The largest defaulters were those households who had borrowed most from institutional sources.

Households with large families and higher dependency ratio were more prone to default.

Banaker and Surya Prakash (1987) had studied the utilisation of credit in a district of Karnataka State. They found that:

* The farmers had shown preference to the RRBS over cooperative credit societies and the credit institutions showed preference to large farmers.

* The cooperatives covered a large number of cultivators in irrigated area compared to unirrigated area. The small farmers had a lower share in the total advances to agriculture than large farmers in irrigated area.

* The commercial banks had completely left out the small farmers in the district. The loan had a greater impact on the use of inputs .

* In the unirrigated area, the farmers diverted the credit towards unproductive uses.

* The average loan per acre was high with an increase in the size of holding. The small farmers were able to spend more on fertilizers and plant protection measures than the large and medium farmers and large farmers spent the more on fertilizers and human labour.

* In the case of unirrigated area , medium farmers spent more on seeds and human labour.

The study highlighted the need for appropriate guidance about the correct choice of inputs to be used and the combination of inputs to be applied to obtain optimum results.

A taluk level study in the state of Karnataka was conducted by Nagaraja and Venkataraman (1989) to assess the impact of credit on net return in agriculture and on cropping pattern. A linear programming model was used to find out the

optimum cropping pattern . The cash use per hectare of cropped area was less for large than for small farmers. The short term loans provided to farmers were found adequate , because credit requirements were based on need rather than the size of holdings. The number of crops suggested in the optimum plans were lower than the existing plan followed by small and large farmers.

Namasivayam and Balasundaram (1991) had analysed the role of credit subsidy on farm investment as a case study of two villages in the state of Andhra Pradesh. They found that:

* Higher the level of investment preference , the lesser was the opportunity loss incurred by the farmers.
* The reduction of one unit on investment preference had resulted in a maximum output gap for the small farmers.
* In order to maximise the investment preference , lowering of interest rate and enhancement of the quantum of loans were suggested. The increase in the quantum of loans with the rate of interest of 12 percent was found to the correct alternative to maximise the investment preference of the farmers.

The findings of the studies on the impact of credit have shown the inverse relationship between diversion of borrowed funds and farm size; positive relationship between improved practices , adoption of HYV technology and credit and the shift in cropping pattern in favour of commercial crops.

E. Recovery and Overdues

Sanction, disbursement of loans , utilisation of loans and recovery of loans are the four important sequences of all credit programmes. The efficiency and economic survival of the

financial institutions mainly depend on the recovery of loans. The studies on recovery focused on identifying causes discriminating wilful and non-wilful defaulters and the causes for overdues from borrowers' angle. Most of the studies have used primary data collected from the borrowers while some have used data maintained in the banks. The studies have adopted discriminant function approach to classify the defaulters as wilful and non-wilful. Baysian approach was used to attach the personal and social characteristics of wilful and non-wilful defaulters with overdues. The secondary data collected from the banks were analysed using Cobb - Douglas production function approach relating overdues with deposits, loans, reserve fund, membership and working capital.

Singh (1985) analysed the problem of overdues from the point of view of management of credit of the PACS and Central Co-operative Banks . The objective of the study was to find out the relationship between the extent of supervision and its effect on the use of loans. It was found that the number of meetings of the managing committees of the socities had a high negative correlation with the percentage of overdues. The number of visits and inspection by the supervisory staff had been inversely related to the percentage of overdues. The supervision over the use of loans had been largely neglected in the area.

Chand and Sidhu (1985) had analysed the relationship between recovery of loans and the socio-economic characteristics

of farmers in a problem area of Punjab state. The factors, capital expenses, the number of dependents, net cash income and education level emerged as distinguishing characteristics of defaulters against non-defaulters. Net cash income, capital expenditure, size of operational holdings and farm income were the factors that differentiated the wilful and non-wilful defaulters.

Dangat et al (1986) studied the repayment and overdues of agricultural loan in Ahmednagar of Maharashtra. The recovery percentage of short term loans was more in the developed region than in the under developed region. The percentage of overdues to the total outstanding was more in the developed region in the case of medium term loans and the proportion of repayment of long term loans was more . The amount of ovedues had a positive relationship with the amount borrowed and family expenditure in both the regions . It had a negative relationship with net income from crop production . There was no significant relationship between the amount of overdues the total land holding and irrigated area in both the regions.

Kalyankar et al(1987)classified, by using discriminant function approach, the defaulters of cooperatives in Maharashtra. The size of holdings, family consumption expenditure, farm income and loan amount were the variables used to discriminate the wilful and non-wilful defaulters. The size of holdings and family

consumption expenditure were the main factors discriminated the wilful and non-wilful defaulters.

George et al (1984), Reddy (1988), Vaikunta (1988), Pandey (1989), and Bhosale(1989) had identified the factors for overdues as the cropping pattern, educational level of the farmers, attitudinal factors relating to willingness to repay, high interest rate, inadequate finance and misutilisation of loans.

Dawar (1989) had analysed the magnitude of overdues of the agricultural loans given by banks in Uttar Pradesh and Andhra Pradesh during the VII Five Year Plan period. The study used secondary data collected from the Annual reports maintanined in the banks. In Andhra Pradesh the percentage of overdues was higher in Central Cooperative Banks than Primary Agricultural Development Banks. Large farmers were the defaulters.

The natural calamities like drought, flood, pests and insects which damage the crops, misutilisation of loans, diversion of income generated by the use of loan amount to other trades, underfinancing, delay in obtaining electric connection and the writing off of loans by the government which discouraged the borrowers to repay the loans were the factors for overdues.

Ananda Gopal et al (1989) studied the problem of overdues of the Cooperative Land Development Bank in Coimbatore district. The proportion of overdues was less in respect of minor irrigation than non-minor irrigation . Installation of pumpsets

and land reclamations were the two purposes predominent in respect of number of defaulters and amount of default. The wilful defaulters were more among the large farmers. The high probability of wilful defaulters was associated with large farm size, high annual income, high educational status, low age and high caste status.

According to Krishnan(1990) the overdues percentage in RRBS was the highest in the state of Nagaland and the lowest in Punjab. In a Regional Rural Bank at Kerala, the recovery performance had declined. The crop loan registered 74 percent revovery; plantation loan 100 percent and the recovery of loans for allied activities was below 50 percent.

According to Kahlan (1991) the defaulters in many cases were involuntary , non-wilful arising from lending banks imperfect perception of farmers repaying capacity and investment failures from faulty lending procedures. Some of the major deficiencies in the lending procedures of the credit institution which contributed to involuntary default of the borrowers were, underfinancing short loan maturities, absence of initial grace period, delays in sanction and disbursement. Underfinancing resulting from the fixation of low unit cost and sanctioning of inadequate loan amounts had contributed to the rising level of overdues. In the case of tractor loan , the approved unit cost was lower than the actual cost by 24 percent and the actual down payment was 31 percent against 15 percent stipulated. Regarding

the maturity of bore well loans , the bank fixed the period as nine years against 11 years recommended by NABARD. It was suggested that flexibility be introduced in the application of unit cost concept, projected levels of income and fixation of maturity periods for the repayment of loans.

The studies on overdues, identified the causes for the non - repayment of loans from the banks' angle as crop failures, natural calamities, misutilisation of funds, diversion of income generated by the use of loan amount, unremunerative prices of agricultural products, unexpected consumption and other expenditure. The factors responsible for overdues from borrowers' angles were, defective and improper appraisal of loan application, lack of effective supervision and follow up action, untimely credit and under financing , weakness in recovery procedure, considerable delay in electric connection in pumpsets, legal hurdles - banking acts making it necessary for the officials to obtain permission from unions and authorities, writing off of loans, non synchronisation of due dates for repayment and marketing season of crops, indiscriminate lending, and short duration of repayment period for term loans. The proportion of wilful defaulters was less among the small farmers and farmers with less education and big family size. The higher propability of wilful default was associated with large farm size, higher annual income and expenditure , and high educational status.

Methodology

III METHODOLOGY

The methodology adopted in the current study on "Financial Intermediation in Agriculture with reference to Banking Sector in Coimbatore District" is described under the following headings:

A. Selection of the Area

B. Sources of Data

C. Sampling Design

D. Analytic Techniques

E. Definition of terms

F. Limitations

A. Selection of the Area :

The Coimbatore district is one of the agriculturally advanced districts of Tamil Nadu. There are 3,95,048 hectares of gross cropped area of which 45,963 hectares of area are cultivated more than once and hence a cropping intensity of more than 100 percent. The cropping pattern of the district has a very unique feature with all major cereals of paddy, cholam, ragi and all pulses, with 55 percent of area under food crops and 45 percent of area under non-food crops groundnut, sugarcane,coconut and cotton(DSO Records 1992-93). All these provide a good climate for the financial intermediation operations of banks.

The district has a good network of banks with 315 branches serving a population of 10,998 per bank office, which is less than the state average of 12,987 . There are five state

controlled banks ,18 public sector banks, 16 private sector banks and four cooperative banks ,a total of 43 banks serving 21 rural and five urban blocks in the district. The district ranks first both in terms of percapita deposits and advances Rs.4,422 and Rs.4,547 respectively, the levels higher than the state level average of Rs.1,680 and Rs.1,394 (Tamil Nadu -An Economic Appraisal 1991-92). The performance of the banks is 103 percent in terms of priority sector credit and 132 percent in agricultural credit. The banks are dispensing credit for 1,36,113 farmers of all categories. There are variations among the blocks and banks in the credit allocation, deployment and recovery performance. Hence, to analyse the causes for the variations and to identify the factors considered in the formulation of credit plan, this district is selected as the area of the study. Since 1978, four district credit plans for the duration of three years each and six annual credit plans have been formulated and implemented in the district.

The rural credit delivery system has its own location specific problems. The inadequate managerial staff, government interference, political interference and the structural problems within the banking system are some of the problems of the rural financial markets reported in the earlier studies (Kahlan, 1991; Nair, 1991 ; Rajasekar, 1991). Indepth studies on the role of banking sector in creating infrastructure, improving the resource base of marginalised sections and small farmers, investment

credit support with technological tie up, examining the factors determining the formulation of credit plan and analysing the borrowing behaviour of the farm households are necessary to help the state and central governments in formulating policies towards reforms in the banking sector. This review of the rural credit delivery system at the district level is expected to reflect the problems in financial intermediation in agriculture which may be faced by bankers in regions with similar agrarian structure, banking structure and agro climatic conditions.

B. Sources of Data:

The data for the study were collected from both primary and secondary sources. The information on crop loans, investment loans, deposits, advances, recovery for the banks and and blocks, the block profiles, gross cropped area, irrigated area, cropping pattern, occupational categories, land holding details, number of bank branches in the blocks, population of the blocks and literacy and illiteracy details were collected from the following sources:

1) District Credit Plan documents 1978-1988. Published by Lead Bank Office - Canara Bank, Coimbatore.

2) Annual Credit Plan documents -1989-1994, published by Lead Bank Office - Canara Bank, Coimbatore.

3) Lead Bank scheme statements on recovery of advances 1992-93 unpublished documents, Canara Bank Office, Coimbatore.

4) Scale of Finance Statements of the District Level Consultative Committee of Lead Bank Scheme, Canara Bank, Coimbatore.

5) Census of India - 1991, Final Population of Tamil Nadu published by the Directorate of Census operations, Government of Tamil Nadu, Madras.

6) Records maintained by the office of the Assistant Directorate of Statistics, Coimbatore.

7) Season and Crop Reports data of Coimbatore , Office of the Assistant Directorate of Statistics, Coimbatore.

8) Block Profiles of Thondamuthur, Perianaicken Palayam and KinathuKadavu, maintained in the Office of the Assistant Directorate of Statistics, Coimbatore.

9) Lending Registers maintained by the State Bank of India, Ganapathy Branch, Canara Bank, Gudalur Branch located in Perianaicken Palayam and Bank of Baroda, Kinathukadavu Branch.

10) Tamil Nadu - An Economic Appraisal 1991 -92, Ministry of Finance, Government of Tamil Nadu, Madras.

The survey method was used to collect information from the farmers who had availed institutional loans. The survey method used two structured schedules, namely, farm business schedule and household schedule to collect data from the selected farmers (Appendix I). The farm business schedule sought detailed information on resources availability, land use, crop enterprises, levels and costs of input use on different crops and livestock enterprise. The household schedule sought information on details of farmer's assets, cash expenses, family living expenses, borrowing details and repayment and mobilisation of funds towards farm expenses.

C. Sampling Design :

The sample borrowers of the study were selected by multistage random sampling procedure. The first stage was block

selection. The rural blocks of the district were classified as high credit intensive and low credit intensive blocks on the basis of the district average of number of accounts and amount in agricultural credit as given in Table IV.

TABLE IV

DISTRIBUTION OF HIGH CREDIT INTENSIVE AND LOW CREDIT INTENSIVE BLOCKS IN COIMBATORE DISTRICT (Rs in 000s)

High Credit Intensive			Low Credit Intensive		
Block	Accs.	Amount	Block	Accs.	Amount
Anamalai	6972	56138	Annur	7206	36416
Avinashi	6454	49198	Karamadai	3789	36413
Gudimangalam	5637	41093	Madukkarai	3778	31753
Kinathukadavu	6055	46068	Palladam	4121	26080
Madathukulam	9156	59808	Perur	1011	10877
P.N. Palayam	5431	37349	Pongalur	5169	38931
POllachi (N)	7915	42608	S.S.Kulam	2456	20542
Pollachi (S)	7550	40693	Sultanpet	4610	34024
Udumalpet	12677	85720	Sulur	5294	26791
			Thondamuthur	3725	24634
			Tirupur	822	18801
			Valparai	1730	13757

District Average : Accs. 5312 Amount 37009

Source Annual Credit Plan of Coimbatore District -1992-93

One block from among the twelve less credit intensive blocks and two from among the nine high credit intensive blocks were randomly selected by using lottery method. Kinathukadavu and

Perianaicken Palayam, the high credit intensive blocks and Thondamuthur the low credit intensive block were the selected blocks in the first stage. These blocks also represented the district, in terms of irrigation intensity, Thondamuthur (44 percent), Kinathukadavu (49 percent), high irrigated areas and Perianaicken Palayam , a low irrigated area (31 percent).

In the second stage,three banks were selected from the five banks which had achieved / exceeded the target set for 1991-92, Union Bank of India (167 percent), Bank of Baroda (152 percent), Canara Bank (138 percent), State Bank of India (112 percent) and Indian Bank (103 percent). Three banks namely, State Bank of India, Canara Bank and Bank of Baroda were randomly selected by lottery method. In the third stage, three bank branches that is, each from the State Bank of India, Canara Bank and Bank of Baroda were purposively chosen as these branches were the service area bank branches in the three selected blocks. The State Bank of India Ganapathy Branch was the service area bank for the revenue villge of Thondamuthur which included the hamlets of Thaliyur, Kalickanaicken palayam, Deenam palayam and Pudu palayam. Canara Bank, Gudalur Branch located in Perianaicken Palayam had the service area of Naicken palayam comprising of Jothipuram and Govanoor. The Bank of Baroda Kinathukadavu Branch was serving the revenue village of Kodangi palayam which covered the hamlets of Konampatti,Tenmuthur

and Vadachittor. These bank branches were contacted for the list of borrowers of their respective service areas which formed the population of the study. Out of the 293 beneficiaries in the list, 46 were IRDP borrowers. Hence, they were excluded from the sampling frame. Among the remaining who have taken loans for agriculture either crop loans or investment loans 200 farmer borrowers were selected randomly using Tippet's scale of random numbers. In the post stratification it was found that 33 belonged to large farmer group with more than ten hectares of operated land area, 67 were medium farmers with less than ten hectares but more than two hectares of land area and 100 were small farmers with less than two hectares. The selected 200 borrowers were distributed across the blocks as given in Table V. The maps of Coimbatore District and the three blocks are given in Figures II, III ,IV and V.

TABLE V
DISTRIBUTION OF SAMPLE BORROWER FARMERS IN THE SELECTED BLOCKS IN COIMBATORE DISTRICT - 1992-93

Block	Small	Medium	Large	Total
Thondamuthur	40	22	18	80
Kinathukadavu	20	13	7	40
Perianaicken Palayam	40	32	8	80
Total	100	67	33	200

The reference period of the study was the financial year from April 1992 to March 1993 for credit allocation,

THE MAP OF COIMBATORE DISTRICT

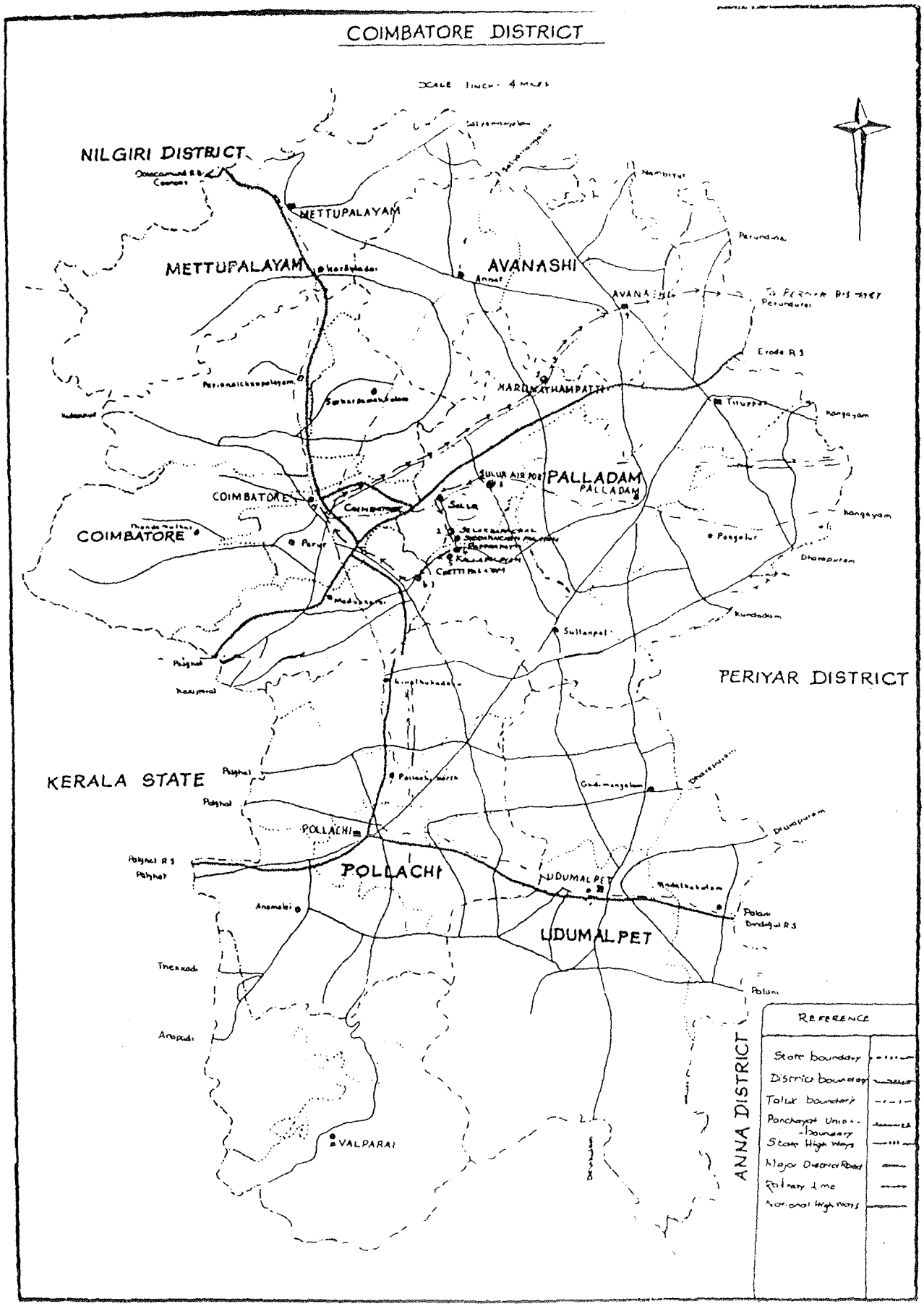

Fig. II.

THE MAP OF THONDAMUTHUR BLOCK

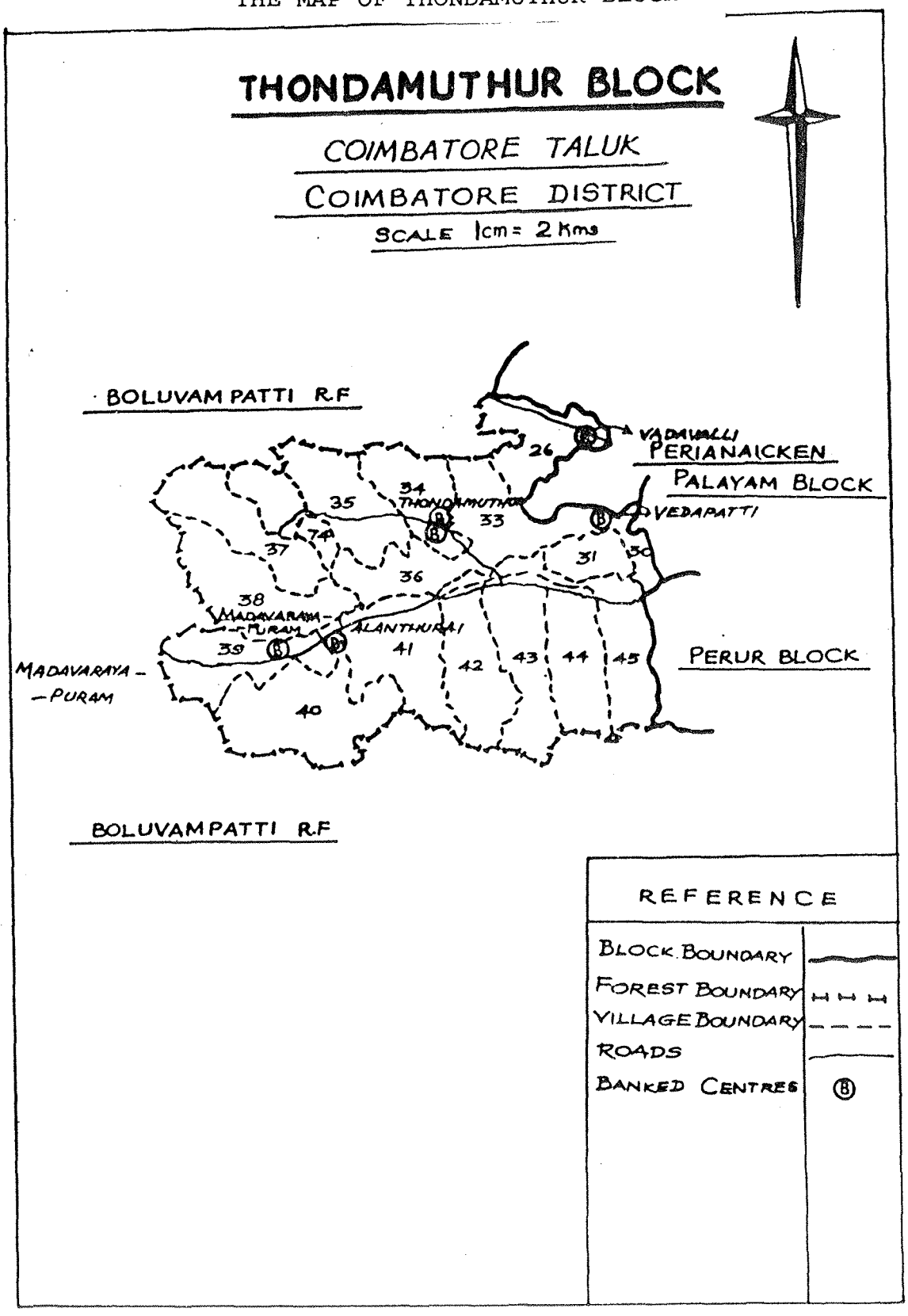

Fig. III

THE MAP OF PERIANAICKEN PALAYAM

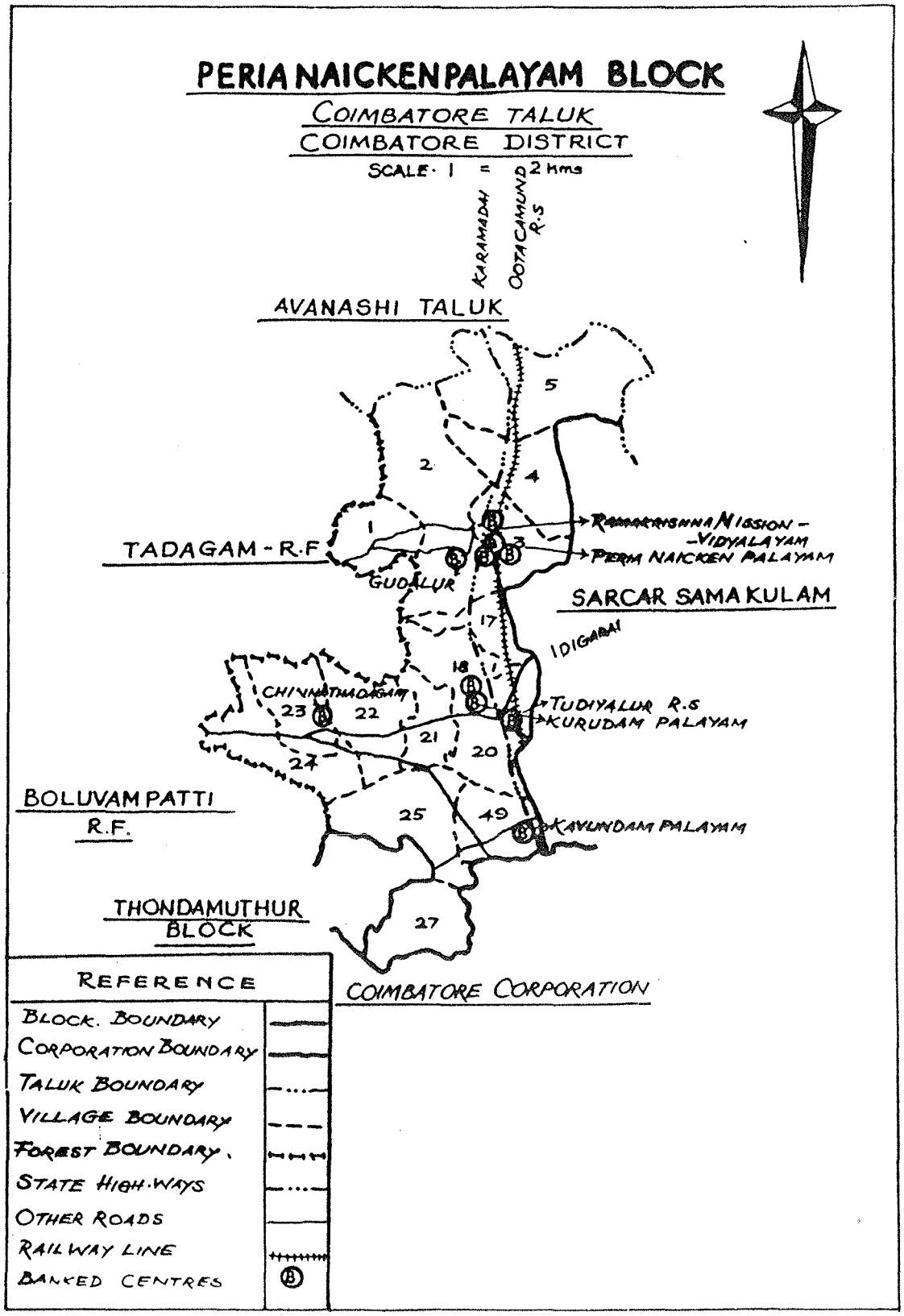

Fig. IV

THE MAP OF KINATHUKADAVU BLOCK

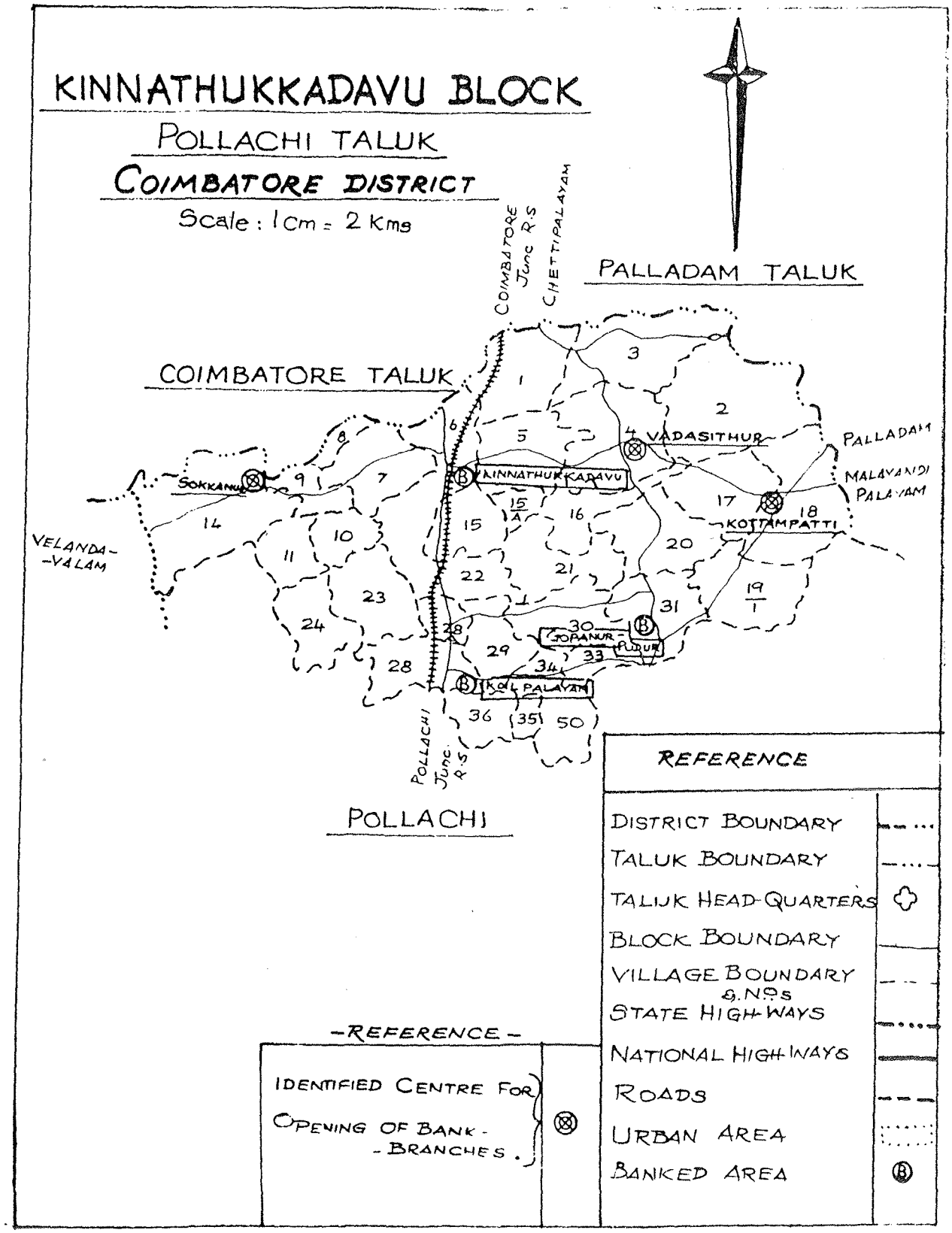

Fig. V

deployment and recovery of loans. The details of the resource availability of the blocks were for the period of the agricultural year 1992-93.

D. Analytic Techniques:

A critical analysis of the methodologies adopted in the previous studies on rural credit delivery system at the micro and macro level had shown the following approaches:

1) Review studies describing the structure of the credit system with compilation of data from various sources using relevent percentages, ratios and index numbers (Gadgil 1986; Patel, 1991; Nair, 1991; Rangarajan, 1991 and Nagarajan, 1991)
2) Trend studies using time series analysis to study the structural changes and regional imbalances in credit system over a period of time.(Desai, 1988; Kahlan, 1991; Rajasekar, 1991).
3) Analytic studies with empirical support to estimate demand for and supply of credit using expenditure approach (NCA, 1976 ; ACRC, 1989) production function approach, linear and parametric programming approach (Ray, 1987; Iqbal, 1986; Ramdas, 1989), simulation approach (Rajasekar, 1991) to estimate the half life of credit which affect the supply of funds in agriculture. These studies had analytically examined the problem but without the necessary theoretical

background, except Iqbal (1986) regarding the factors influencing the borrowing decision at the farm household level. Studies on overdues discriminated the wilful and non-wilful defaulters by associating the personal, socio-economic factors with overdues using discriminant function and Bayesian approach (George et al 1984; Kulandaisamy, 1989; Pandey, 1989). These studies had identified the factors reponsible for poor recovery with empirical evidence and causal relations on the basis of logical reasoning.

The two important aspects of the problem missing in the earlier studies were: factors behind the formulation and evaluation of the district credit plans and lack of theoretical support to the empirical analysis about the determinants of borrowing at the farm household level. The current study attempted to device a model for the district credit plan highlighting the factors / resource potentials which the bankers should take into consideration in agricultural credit allocation and also evolved a farm household behaviour model within the utility maximisation framework to identify the determinants conditioning their borrowing behaviour.

a) Credit plan model:

The steps involved in the model specification are as follows:

1) Formation of correlation matrix to find out the extent of correlations among the selected independent variables.
2) For estimating the relationship between the decision to allocate the credit to blocks and their credit absorptive capacity , the equation used was :

$$Y = A \; X_1^{b1} \; X_2^{b2} \; ..... \; X_{11}^{b11} \; e^{u}$$

The elasticity coefficients b_1 ..... $b_{11} > 0$

where Y = Credit allocation to the blocks in 000s of rupees (Total loans / Crop loans / Investment loans)

X_1 = number of cultivators

X_2 = number of agricultural labourers

X_3 = number of marginal and small holdings

X_4 = number of semi medium and medium holdings

X_5 = number of large holdings

X_6 = net area sown in hectares

X_7 = area sown more than once , in hectares

X_8 = size of literate population

X_9 = size of rural population

X_{10} = size of SC/ST population

X_{11} = number of bank branches

u - error term

No single variable can explain the credit absorptive capacity of the blocks. Therefore, the above variables were taken as determinants of credit allocation and credit worthiness indicators.

3) The technique of factor anaysis was also used for grouping the set of highly correlated variables into a few factors so that the bankers/planners could be guided in their decisions on credit allocation by the movements in these factors.

Factor analysis made use of correlation matrix (R) of the variables. If $R = (r_{i,j})$ is the n x n correlation matrix with eigen value - eigen vector pair

$$(\lambda_1 \hat{e}_1), (\lambda_2 \hat{e}_2) \ldots (\lambda_n , \hat{e}_n)$$

where $\lambda_1 \geq \lambda_2 \geq \ldots \geq \lambda_n \geq 0$

the matrix of estimated factor loadings $\{ l_{ij} \}$ is given by

$$\overleftarrow{L} = [\sqrt{\lambda_1}\ \hat{e}_1 \mid \sqrt{\lambda_2}\ \hat{e}_3 \mid \ldots\ldots\ldots\ldots\ldots\ldots \sqrt{\lambda_m}\ \hat{e}_n \mid]$$

The number of common factors may be less than the

number of independent variables. The number of common factors were selected based on the estimated eigen values. Conventionally the number of common factors can be set to m(less than n) equal to the number of eigen values greater than one.

The estimated factor specific variances were provided by the diagonal elements of the matrix

$$R - \bar{L}\,\bar{L}', \text{ so that}$$

$$U = \text{diagonal}(u_{11}, u_{22}, \ldots u_{mm})$$

$$\text{with } \bar{u_i} = r_{ii} - \sum \bar{l}_{ij}^2$$

The communalities are estimated as

$$\bar{h_i}^2 = \bar{l_{ii}}^2 + \bar{l_{12}}^2 + \ldots\ldots + \bar{l_{im}}^2$$

The cumulative proportion of total sample variance for the first i factors was given by

$$\frac{\lambda_1 + \lambda_2 + \ldots \lambda_i}{n}$$

The original loadings may not be readily interpretable. Hence the factor loadings were rotated until a simpler structure was achieved. The rotation will not affect the specific variances and the communalities. The orthogonal transformation matrix used for the rotation of the factors was selected by using varimax procedure (Morrison, 1976 ; Johnson, 1988).

b) Specification of the farm household model:

The basic structure of the farm household model was

adapted from Iqbal (1986). The household was assumed to maximise its utility function subject to budget and time constraints. This, when applied to borrowing and lending behaviour of farm households assumed that borrowing expanded income directly in the period in which it was undertaken and it reduced income in the subsequent period through repayment obligation. It also expanded income indirectly in the subsequent periods by making possible investment that pays off in those years. All these basic notions can be captured by a two period constraint system as

The general utility function is

$$U = U(\ C_1\ \ C_2\ \ L_1\ \ L_1) \quad .....1$$

where the time subscripts refer to current and the succeeding period and were meant to capture essentially the duration of borrowing, investment repayment cycle.

$$p_1\ f(K_1\ ,\ H_1) + W_1\ M_1 + B\ = C_1 + I \quad .....(1)$$

$$p_2\ a\ f(K_2,\ H_2) + W_2\ M_2 \quad = C_2 + B(I+r) \quad ...(2)$$

$$M_1 = T - L_1 - H_1 \quad .....(3)$$

$$M_2 = T - L_2 - H_2 \quad .....(4)$$

where the subscripts refer to the two periods being considered and

C = consumption expenditure

L = non market time

M = net market labour supply

H = on farm labour

K_1 = initial endowment of productive capital

I = on farm investment

$K_2 = K_1 + I$

p = price of output

W = market wage rate

r = interest rate

B = amount borrowed or lent

a = technical improvement parameter

T = total time available

The inclusion of technology parameter on the production side and the labour leisure choices in the model explicitly consider the fact that borrowing can affect the labour leisure choices and vice versa . The role of technical change in influencing the demand for credit was explained by the change in the decision to adopt new technology. Technology parameter included the factor that brought about the differences in the investment opportunities.

This model is recursive in nature. Estimating a single equation may be advantageous because in such models it can economise data requirements. The estimation of single equation needed only one endogenous variable and the proper exogenous variables (Singh,Square and Strauss, 1986).

When the borrowing function was translated into an empirical equation it became:(for mathematical derivation vide

Appendix II):

$$Y = b_0 + b_1 x_1 + b_2 x_2 + \ldots . b_9 x_9 + U$$

where b_0 - b_9 regression coefficients

$b_1 > 0$, $b_2 > 0$, $b_3 > 0$, $b_4 < 0$, $b_5 < 0$,

$b_6 > 0$, $b_7 > 0$, $b_8 < 0$, and $b_9 < 0$

Y = Amount in Rs of 000, borrowed by farm households

X_1 = area operated in hectares

X_2 = farm level capital expenses in 000s of Rs. per annum

X_3 = farm level variable expenses in 000s of Rs. per annum

X_4 = farm income in 000s of Rs per annum

X_5 = age of the borrower farmer in years

X_6 = size of the family

X_7 = dummy for education, 0 for illiterate, 1 for literate, 2 for primary and post primary, 3 for higher education

X_8 = dummy for non farm income, if exists one, if not zero

X_9 = direct family labour on farm employment

U - the error term.

Land was taken as a proxy for initial endowment. The larger the area the more was the capital needed and more was the borrowing.

The relationship between fixed and variable costs of cultivation with the amount borrowed was hypothesised to be positive, ie. the larger these costs, the more was the borrowing. The benefits flowing from the fixed investment which a farmer makes on the land in terms of improving irrigation through modern methods of irrigation and exploitation of ground water, land reclamation, bunding operations, farm equipment like tractors and agricultural implements are not crop specific. They are generally available to all the crops raised on the farm, whereas the variable cost of cultivation are conditioned by the cropping pattern and the specific crop cultivated by the farmers. Bankers have different norms for extending credit for meeting fixed capital needs and working capital needs and hence they were used as two distinct explanatory variables.

The higher the farm income the more was likely to be the own resources at the command of the farmer and hence the less was the amount expected to be borrowed. Banks assessed the farmer's capability in terms of the farm income generated. Hence, the farm income rather than aggregate income was taken as an explanatory variable. Similarly , in respect of the coefficient of non-farm income.

Adapting from the life cycle hypothesis of Ando and Modigliani, (1963), it was hypothesised that the farmer will borrow more in the initial stages to strengthen his income and will liquidate his savings in the old age and hence will tend to borrow less in the old age. However, the borrowing behaviour in the study was limited to a very short period of crop loans taken at the begining of the period of cultivation and repaid at the end of the year. Hence, no a priori assumption could be made about the influence of age on borrowing. It was assumed to be indeterminate.

The larger the size of the family the higher will be its consumption requirements and less the scope for saving, increasing the need for borrowing to sustain the given income. Hence, this coefficient was hypothesised to be positive. According to Strauss (1986) household characteristics such as age and number of members could also enter the utility function separately.

Education being the index of social development and change, farmers with more education were likely to try new technologies which involved necessarily more costs and hence more credit.

The higher the number of family members that were directly involved in farming activities, the less was the likely to be the use of the hired labour and less the explicit wage costs. Hence, the coefficient of the direct family labour on the

farm was hypothesised to have a negative magnitude.

The borrowing function generally is interest rate specific. But the rationalisation of interest rates by the RBI restricted the inclusion of the interest rate as an endogenous variable in the borrowing function.

In the empirical estimation, the output prices and wages were not explicitly included under the assumption that they were invariant in the cross section and prices and wages were implicit in farm income.

c) Other Tools of analysis:

In addition to the models discussed earlier, other tools of analysis - correlation, regression equations, linear programming, linear discriminant function and Theil's index-were also used. The specific context in which these tools had been used are described below:

i) The credit performance of the bank was assessed by correlating the achievement with the past performance, the fund availability and recovery performance of the previous year.

ii) The determinants of credit allocation, fund availability, recovery and the achievement in the previous year were regressed with credit allocation as follows:

$$Y = a\ X_1^{b1}\ X_2^{b2}\ X_3^{b3}\ e^{u}$$

where

b1 > 0 , b2 > 0 , and b3 > 0 - elasticity coefficients

Y = credit allocation to banks Rs in 000s (total loans, crop loans and investment loans)

X_1 = achievement in the previous year

X_2 = recovery - Rs. in 000s

X_3 = deposits - Rs. in 000s

U_i = error term

iii) With a view to analysing the factors determining the recovery performance of the banks, a regression analysis was carried out. The recovery was regressed against type of loans and loans to government sponsored schemes. The equation was

$$Y = a\ X_1^{b1}\ X_2^{b2}\ X_3^{b3}\ e^u$$

b1 > 0 , b2 > 0 and b3 < 0 - elasticity coefficients

where

Y = Amount recovered Rs. in 000s

X_1 = crop loans Rs. in 000s

X_2 = investment loan Rs. in 000s

X_3 = loans for Govt. sponsored schemes Rs. in 000s

U = error term

In all regression equations other than household borrowing function, the coefficients were estimated using double log functional form of the equation. The Ordinary Least Square method of estimation was used in all cases. For the farm household borrowing function, linear equation was used.

iv) Linear programming technique:

This technique was used to determine optimum allocation of area under four major crops and also to optimize the recovery.

The percenatge of credit allocated to the agricultural sector was 12.5 percent of the total credit. If this were raised to the statutory requirement of RBI as 18 percent, how will the cropwise composition of credit change ? In order to find out the optimum area to be covered by raising the credit allocation percentage as 14, 16 and 18 and recovery as 60 percent, linear programming technique was used. The area covered as per the scale of finance was less when compared to the area under cultivation. In the linear programming technique, the objective function used was to maximise the area under paddy(x1), sugarcane(x2), groundnut(x3) and cotton(x4) subject to scale of finance and recovery constraints.

Maximise x1 + x2 + x3 + x4

subject to the constraints

s1 x1 + s2 x2 + s3 x3 + s4 x4 < 14,16,18 percent of crop loan

r1 x1 + r2 x2 + r3 x3 + r4 x4 > 60 percent of the loans

and

x1, x2, x3, x4 >= the area covered under the credit plan (four major crops)

x1, x2, x3, x4 <= the actual area under cultivation

where

s1 , s2 , s3 and s4 scale of finance of four major crops.

The optimum amount that can be recovered by the allocation of credit to the four major crops can be determined as follows:

maximise

r1 x1 + r2 x2 + r3 x3 + r4 x4

subject to the constraints

s1 x1 + s2 x2 + s3 x3 + s4 x4 < 14 ,16 and 18 percent of crop loan

and

x1, x2, x3, x4 < area covered under the credit plan

x1, x2, x3, x4 > area under cultivation

v) Discriminant function analysis:

In order to identify the factors responsible for the overdues and also to classify the defaulters as wilful and non wilful based on the socio - economic characteristics of the

borrowers, linear discriminant function analysis was used as follows.

$$Z = L_1 X_1 + L_2 X_2 + \ldots\ldots L_{10} X_{10}$$

Where Z = total discriminant score for wilful or non wilful defaulters

X_1 = size of loan Rs.in 000s

X_2 = area operated in hectares

X_3 = farm level capital expenses Rs.in 000s

X_4 = age of the borrower

X_5 = size of family

X_6 = dummy for education if illiterate - 0 , literate - 1 . primary and post primary -2 , higher eduaction -3

X_7 = dummy for non farm income if exists 1 , if not - 0

X_8 = direct family labour on farm employment

X_9 = consumption expenditure Rs.in 000s

X_{10}= dummy for region if irrigated -1, less irrigated-0

L_i (i = 1,2 ...,10) = linear discriminant coefficients.

The steps involved in discriminant function analysis were; (Johnson 1988):

1) Linear discriminant coefficients (L_i) were determined by solving the equation

$$S\ L = d$$

Where S (10 X 10) = pooled dispersion matrix

$$\begin{bmatrix} s_{1,1} & \cdots\cdots & s_{1,10} \\ s_{2,1} & \cdots\cdots & s_{2,10} \\ \cdots\cdots & \cdots\cdots & \cdots\cdots \\ s_{10,1} & \cdots\cdots & s_{10,10} \end{bmatrix}$$

L (10 X 1) = vector of the discriminant coefficients and

d (10 X 1) = Vector of elements representing differences between the means of the two groups

$$L = \begin{bmatrix} l_{1,1} \\ l_{2,1} \\ \cdots\cdots \\ l_{10,1} \end{bmatrix} \qquad d = \begin{bmatrix} d_{1,1} \\ d_{2,1} \\ \cdots\cdots \\ d_{10,1} \end{bmatrix}$$

$$s_{1,1} = \frac{1}{N1 + N2 - 2}\left[\sum X_1^2 - \frac{(\sum X_1)^2}{N1} + \sum X_1^2 - \frac{(\sum X_1)^2}{N2}\right]$$

$$s_{1,2} = \frac{1}{N1+N2-2}\left[\sum X_1 X_2 - \frac{(\sum X_1)(\sum X_2)}{N1}\right.$$

$$\left.\sum X_1 X_2 - \frac{(\sum X_1)(\sum X_2)}{N2}\right]$$

$$d1 = \sum X_1 / N1 - \sum X_2 / N2$$

Discriminant function was tested for significance to know whether or not the selected ten variables taken together were sufficiently discriminating the two groups. The Mahalanobis D^2 statistic was used to measure the distance between the two groups.

$$F = \frac{N1\ N2\ (N1 + N2 - P - 1)}{P\ (N1 + N2)\ (N1 + N2 - 2)}\ D^2$$

where P = number of variables considered in the function

N1 = non - wilful defaulters

N2 = wilful defaulters

values of F was tested at P and N1 + N2 -P -1

d) Estimation of credit gap:

The steps involved in estimating the credit gap were as follows:

i) the number of hectares covered by the banks according to the scale of finance has been worked out

$A_i = Y_i / S_i$ i - crops (Paddy, Sugarcane, Groundnut Cotton)

Y = credit allotted

S = Scale of finance

ii) The crop wise credit requirements were estimated by

multiplying the operational cost of cultivation (excluding the own labour cost) and area covered. It was implicitly assumed that the farmer met the fixed expenses of cultivation from his own funds.

$$C_{ri} = A_i \; C_{oi}$$

C_{ri} = credit requirement

A_i = area covered

C_{oi} = cost of cultivation

iii) The gap was estimated as the difference between the credit requirement and the credit allotted.

$$C_{gi} = C_{ri} - Y_i$$

where C_{gi} = credit gap

Scale of finance prepared by District Level Consultative Committee and Cost of Cultivation estimated by Tamil Nadu Agricultural University for fixing procurement prices of crops are given in Appendix (III and IV).

e) Theil's index

For assessing the extent of inequalities in credit across the blocks, Theil's Index was used. In order to measure the degree of aggregate inequality and inter class inequality, Theil's Index had been mostly used as a positive measure (Subramanian 1990).

Theil Index was given as

$$TIx = \log (n) - x_i \log (1/ x_i)$$

$$TIy = \log (n) - y_i \log (1/ y_i)$$

where

n = number of observations

$x_i = X_i / \Sigma X_i$

was the relative position of ith observation in the distribution of observation in the number of accounts of loans (X_i) and

$y_i = Y_i / \Sigma Y_i$

was the relative position of ith observation in the distribution of amount of loans (Y_i).

This method was used in preference to Gini concentration Ratio in view of its decomposabilty into 'between groups' and 'within group indices'. A good inequality index should possess two conditions : 1) its value must remain unchanged if the loan amount is decreased or increased by the same proportionate amount; 2) any transfer of amount from one type to another type should be reflected in the value of index. Theil's index satisfied these conditions. Higher value of index means higher degree of inequality and vice versa.

E. Definition of Terms

a) Financial intermediation:

Financial intermediation in agriculture in the study was conceptualised in terms of direct finance for the current production and diversification in agriculture which includes

short term crop loans and term loans for land development, purchase of machinery and tools, installing lift, drip, sprinkle and jet irrigation, pumpset connections and for plantation and horticulture schemes.

b) Farm household:

The concept of farm household encompasses households producing partly for the sale and partly for their own consumption, purchasing some inputs and providing some from their own resources.

c) Credit performance:

Credit performance of banks means the contribution of each bank to total achievement and the achievement against the target set for agricultural loans during the reference period.

d) Recovery performance:

It stands for the contribution of each bank to the total amount recovered against the dues and the amount collected against demand during the reference period.

e) Cost of cultivation:

The term unit cost of cultivation used in credit gap analysis includes only the operational costs namely the wage cost for hired labour, the cost of bullock labour, hiring charges of machinery used and all material costs.

f) Scale of finance:

Scale of finance includes the cost incurred on materials used in crop cultivation.

F. Limitations :

1) The data on purposewise disbursement of credit and actual recovery performance in the blocks are not available at the district level. Hence, credit performance at the block level has not been evaluated in the study. Similarly due to non availability of data, purposewise recovery and credit achievement have not been evaluated at the bank level. With these data, realistic evaluation of the credit plan may be possible.
2) Transaction costs of borrowing and lending are not analysed in the study. This may give better insight into the problem of viability of the lending institutions and the extent of leakage of loan funds particularly for marginalised sections.
3) In the empirical formulation of the farm household model only the amount borrowed from the banks as crop loans was taken in evaluating the borrowing function.
4) The cooperative banks and field level institutions of PACS and Land Development Banks are not included in the study.
5) Time series analysis at the district level and case studies of typical farm households at the micro level are needed to effect changes in the lending programmes.
6) The loans for marketing, processing, input distribution business (indirect finance) are not included in the study.
7) The credit gap was estimated only for the four major crops of paddy, sugarcane, groundnut and cotton.

Results and Discussion

IV. RESULTS AND DISCUSSION

The results of the study on " Financial Intermediation in Agriculture with reference to Banking Sector in Coimbatore District" are discussed under the headings of:

A. Allocation of Agricultural Credit

B. Bankwise Credit and Recovery Performance

C. Inequality in the Allocation of Credit

D. Estimation of Credit gap

E. Profile of Borrower farmers

F. Farmers Borrowing Behaviour

G. Determinants of Overdues

A.Allocation of Agricultural Credit:

This section analyses the allocation of agricultural credit blockwise and bankwise.

1.Blockwise allocation of credit.

The blockwise allocation of credit is discussed under the subheads of total credit, crop loans, investment loan, credit availability and determinants of credit allocation.

a) Total Credit

The NABARD has Agricultural Production Sub system(APS) defined as crop production inclusive of horticulture, animal husbandry and allied activities in which the crop production sector is predominant. Institutional credit protects farmers from the grip of money lenders and is also an instrument of enhancing production.According to Dantwala(1988),in the Indian agriculture

with 74.5 percent of marginal and small land holdings, the primary responsibility of development rests on the government. Based on their knowledge and experience, credit institutions can advise and assist the concerned authorities on the development potential in their service area and also to formulate a rational and realistic credit plan.

The Coimbatore District is one of the agriculturally advanced districts of Tamil Nadu. The cropping intensity of the district is more than 100. There are 21 rural blocks and five urban blocks with a rural population of 16.6 lakhs. There are 315 bank branches out of which 200 are located in the rural areas. The recovery performance is 61 percent in agriculture in 1991-92 and the banks have unique cooperation from blocks in conducting recovery camps. The credit deposit ratio and the ratio of priority sector advances to total advances are well above the norms set by the Reserve Bank of India.

The total credit allotment to agriculture and allied activities to rural blocks in the district by the banks is presented in Table VI and the share of blocks in agricultural and and priority sector is given in Table VII.

TABLE VI

ALLOCATION OF CREDIT TO PRIORITY SECTOR IN COIMBATORE DISTRICT 1992-93

(Rs in 000s)

Block	Agricultural sector				Other sectors				Total	
	accs	%	amount	%	accs	%	amount	%	accs	amount
ANAMALA	6972	87.35	56138	85.58	1010	12.65	9456	14.42	7982	65594
ANNUR	7206	90.31	36416	73.95	773	9.69	12830	26.05	7979	49246
AVINASI	6454	83.67	49698	65.36	1260	16.33	26343	34.64	7714	76041
GUDIMAN	5637	92.39	41093	88.86	464	7.61	5153	11.14	6101	46246
KARAMAD	3783	69.62	36413	69.24	1651	30.38	16178	30.76	5434	52591
KINATHU	6055	89.44	46068	83.26	715	10.56	9265	16.74	6770	55333
MADATHU	9156	93.56	59808	90.62	630	6.44	6194	9.38	9786	66002
MADUKAR	3778	82.15	30753	73.86	821	17.85	10885	26.14	4599	41638
PALLADA	4121	82.88	26080	64.25	851	17.12	14509	35.75	4972	40589
P.N.PAL	5431	69.45	37349	70.59	2389	30.55	15561	29.41	7820	52910
PERUR	1011	56.48	10877	29.36	779	43.52	26174	70.64	1790	37051
POLL.N	7915	88.64	42608	82.66	1014	11.36	8939	17.34	8929	51547
POLL.S	7550	83.22	40693	73.37	1522	16.78	14767	26.63	9072	55460
PONGAL	5169	92.93	38931	85.74	393	7.07	6474	14.26	5562	45405
S.S.KUL	2456	85.34	20542	76.60	422	14.66	6275	23.40	2878	26817
SUL.PET	4610	88.65	34024	75.93	590	11.35	10783	24.07	5200	44807
SULUR	5294	74.57	26791	55.42	1805	25.43	21549	44.58	7099	48340
THONDAM	3725	89.41	24634	72.35	441	10.59	9416	27.65	4166	34050
TIRUPUR	822	44.43	18801	61.06	1028	55.57	11991	38.94	1850	30792
UDUMAL	12677	87.04	85720	83.92	1888	12.96	16426	16.08	14565	102146
VALPAR	1733	29.65	13757	39.55	4112	70.35	21031	60.45	5845	34788
TOTAL	111555	81.95	777194	73.50	24558	18.05	280199	26.50	136113	1057393

Note : Percentages are for row totals

TABLE VII

PERCENTAGE SHARE OF BLOCKS IN CREDIT TO PRIORITY SECTOR IN COIMBATORE DISTRICT 1992-93

Block	Agricultural sector		Other sectors		Total	
	accs	amount	accs	amount	accs	amount
ANAMALA	6.25	7.22	4.11	3.37	5.86	6.20
ANNUR	6.46	4.69	3.15	4.58	5.86	4.66
AVINASI	5.79	6.39	5.13	9.40	5.67	7.19
GUDIMAN	5.05	5.29	1.89	1.84	4.48	4.37
KARAMAD	3.39	4.69	6.72	5.77	3.99	4.97
KINATHU	5.43	5.93	2.91	3.31	4.97	5.23
MADATHU	8.21	7.70	2.57	2.21	7.19	6.24
MADUKAR	3.39	3.96	3.34	3.88	3.38	3.94
PALLADA	3.69	3.36	3.47	5.18	3.65	3.84
P.N.PAL	4.87	4.81	9.73	5.55	5.75	5.00
PERUR	0.91	1.40	3.17	9.34	1.32	3.50
POLL.N	7.10	5.48	4.13	3.19	6.56	4.87
POLL.S	6.77	5.24	6.20	5.27	6.67	5.24
PONGAL	4.63	5.01	1.60	2.31	4.09	4.29
S.S.KUL	2.20	2.64	1.72	2.24	2.11	2.54
SUL.PET	4.13	4.38	2.40	3.85	3.82	4.24
SULUR	4.75	3.45	7.35	7.69	5.22	4.57
THONDAM	3.34	3.17	1.80	3.36	3.06	3.22
TIRUPUR	0.74	2.42	4.19	4.28	1.36	2.91
UDUMAL	11.36	11.03	7.69	5.86	10.70	9.66
VALPAR	1.55	1.77	16.74	7.51	4.29	3.29

The flow of credit to the various blocks is the amount allocated to the farmers from the institutional sources during 1992-93. The stock aspect is not included. The number of loan accounts was not identical with the number of farmer borrowers because the farmers may have availed production loans and investment loans either from the same or other banks.

The banks in the district had catered to 136,113 accounts with an amount of Rs.1057,393 millions. Agricultural sector dominated the credit structure with 81.95 percent in terms of number of accounts and 73.5 percent in terms of amount. The other sectors, ie. small scale industries and service sector had a share of 26.5 percent of amount and 18.05 of accounts. The credit institutions expected the benefits of agricultural growth to spill over to SSI and services sector.The share of Annur, Gudimangalam,Madathukulam and Pongalur blocks in the agricultural loans were higher.(more than 90 percent in account). In terms of amount, Perur block had the smallest share of only 29 percent. Valparai's share in agricultural loans was less due to its hilly terrain which made conventional farming activities less viable.

Udumalpet had the highest share of agricultural credit, 11.36 percent in terms of account and 11.03 percent in terms of amount and also in the total loans. Perur block's share in the total loans was the least with 1.3 percent in coverage and 1.4 percent in amount. By and large, the credit allocation was based on the resource potential of the blocks.

The loans to agriculture comprise production loans (crop loans or short term loans) given to meet the requirements of cost of cultivation and investment loans given for purchase of farm equipments, land development schemes, minor irrigation schemes and for plantation crops. The structure of short and long term credit and share of blocks are presented in Tables VIII and IX.

TABLE VIII
BLOCKWISE ALLOCATION OF CROP LOANS AND INVESTMENT LOANS
IN COIMBATORE DISTRICT 1992-93 (Rs in 000s)

Block	Crop Loans				Investment Loans				Agri. loan	
	accs	%	amt	%	accs	%	amt	%	accs	amt
ANAMALA	6213	89.11	42423	75.57	759	10.89	13715	24.43	6972	56138
ANNUR	6979	96.85	31319	86.00	227	3.15	5097	14.00	7206	36416
AVINASHI	6010	93.12	42484	85.48	444	6.88	7214	14.52	6454	49698
GUDIMAN	5076	90.05	32830	79.89	561	0.95	8263	20.11	5637	41093
KARAMAD	3413	90.22	29905	82.13	370	9.78	6508	17.87	3783	36413
KINATHU	5501	90.85	39172	85.03	554	9.15	6896	14.97	6055	46068
MADATHU	8767	95.75	52872	88.40	389	4.25	6936	11.60	9156	59808
MADUKAR	2864	75.81	20497	66.65	914	24.19	10256	33.35	3778	30753
PALLADAM	3864	93.76	22463	86.13	257	6.24	3617	13.87	4121	26080
P.N.PAL	4691	86.37	27735	74.26	740	13.63	9614	25.14	5431	37349
PERUR	769	76.06	7935	72.95	242	23.94	2942	27.05	1011	10877
POLL .N	7078	89.43	31618	74.21	837	10.57	10990	25.79	7915	42608
POLL .S	6922	91.68	31166	79.59	628	8.32	9527	23.41	7550	40693
PONGALUR	4898	94.76	32700	83.99	271	5.24	6231	16.01	5169	38931
S.S.KULAM	2191	89.21	16314	79.42	265	10.79	4228	20.58	2456	20542
SULTANPET	4290	93.06	27825	81.78	320	6.94	6199	18.22	4610	34024
SULUR	4813	90.91	21527	80.35	481	9.09	5264	19.65	5294	26791
THONDAM	3345	89.80	18782	76.24	380	10.20	5852	23.76	3725	24634
TIRUPUR	667	81.14	7765	41.30	155	18.86	11036	58.70	822	18801
UDUMALPET	11790	93.00	67066	78.24	887	7.00	18654	21.76	12677	85720
VALPARAI	1195	68.96	5344	38.85	538	31.04	8413	61.15	1733	13757
TOTAL	101336	90.83	609742	78.45	10219	9.17	167452	21.55	111555	777194

Note: Percentages are for row totals

TABLE IX

PERCENTAGE SHARE OF BLOCKS IN CROP LOANS AND INVESTMENT LOANS IN COIMBATORE DISTRICT. 1992-1993

Block	Crop Loans		Investment Loans		Total Agl. Loans	
	accs	amt	accs	amt	accs	amt
ANAMALAI	6.13	6.96	7.43	8.19	6.25	7.22
ANNUR	6.89	5.14	2.22	3.04	6.46	4.69
AVINASHI	5.93	6.97	4.34	4.31	5.79	6.39
GUDIMANGALAM	5.01	5.38	5.49	4.93	5.05	5.29
KARAMADAI	3.37	4.90	3.62	3.89	3.39	4.69
KINATHUKADAVU	5.43	6.42	5.42	4.12	5.43	5.93
MADATHUKULAM	8.65	8.67	3.81	4.14	8.21	7.70
MADUKKARAI	2.83	3.36	8.94	6.12	3.39	3.96
PALLADAM	3.81	3.68	2.51	2.16	3.69	3.36
P.N.PALAYAM	4.63	4.55	7.24	5.74	4.87	4.81
PERUR	0.76	1.30	2.37	1.76	0.91	1.40
POLLACHI.N	6.98	5.19	8.19	6.56	7.10	5.48
POLLACHI.S	6.83	5.11	6.15	5.69	6.77	5.24
PONGALUR	4.83	5.36	2.65	3.72	4.63	5.01
S.S.KULAM	2.16	2.68	2.59	2.52	2.20	2.64
SULTANPET	4.23	4.56	3.13	3.70	4.13	4.38
SULUR	4.75	3.53	4.71	3.14	4.75	3.45
THONDAMUTHUR	3.30	3.08	3.72	3.49	3.34	3.17
TIRUPUR	0.66	1.27	1.52	6.59	0.74	2.42
UDUMALPET	11.63	11.00	8.68	11.14	11.36	11.03
VALPARAI	1.18	0.88	5.26	5.02	1.55	1.77

The credit structure in the district was dominated by short term loans both in number of accounts (76 to 97 percent) and amount (41 to 88 percent). The only exception to this trend was again Valparai. The ACRC (1989) and Bhave (1991) had emphasized that the country's food production should increase from the present level of 170 million tonnes to 240 million tonnes. They had underlined the need for giving priority to the cereal economy in view of the growing demand for food and dominance of small and marginal holdings in the cropped area. The credit planning machinery of the district is apparently conscious of this fact in providing credit support to the farm sector.

Any production oriented credit system should have both credit deepening and credit widening aspects. These are indicated by per account details as furnished in Table X.

TABLE X

AMOUNT PER ACCOUNT OF CROP LOANS- INVESTMENT LOANS-

AGRICULTURAL LOANS IN COIMBATORE DISTRICT 1992-1993

(in Rs '000)

Block	Crop loan	Investment loan	Agricultural loan
ANAMALAI	6.83	4.89	8.05
ANNUR	4.49	22.45	5.05
AVINASHI	7.07	16.25	7.70
GUDIMANGALAM	6.47	14.73	7.29
KARAMADAI	8.76	17.59	9.63
KINATHUKADAVU	7.12	12.45	7.61
MADATHUKULAM	6.03	17.83	6.53
MADUKKARAI	7.16	11.26	8.14
PALLADAM	5.81	14.07	6.33
P.N.PALAYAM	5.91	12.99	6.88
PERUR	10.32	12.16	10.76
POLLACHI.N	4.47	13.13	5.38
POLLACHI.S	4.50	15.17	5.39
PONGALUR	6.68	22.99	7.53
S.S.KULAM	7.45	15.95	8.36
SULTANPET	6.49	19.37	7.38
SULUR	4.47	10.94	5.06
THONDAMUTHUR	5.61	15.40	6.61
TIRUPUR	11.64	71.20	22.87
UDUMALPET	5.69	21.03	6.76
VALPARAI	4.47	15.63	7.94
TOTAL	6.02	16.39	6.96

The average amount per account was Rs. 6960 of loans for agriculture Rs. 6017 for crop loans and Rs. 16386 for investment loans. Tirupur block got a higher amount per account of loans (Rs.22,870) followed by Perur block (Rs.10,760). These blocks had less number of accounts with more amount. Annur and Sulur had a share of only Rs. 5000 per account. The regional variations of crop loans and term loans reflect the variations in agricultural development of the regions. Earlier, Desai (1988) who related the index of agricultural development with the crop loans and term loans had found that the institutional credit followed the contours of development.

b. Crop loans:

The cropping pattern of Coimbatore district has 55 percent of area under food crops and 45 percent under non food crops. The crop loans are allotted for all crops in the district. The details of crop wise loans and the share of the blocks in crop loans are given in Tables XI and XII.

TABLE XI

ALLOCATION OF FOOD CROP LOANS IN COIMBATORE DISTRICT 1992-93

Rs in '000s

Block	paddy				wheat				jowar				bajra				other millets				vegetables and pot.				pulses				total food crops	
	accs	%	amt	%	accs	%	amts	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	amount
ANAMALA	1147	88.98	6415	97.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	142	11.02	150	2.28	1289	6565
ANNUR	8	4.60	40	5.36	—	—	—	—	50	28.74	100	13.40	—	—	—	—	—	—	—	—	56	32.18	206	27.61	60	34.48	400	53.62	174	746
AVINASI	60	37.50	360	75.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	100	62.50	115	24.21	—	—	—	—	160	475
GUDIMAN	259	24.00	1430	39.25	—	—	—	—	60	5.56	170	4.67	—	—	—	—	550	50.97	1410	38.70	135	12.51	385	10.57	75	6.95	248	6.8	11079	3643
KARAMAD	99	100.00	535	100.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	99	535
KINATHU	309	45.64	1300	47.92	—	—	—	—	295	43.57	1300	47.92	—	—	—	—	—	—	—	—	18	2.66	53	1.95	55	8.12	60	2.21	677	2713
MADATHU	2432	95.71	9720	97.36	3	0.12	21	0.21	40	1.57	105	1.05	—	—	—	—	—	—	—	—	13	0.51	78	0.78	53	2.09	60	0.60	2541	9984
MADUKAR	45	17.37	251	17.23	—	—	—	—	27	10.42	140	9.61	—	—	—	—	—	—	—	—	175	67.57	1050	72.07	12	4.63	16	1.10	259	1457
PALLADA	372	61.18	2250	59.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	100	16.45	1000	26.25	136	22.37	560	14.70	608	3810
P.N.PAL	31	86.11	160	86.49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	13.89	25	13.51	—	—	—	—	36	185
PERUR	306	16.53	877	14.35	15	0.81	15	0.25	140	7.56	460	7.53	—	—	—	—	—	—	—	—	1240	66.99	4060	66.43	150	8.10	700	11.45	1851	6112
POLL.N	405	35.90	2100	68.78	—	—	—	—	6	0.53	15	0.49	—	—	—	—	16	1.42	60	1.97	55	4.88	100	3.28	646	5.27	778	25.48	1128	3053
POLL.S	467	40.40	1600	69.00	—	—	—	—	5	0.43	12	0.52	—	—	—	—	8	0.69	27	1.16	10	0.87	10	0.43	666	57.61	670	28.89	1156	2319
PONGAL	475	76.49	3075	86.50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	90	14.49	420	11.81	56	9.02	60	1.69	621	3555
S.S.KUL	4	2.23	30	2.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25	13.97	139	11.13	150	83.80	1080	86.47	179	1249
SUL.PET	170	32.20	1060	48.83	—	—	—	—	23	4.36	145	6.68	—	—	—	—	51	9.66	205	9.44	159	30.11	546	25.15	125	23.67	215	9.90	528	2171
SULUR	—	—	—	—	—	—	—	—	—	—	—	—	100	5.38	31	8.22	5	0.27	2	0.53	1703	91.66	250	66.31	50	2.69	94	24.93	1858	377
THONDAM	170	00.00	822	100.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	170	822
TIRUPUR	80	100.00	240	100.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	80	240
UDUMAL	1113	71.03	8372	80.25	35	2.23	190	1.82	—	—	—	—	5	0.32	25	0.24	205	13.08	860	8.24	95	6.06	380	3.64	114	7.28	605	5.80	1567	10432
VALPAR	12	4.51	70	4.56	—	—	—	—	55	20.68	75	4.89	—	—	—	—	60	22.56	300	19.56	19	7.14	149	9.71	120	45.11	940	61.28	266	1534
TOTAL	7964	51.96	40707	65.60	53	0.35	226	0.36	701	4.57	2522	4.06	105	0.69	56	0.09	895	5.84	2864	4.62	3998	26.02	8966	14.46	2610	17.03	6636	10.71	15326	61977

Note : Percentages are for row totals

TABLE XII

PERCENTAGE SHARE OF BLOCKS IN FOOD CROP LOANS IN COIMBATORE DISTRICT 1992-93

Block	paddy		wheat		jowar		bajra		other millets		pulses		vegetables	
	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt
ANAMALA	14.40	15.76	----	----	----	----	----	----	----	----	----	----	5.44	2.26
ANNUR	0.10	0.10	----	----	7.13	3.97	----	----	----	----	1.40	2.30	2.30	6.03
AVINASI	0.75	0.88	----	----	----	----	----	----	----	----	2.50	1.28	----	----
GUDIMAN	3.25	3.51	----	----	8.56	6.74	----	----	61.45	49.23	3.38	4.29	2.87	3.74
KARAMAD	1.24	1.31	----	----	----	----	----	----	----	----	----	----	----	----
KINATHU	3.88	3.19	----	----	42.08	51.55	----	----	----	----	0.45	0.59	2.11	0.90
MADATHU	30.54	23.88	5.66	9.29	5.71	4.16	----	----	----	----	0.33	0.87	2.03	0.90
MADUKAR	0.57	0.62	----	----	3.85	5.55	----	----	----	----	4.38	11.71	0.46	0.24
PALLADA	4.67	5.53	----	----	----	----	----	----	----	----	2.50	11.15	5.21	8.44
P.N.PAL	0.39	0.39	----	----	----	----	----	----	----	----	0.13	0.28	----	----
PERUR	3.84	2.15	28.30	6.64	19.97	18.24	----	----	----	----	31.02	45.28	5.75	10.55
POLL.N	5.09	5.16	----	----	0.86	0.59	----	----	1.79	2.09	1.38	1.12	24.75	11.72
POLL.S	5.86	3.93	----	----	0.71	0.48	----	----	0.89	0.94	0.25	0.11	25.52	10.10
PONGAL	5.96	7.55	----	----	----	----	----	----	----	----	2.25	4.68	2.15	0.90
S.S.KUL	0.05	0.07	----	----	----	----	----	----	----	----	0.63	1.55	5.75	16.27
SUL.PET	2.13	2.60	----	----	3.28	5.75	----	----	5.70	7.16	3.98	6.09	4.79	3.24
SULUR	----	----	----	----	----	----	95.24	55.36	0.56	0.07	42.60	2.79	1.92	1.42
THONDAM	2.13	2.02	----	----	----	----	----	----	----	----	----	----	----	----
TIRUPUR	1.00	0.59	----	----	----	----	----	----	----	----	----	----	----	----
UDUMAL	13.98	20.57	66.04	84.07	----	----	4.76	44.64	22.91	30.03	2.38	4.24	4.37	9.12
VALPAR	0.15	0.17	----	----	7.85	2.97	----	----	6.70	10.47	0.48	1.66	4.60	14.17

The major food crop loans allotted in the district were for Paddy, Jowar, Bajra, other millets, vegetables and pulses. In 12 out of 21 blocks, more than 60 percent of loans were allotted for paddy. In the highly irrigated blocks all crop loans were for paddy. In line with the cropping pattern dominated by paddy, higher proportion of credit allotment to paddy was observed in all blocks. Vegetable crops accounted for about 14 percent of the credit given for crop cultivation in the district. In rainfed and semi arid areas, more loans were allotted for pulses (S.S.Kulam -86 percent). In view of the low protein intake in our country (53 grams per capita, Agrawal , 1993), there is a need to enhance pulses production by providing adequate financial support to the producers of pulses .

In the blocks with less diversified farming, Anamalai, Madathukulam and Udumalpet the share of paddy loan was more when compared to other food crop loans. The highly irrigated blocks and blocks which were dominated by small operational holdings had a larger share in the loans for vegetables. Fifty percent of the loans allotted for pulses was to the Pollachi blocks.

The allocation of credit to non-food crops and the share of blocks in non-food crop loan are furnished in Tables XIII and XIV.

TABLE XIII
ALLOCATION OF NON-FOOD CROP LOANS IN COIMBATORE DISTRICT 1992-93
Rs in '000s

Block	groundnut				other oilseeds				cotton				tobacco				sugarcane				crop loan misc				total	
	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	amt
ANAMALA	1411	19.58	7769	21.67	352	4.88	1060	2.96	600	8.33	3369	9.40	---	---	---	---	989	13.72	8684	24.22	3854	53.48	14977	41.77	7206	35859
ANNUR	585	8.91	1506	4.93	100	1.52	250	0.82	1100	16.75	3647	11.93	60	0.91	480	1.57	1771	26.96	9386	30.70	2953	44.95	15304	50.06	6569	30573
AVINASI	359	5.31	1188	2.83	---	---	---	---	2266	33.53	11337	27.01	12	0.18	60	0.14	1450	21.45	6139	14.63	2672	39.53	23245	55.39	6759	41969
UDIMAN	733	12.05	3345	11.46	46	0.76	200	0.69	1447	23.80	8355	28.63	---	---	---	---	216	3.55	1700	5.82	3639	59.84	15587	53.40	6081	29187
KARAMAD	23	0.57	100	0.34	---	---	---	---	56	1.39	415	1.41	51	1.26	290	0.99	928	22.98	8690	29.59	2980	73.80	19875	67.67	4038	29370
KINATHU	1034	14.49	4995	13.70	485	6.79	4890	13.41	1302	18.24	7454	20.44	---	---	---	---	236	3.31	2100	5.76	4081	57.17	17020	46.68	7138	36459
MADATHU	1286	12.47	5262	12.38	---	---	---	---	206	2.00	1590	3.74	---	---	---	---	3486	33.81	20575	48.43	5334	51.73	15061	35.45	10312	42488
MADUKAR	645	22.47	4295	22.56	---	---	---	---	172	5.99	1341	7.04	---	---	---	---	292	10.17	2318	12.17	1761	61.36	11086	58.22	2870	19040
PALLADA	216	6.85	1200	6.43	---	---	---	---	837	26.55	5600	30.02	90	2.86	201	1.08	235	7.46	1600	8.58	1774	56.28	10052	53.89	3152	18653
P.N.PAL	15	1.70	75	0.97	40	4.54	40	0.52	---	---	---	---	---	---	---	---	119	13.49	780	10.06	708	80.27	6855	88.45	882	7750
PERUR	120	4.31	390	1.80	250	8.97	600	2.78	215	7.72	1089	5.04	50	1.79	250	1.16	957	34.35	6982	32.31	1194	42.86	12301	56.92	2786	21612
POLL.N	1420	22.93	5744	20.12	390	6.30	1100	3.85	1341	21.65	5724	20.05	---	---	---	---	781	12.61	3142	11.00	2262	36.52	12845	44.98	6194	28555
POLL.S	1127	14.84	4881	16.96	525	6.92	1290	4.48	2055	27.07	6284	21.83	---	---	---	---	838	11.04	3879	13.47	3047	40.13	12453	43.26	7592	28787
PONGAL	482	8.49	3150	10.81	---	---	---	---	834	14.70	5525	18.96	25	0.44	150	0.51	323	5.69	3335	11.44	4010	70.67	16985	58.28	5674	29145
S.S.KUL	---	---	---	---	---	---	---	---	925	48.38	4362	28.99	7	0.37	100	0.66	602	31.49	4148	27.57	378	19.77	6435	42.77	1912	15045
SUL.PET	360	6.84	1935	7.54	14	0.27	48	0.19	2146	40.74	7860	30.64	20	0.38	51	0.20	262	4.97	2050	7.99	2465	46.80	13710	53.44	5267	25654
SULUR	9	0.10	360	8.01	1220	14.11	5	0.11	505	5.84	1371	30.51	6565	75.90	7	0.16	30	0.35	470	10.46	320	3.70	2281	50.76	8649	4494
THONDAM	78	2.79	366	2.04	100	3.58	250	1.39	90	3.22	450	2.51	---	---	---	---	803	28.73	5549	30.90	1724	61.68	11345	63.17	2795	17960
TIRUPUR	14	1.81	35	0.47	---	---	---	---	50	6.46	250	3.32	---	---	---	---	8	1.03	40	0.53	702	90.70	7200	95.68	774	7525
UDUMAL	1180	13.36	7165	12.63	240	2.72	1950	3.44	1956	22.15	12670	22.34	50	0.57	450	0.79	1953	22.12	17981	31.70	3451	39.08	16503	29.10	8830	56719
VALPAR	5	0.54	50	1.31	---	---	---	---	130	13.99	560	14.70	67	7.21	580	15.22	52	5.60	360	9.45	675	72.66	2260	59.32	929	3810
TOTAL	11102	10.43	53811	10.19	3762	3.53	11683	2.22	18233	17.13	89253	16.92	6997	6.58	2619	0.50	16331	15.35	109908	20.82	49984	46.98	263380	49.92	106389	527654

Note : percentages are for row totals

TABLE XIV

PERCENTAGE SHARE OF BLOCKS IN NON-FOOD CROP LOANS IN COIMBATORE DISTRICT 1992-93

Block	groundnut		oil seeds		cotton		tobacco		sugarcane		crop loan misc	
	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt
ANAMALA	12.71	14.44	9.36	9.07	3.29	3.77	----	----	6.06	7.90	7.71	5.69
ANNUR	5.27	2.80	2.66	2.14	6.03	4.09	0.86	18.33	10.84	8.54	5.91	5.81
AVINASI	3.23	2.21	----	----	12.43	12.70	0.17	2.29	8.88	5.59	5.35	8.83
GUDIMAN	6.60	6.22	1.22	1.71	7.94	9.36	----	----	1.32	1.55	7.28	5.92
KARAMAD	0.21	0.19	----	----	0.31	0.46	0.73	11.07	5.68	7.91	5.96	7.55
KINATHU	9.31	9.28	12.89	41.86	7.14	8.35	----	----	1.45	1.91	8.16	6.46
MADATHU	11.58	9.78	----	----	1.13	1.78	----	----	21.35	18.72	10.67	5.72
MADUKAR	5.81	7.98	----	----	0.94	1.50	----	----	1.79	2.11	3.52	4.21
PALLADA	1.95	2.23	----	----	4.59	6.27	1.29	7.67	1.44	1.46	3.55	3.82
P.N.PAL	0.14	0.14	1.06	0.34	----	----	----	----	0.73	0.71	1.42	2.60
PERUR	1.08	0.72	6.65	5.14	1.18	1.22	0.71	9.55	5.86	6.35	2.39	4.67
POLL.N	12.79	10.67	10.37	9.42	7.35	6.41	----	----	4.78	2.86	4.53	4.88
POLL.S	10.15	9.07	13.96	11.04	11.27	7.04	----	----	5.13	3.53	6.10	4.73
PONGAL	4.34	5.85	----	----	4.57	6.19	0.36	5.73	1.98	3.03	8.02	6.45
S.S.KUL	----	----	----	----	5.07	4.89	0.10	3.82	3.69	3.77	0.76	2.44
SUL.PET	3.24	3.60	0.37	0.41	11.77	8.81	0.29	1.95	1.60	1.87	4.93	5.21
SULUR	0.08	0.67	32.43	0.04	2.77	1.54	93.83	0.27	0.18	0.43	0.64	0.87
THONDAM	0.70	0.68	2.66	2.14	0.49	0.50	----	----	4.92	5.05	3.45	4.31
TIRUPUR	0.13	0.07	----	----	0.27	0.28	----	----	0.05	0.04	1.40	2.73
UDUMAL	10.63	13.32	6.38	16.69	10.73	14.20	0.71	17.18	11.96	16.36	6.90	6.27
VALPAR	0.05	0.09	----	----	0.71	0.63	0.96	22.15	0.32	0.33	1.35	0.86

Among the loans for non-food crops, sugarcane accounted for 21 percent followed by cotton. In 10 out of 21 blocks,more than 20 percent of loans were for cotton cultivation. Coimbatore is well known for its textile industry, mainly because of the agro - climatic conditions suitable for cotton production. The cotton growers are highly organised in the district. A similar trend was observed in the case of sugarcane also. The sugarcane growers are contractual suppliers for the local Bannari Sugars Industry. This tie up helps the bankers to recover the loans. Hence, the credit allotment is more for sugarcane.

Regarding the share of blocks in total non-food crop loans, Avinashi and Udumalpet accounted for about 27 percent of cotton loans. Madathukulam and Udumalpet had a higher share in the case of sugarcane loans.

Of the total crop loans, more than 80 percent was allotted for cash and commercial crops. There is a noticeable shift in cropping pattern towards commercial crops particularly because of HYV technology and new water management practices. This trend was reflected in the credit planning of the district wherein non-food crops claimed a larger share of credit in all blocks in general and highly irrigated blocks in particular.

c. Investment Loans

The injection of agricultural credit can be a powerful economic force if used to inject appropriate capital inputs in agriculture that are not available otherwise to farmers.

The transformation from traditional to commercial agriculture depends on the availability of medium and long term credit. After the entry of commercial banks and RRBS in the field of agricultural credit, the rural credit structure has changed. In India, the share of investment loans had increased in the recent years. The investment loans include, the loans given for such perennial crops as mango, pineapple, grapes, coconut, tea, coffee, sericulture, rubber and spices for a period of more than five to ten years; loans for minor irrigation schemes/projects which include: dugwells, borewells, drip jets, sprinkle jets, for land development activities such as land reclamation, soil conservation and water shed management and for the purchase of equipments, implements and tractors that are used in agricultural operations.

The details of loans given for various investment purposes to various blocks are presented in Tables XV and XVI.

TABLE XV

BLOCKWISE ALLOCATION OF INVESTMENT LOANS IN COIMBATORE DISTRICT 1992-93

Rs. in '000s

Block	Minor Irrigation (MI)				Land Development (LD)				Farm machinery (FM)				Plant & Horticulture (PH)				-------- Others --------				-- Total --	
	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	amt
ANAMALA	130	17.13	1,920	14.00	79	10.41	870	6.34	58	7.64	6,760	49.29	170	22.40	1,948	14.20	322	42.42	2,217	16.16	759	13,715
ANNUR	107	32.72	1,109	21.76	34	10.40	190	3.73	32	9.79	2,615	51.30	74	22.63	479	9.40	80	24.46	704	13.81	327	5,097
AVINASH	47	10.59	306	4.24	85	19.14	548	7.60	26	5.86	3,625	50.25	67	15.09	377	5.23	219	49.32	2,358	32.69	444	7,214
GUDIMAN	110	19.61	1,660	20.09	33	5.88	570	6.90	24	4.28	2,554	30.91	176	31.37	1,704	20.62	218	38.86	1,775	21.48	561	8,263
KARAMAD	86	23.24	927	14.24	60	16.22	430	6.61	45	12.16	3,205	49.25	45	12.16	633	9.73	134	36.22	1,313	20.18	370	6,508
KINATHU	58	10.47	848	12.30	14	2.53	105	1.52	17	3.07	2,852	41.36	261	47.11	1,350	19.58	204	36.82	1,741	25.25	554	6,896
MADATHU	75	19.28	727	10.48	21	5.40	453	6.53	21	5.40	2,875	41.45	47	12.08	1,221	17.60	225	57.84	1,660	23.93	389	6,936
MADUKAR	386	42.23	2,715	26.47	32	3.50	140	1.37	29	3.17	3,855	37.59	267	29.21	2,028	19.77	200	21.88	1,518	14.80	914	10,256
PALLADA	25	9.73	249	6.88	8	3.11	55	1.52	17	6.61	1,185	32.76	46	17.90	657	18.16	161	62.65	1,471	40.67	257	3,617
P.N.PAL	142	19.19	1,910	19.87	13	1.76	65	0.68	23	3.11	3,275	34.06	305	41.22	2,007	20.88	257	34.73	2,357	24.52	740	9,614
PERUR	93	38.43	470	15.98	5	2.07	15	0.51	6	2.48	950	32.29	107	44.21	1,249	42.45	31	12.81	258	8.77	242	2,942
POLL.N	246	29.39	2,649	24.10	80	9.56	630	5.73	47	5.62	4,370	39.76	235	28.08	1,624	14.78	229	27.36	1,717	15.62	837	10,990
POLL.S	126	20.06	1,918	20.13	82	13.06	435	4.57	57	9.08	4,248	44.59	130	20.70	1,115	11.70	233	37.10	1,811	19.01	628	9,527
PONGAL	77	28.41	1,745	28.01	--	----	---	----	37	13.65	2,385	38.28	67	24.72	1,179	18.92	90	33.21	922	14.80	271	6,231
S.S.KUL	19	7.17	637	15.07	17	6.42	720	17.03	13	4.91	1,459	34.51	108	40.75	1,092	25.83	108	40.75	320	7.57	265	4,228
SUL.PET	70	21.88	2,096	33.81	5	1.56	50	0.81	19	5.94	2,395	38.64	101	31.56	689	11.11	125	39.06	969	15.63	320	6,199
SULUR	128	26.61	1,420	26.98	39	8.11	210	3.99	29	6.03	1,360	25.84	71	14.76	451	8.57	214	44.49	1,823	34.63	481	5,264
THONDAM	94	24.74	1,039	17.75	10	2.63	140	2.39	10	2.63	1,690	28.88	187	49.21	2,295	39.22	79	20.79	688	11.76	380	5,852
TIRUPUR	43	27.74	8,832	80.03	29	18.71	195	1.77	12	7.74	1,200	10.87	5	3.23	105	0.95	66	42.58	704	6.38	155	11,036
UDUMAL	216	24.35	3,279	17.58	88	9.92	2,230	11.95	58	6.54	8,240	44.17	233	26.27	2,557	13.71	292	32.92	2,348	12.59	887	18,654
VALPAR	30	5.58	1,204	14.31	--	----	---	----	22	4.09	2,880	34.23	353	65.10	3,264	38.80	133	24.72	1,065	12.66	538	8,413
TOTAL	2,308	22.36	37,660	22.49	734	7.41	8,051	4.81	602	5.80	63,978	38.23	3055	29.60	28,024	16.73	3,620	35.00	29,739	17.78	10,319	1,67,452

Note : Percentagesare for row totals.

TABLE XVI

PERCENTAGE SHARE OF BLOCKS IN INVESTMENT LOANS IN COIMBATORE DISTRICT 1992-93

Block	MI		LD		FM		P & H		Others	
	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt
ANAMALA	5.63	5.10	10.76	10.81	9.63	10.57	5.56	6.95	8.90	7.45
ANNUR	4.64	2.94	4.63	2.36	5.32	4.09	2.42	1.71	2.21	2.37
AVINASI	2.04	0.81	11.58	6.81	4.32	5.67	2.19	1.35	6.05	7.93
GUDIMAN	4.77	4.41	4.50	7.08	3.99	3.99	5.76	6.08	6.02	5.97
KARAMAD	3.73	2.46	8.17	5.34	7.48	5.01	1.47	2.26	3.70	4.42
KINATHU	2.51	2.25	1.91	1.30	2.82	4.46	8.54	4.82	5.64	5.85
MADATHU	3.25	1.93	2.86	5.63	3.49	4.49	1.54	4.36	6.22	5.58
MADUKAR	16.72	7.21	4.36	1.74	4.82	6.03	8.74	7.24	5.52	5.10
PALLADA	1.08	0.66	1.09	0.68	2.82	1.85	1.51	2.34	4.45	4.95
P.N.PAL	6.15	5.07	1.77	0.81	3.82	5.12	9.98	7.16	7.10	7.93
PERUR	4.03	1.25	0.68	0.19	1.00	1.48	3.50	4.46	0.86	0.87
POLL.N	10.66	7.03	10.90	7.83	7.81	6.83	7.69	5.80	6.33	5.77
POLL.S	5.46	5.09	11.17	5.40	9.47	6.64	4.26	3.98	6.44	6.09
PONGAL	3.34	4.63	----	----	6.15	3.73	2.19	4.21	2.49	3.10
S.S.KUL	0.82	1.69	2.32	8.94	2.16	2.28	3.54	3.90	2.98	1.08
SUL.PET	3.03	5.57	0.68	0.62	3.16	3.74	3.31	2.46	3.45	3.26
SULUR	5.55	3.77	5.31	2.61	4.82	2.13	2.32	1.61	5.91	6.13
THONDAM	4.07	2.76	1.36	1.74	1.66	2.64	6.12	8.19	2.18	2.31
TIRUPUR	1.86	23.45	3.95	2.42	1.99	1.88	0.16	0.37	1.82	2.37
UDUMAL	9.36	8.71	11.99	27.70	9.63	12.88	7.63	9.12	8.07	7.90
VALPAR	1.30	3.20	----	----	3.65	4.50	11.55	11.65	3.67	3.58

Of the total investment loans, 22 percent had been allotted for minor irrigation both in terms of accounts and amount. Compared to other loans, the land development loans were less(7.4 percent and 4.8 percent in account and amount). Only 5.8 percent accounts were for the purchase of machinery and implements that accounted for 38 percent of the amount (the unit loan for tractor generally ranged between Rs.1.5 lacs to two lacs).The loans for plantation and horticulture accounted for about 29.6 percent in number and 16.7 percent in amount. In all blocks other than Tirupur, the share of loans for the purchase of farm machinery and implements was more than 30 percent. Annur and Udumalpet blocks had more number of borrowers of farm machinery loans. Sarkar Samakkulam received more of land development loans, Tirupur had a large share of minor irrigation loans and Valparai, a large share of plantation and horticulture loans.

The investment loans were given against security. Machinery and other implements are hypothecated to the banks. Hence, these loans generally cover only the large farmers. This may be the reason for the lower share of investment loans than the production loans. The share of Madukkarai was more in minor irrigation loans in accounts (16.72 percent) followed by Pollachi (10.66 percent). Udumalpet had a large share in farm machinery loans (12.88 percent) and Palladam only 1.85 percent. Valparai had a share of 11.65 percent in plantation loans. The various types of loans allotted for minor irrigation projects and the share of blocks are given in Tables XVII and XVIII.

TABLE XVII

BLOCKWISE ALLOCATION OF MINOR IRRIGATION LOANS IN COIMBATORE DISTRICT 1992 -93

Rs in '000s

Block	Dug well				Borewells				IP jets				Drip jet				Sprinkle jets				Lift irrigation				MI misc.				Total	
	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	amt
ANAMALA	31	21.09	786	40.94	41	27.89	434	22.60	17	11.56	100	5.21	16	10.88	60	3.13	---	---	---	---	13	8.84	90	4.69	29	19.73	450	23.44	147	1,920
ANNUR	---	---	---	---	26	24.30	428	38.59	13	12.15	250	22.54	---	---	---	---	39	36.45	210	18.94	4	3.74	20	1.80	25	23.36	201	18.12	107	1,109
AVINASI	10	21.28	25	8.17	2	4.26	6	1.96	3	6.38	5	1.63	12	25.53	100	32.68	---	---	---	---	9	19.15	120	39.22	11	23.40	50	16.34	47	306
GUDIMAN	10	7.35	510	30.95	4	2.94	100	6.07	48	35.29	302	18.33	23	16.91	378	22.94	10	7.35	60	3.64	11	8.09	170	10.32	30	22.06	128	7.77	136	1,648
KARAMAD	25	29.07	156	16.83	3	3.49	30	3.24	6	6.98	52	5.61	7	8.14	47	5.07	---	---	---	---	26	30.23	472	50.92	19	22.09	170	18.34	86	,927
KINATHU	5	8.62	200	23.81	6	10.34	55	6.55	4	6.90	50	5.95	30	51.72	435	51.79	---	---	---	---	4	6.90	20	2.38	9	15.52	80	9.52	58	840
MADATHU	8	10.67	198	27.24	2	2.67	20	2.75	41	54.67	367	50.48	10	13.33	107	14.72	---	---	---	---	10	13.33	27	3.71	4	5.33	8	1.10	75	727
MADUKAR	---	---	---	---	---	---	---	---	6	1.55	65	2.39	11	2.85	495	18.23	---	---	---	---	367	95.08	2,140	78.82	2	0.52	15	0.55	386	2,715
PALLADA	---	---	---	---	---	---	---	---	5	20.00	51	20.48	---	---	---	---	---	---	---	---	20	80.00	198	79.52	---	---	---	---	25	249
P.N.PAL	29	20.42	385	20.16	3	2.11	59	3.09	16	11.27	205	10.73	8	5.63	60	3.14	10	7.04	250	13.09	76	53.52	951	49.79	---	---	---	---	142	1,910
PERUR	---	---	---	---	60	64.52	360	76.60	2	2.15	10	2.13	1	1.08	20	4.26	---	---	---	---	30	32.26	80	17.02	---	---	---	---	93	470
POLL.N	15	6.10	385	14.53	27	10.98	95	3.59	35	14.23	368	13.89	34	13.82	614	23.18	---	---	---	---	13	5.28	226	8.53	122	49.59	961	36.28	246	2,649
POLL.S	21	16.67	500	26.07	11	8.73	221	11.52	14	11.11	177	9.23	29	23.02	544	28.36	---	---	---	---	17	13.49	270	14.08	34	26.98	206	10.74	126	1,918
PONGAL	---	---	---	---	---	---	---	---	4	5.19	40	2.29	15	19.48	925	53.01	5	6.49	300	17.19	21	27.27	225	12.89	32	41.56	255	14.61	77	1,745
S.S.KUL	---	---	---	---	11	57.89	167	26.22	4	21.05	100	15.70	---	---	---	---	---	---	---	---	4	21.05	370	58.08	---	---	---	---	19	637
SUL.PET	3	4.29	30	1.43	4	5.71	40	1.91	6	8.57	66	3.15	33	47.14	1,445	68.94	3	4.29	70	3.34	10	14.29	354	16.89	11	15.71	91	4.34	70	2,096
SULUR	2	1.56	68	4.79	7	5.47	211	14.86	13	10.16	83	5.85	25	19.53	425	29.93	---	---	---	---	71	55.47	449	31.62	10	7.81	184	12.96	128	1,420
THONDAM	---	---	---	---	15	17.65	140	13.45	5	5.88	25	2.40	39	45.88	414	39.77	4	4.71	200	19.21	17	20.00	210	20.17	5	5.88	52	5.00	85	1,041
TIRUPUR	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	43	100.00	8,832	100.00	---	---	---	---	43	8,832
UDUMAL	33	15.28	812	24.76	14	6.48	190	5.79	53	24.54	774	23.60	24	11.11	300	9.15	---	---	---	---	32	14.81	565	17.23	60	27.78	638	19.46	216	3,279
VALPAR	---	---	---	---	---	---	---	---	12	40.00	264	22.60	12	40.00	304	26.03	---	---	---	---	6	20.00	600	51.37	---	---	---	---	30	1,168
TOTAL	192	8.20	4,055	10.78	236	10.07	2,556	6.80	307	13.10	3,354	8.92	329	14.04	6,673	17.74	71	3.03	1,090	2.90	804	34.33	16,389	43.58	403	17.21	3,489	9.28	2,342	37,606

Note : Percentages are for row totals.

TABLE XVIII

PERCENTAGE SHARE OF BLOCKS IN THE MINOR IRRIGATION LOANS IN COIMBATORE DISTRICT - 1992 -93

Block	Dug well		Bore wells		IP jets		Drip jet		Sprinkle jets		lift irrig.		mi. misc	
	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt
ANAMAL	16.15	19.38	17.37	16.98	5.54	2.98	4.86	0.90	---	---	1.62	0.55	7.20	12.90
ANNUR	---	---	11.02	16.74	4.23	7.45	---	---	54.93	19.27	0.50	0.12	6.20	5.76
AVINAS	5.21	0.62	0.85	0.23	0.98	0.15	3.65	1.50	---	---	1.12	0.73	2.73	1.43
GUDIMA	5.21	12.58	1.69	3.91	15.64	9.00	6.99	5.66	14.08	5.50	1.37	1.04	7.44	3.67
KARAMA	13.02	3.85	1.27	1.17	1.95	1.55	2.13	0.70	---	---	3.23	2.88	4.71	4.87
KINATH	2.60	4.93	2.54	2.15	1.30	1.49	9.12	6.52	---	---	0.50	0.12	2.23	2.29
MADATH	4.17	4.88	0.85	0.78	13.36	10.94	3.04	1.60	---	---	1.24	0.16	0.99	0.23
MADUKA	---	---	---	---	1.95	1.94	3.34	7.42	---	---	45.65	13.06	0.50	0.43
PALLAD	---	---	---	---	1.63	1.52	---	---	---	---	2.49	1.21	---	----
P.N.PAL	15.10	9.49	1.27	2.31	5.21	6.11	2.43	0.90	14.08	22.94	9.45	5.80	---	----
PERUR	---	---	25.42	14.08	0.65	0.30	0.30	0.30	---	---	3.73	0.49	---	----
POLL.N	7.81	9.49	11.44	3.72	11.40	10.97	10.33	9.20	---	---	1.62	1.38	30.27	27.54
POLL.S	10.94	12.33	4.66	8.65	4.56	5.28	8.81	8.15	---	---	2.11	1.65	8.44	5.90
PONGAL	---	---	---	---	1.30	1.19	4.56	13.86	7.04	27.52	2.61	1.37	7.94	7.31
S.S.KUL	---	---	4.66	6.53	1.30	2.98	---	---	---	---	0.50	2.26	---	----
SUL.PET	1.56	0.74	1.69	1.56	1.95	1.97	10.03	21.65	4.23	6.42	1.24	2.16	2.73	2.61
SULUR	1.04	1.68	2.97	8.26	4.23	2.47	7.60	6.37	---	---	8.83	2.74	2.48	5.27
THONDA	---	---	6.36	5.48	1.63	0.75	11.85	6.20	5.63	18.35	2.11	1.28	1.24	1.49
TIRUPU	---	---	---	---	---	---	---	---	---	---	5.35	53.89	---	----
UDUMAL	17.19	20.02	5.93	7.43	17.26	23.08	7.29	4.50	---	---	3.98	3.45	14.89	18.29
VALPAR	----	----	---	---	3.91	7.87	3.65	4.56	---	---	0.75	3.66	---	----

The district has only 33 percent of land with assured water availability. Parambikulam Aliyar project is the only major source of irrigation in the district. Other wise,the major sources are the open wells and bore wells. Hence, there is a need for providing credit facilities for making use of the available water resources through water management practices and drip irrigation system.The shift in cropping pattern towards perennial crops like coconut and grapes which require assured irrigation throughout the year had resulted in the adoption of lift irrigation and drip irrigation sytems to effectively make use of the available water resources. Out of the loans allotted for minor irrigation schemes, 43 percent had gone for lift irrigation and 17 percent for drip system. The periodical training programmes conducted by the Tamil Nadu Agricultural University had created an awareness among the farmers to follow the water management practices among them. As a result, there is a growing demand for drip jets, sprinkle jets and bore wells. In view of their potential, the banking sector gives priority for these minor irrigation schemes.

Anamalai and Udumalpet had a higher share in the loans for dugwells (20 percent).All blocks were given equal attention to loans for bore wells and Sultanpet had a major share (21.7 percent) in loans for drip jet and in sprinkle jets. A share of 54 percent of lift irrigation loans was allotted to Tirupur. There is scope for the investment loans for strengthening the

waterbase of the district with 67 percent of the area in large holdings. The dry farming account for about 65 percent in the district and hence credit facilities may be provided for watershed technology projects.

One of the important components of the HYV technology is the machanisation in agriculture.The technology transformation is rendered possible because of the institutional credit. According to Galbraith(1970) in every agricultural community farmers seek credit in order to become owners of non renewable assets.

The components of loans for farm machinery are given in Tables XIX and XX.

TABLE XIX

BLOCKWISE ALLOCATION OF FARM MACHINERY LOANS IN COIMBATORE DISTRICT 1992-93

Rs in '000s

Block	Tractors				Power tillers				Farm Machinery				Misc.		Total	
	acc	%	amt	%	acc	%	amt	%	acc	%	amt	%	acc	amt	acc	amt
ANAMALA	26	44.83	590	8.73	8	13.79	50	0.74	24	41.38	6120	90.53	58	6760		
ANNUR	12	37.50	2315	88.53	2	6.25	80	3.06	18	56.25	220	8.41	32	2615		
AVINASI	13	50.00	2810	77.52	1	3.85	200	5.52	12	46.15	615	16.97	26	3625		
GUDIMAN	16	66.67	2450	95.93	1	4.17	50	1.96	7	29.17	54	2.11	24	2554		
KARAMAD	13	28.89	2630	82.06	3	6.67	150	4.68	29	64.44	425	13.26	45	3205		
KINATHU	16	94.12	2812	98.60	1	5.88	40	1.40	---	----	---	----	17	2852		
MADATHU	16	76.19	2650	92.17	2	9.52	80	2.78	3	14.29	145	5.04	21	2875		
MADUKAR	18	62.07	3470	90.01	--	----	---	----	11	37.93	385	9.99	29	3855		
PALLADA	7	41.18	1110	93.67	--	----	---	----	10	58.82	75	6.33	17	1185		
P.N.PAL	16	69.57	3075	93.89	5	21.74	160	4.89	2	8.70	40	1.22	23	3275		
PERUR	6	100.00	950	100.00	--	----	---	----	---	----	---	----	6	950		
POLL.N	22	46.81	3785	86.61	1	2.13	50	1.14	24	51.06	535	12.24	47	4370		
POLL.S	26	45.61	3798	89.41	--	----	---	----	31	54.39	450	10.59	57	4248		
PONGAL	11	29.73	2090	87.63	1	2.70	50	2.10	25	67.57	245	10.27	37	2385		
S.S.KUL	8	61.54	1395	95.61	1	7.69	40	2.74	4	30.77	24	1.64	13	1459		
SUL.PET	14	73.68	2380	99.37	5	26.32	15	0.63	---	----	---	----	19	2395		
SULUR	6	20.69	1190	87.50	--	----	---	----	23	79.31	170	12.50	29	1360		
THONDAM	10	100.00	1690	100.00	--	----	---	----	---	----	---	----	10	1690		
TIRUPUR	6	50.00	1080	90.00	--	----	---	----	6	50.00	120	10.00	12	1200		
UDUMAL	44	75.80	7450	90.41	8	13.79	355	4.31	6	10.34	435	5.28	58	8240		
VALPAR	15	68.18	2640	91.67	7	31.82	240	8.33	---	----	---	----	22	2880		
TOTAL	321	53.32	52360	81.80	46	7.67	1560	2.43	235	39.01	10058	15.76	602	63978		

Note :Percentages for row totals

TABLE XX

PERCENTAGE SHARE OF BLOCKS IN THE FARM MACHINERY LOANS IN COIMBATORE DISTRICT 1992-93

Block	Tractors		Power tillers		Farm Machinery Misc.	
	acc	amt	acc	amt	acc	amt
ANAMALA	8.10	1.13	17.39	3.21	10.21	60.85
ANNUR	3.74	4.42	4.35	5.13	7.66	2.19
AVINASI	4.05	5.37	2.17	12.82	5.11	6.11
GUDIMAN	4.98	4.68	2.17	3.21	2.98	.54
KARAMAD	4.05	5.02	6.52	9.62	12.34	4.23
KINATHU	4.98	5.37	2.17	2.56	----	.00
MADATHU	4.98	5.06	4.35	5.13	1.28	1.44
MADUKAR	5.61	6.63	----	----	4.68	3.83
PALLADA	2.18	2.12	----	----	4.26	.75
P.N.PAL	4.98	5.87	10.87	10.26	.85	.40
PERUR	1.87	1.81	----	----	----	.00
POLL.N	6.85	7.23	2.17	3.21	10.21	5.32
POLL.S	8.10	7.25	----	----	13.19	4.47
PONGAL	3.43	3.99	2.17	3.21	10.64	2.44
S.S.KUL	2.49	2.66	2.17	2.56	1.70	.24
SUL.PET	4.36	4.55	10.87	.96	----	.00
SULUR	1.87	2.27	----	----	9.79	1.69
THONDAM	3.12	3.23	----	----	----	.00
TIRUPUR	1.87	2.06	----	----	2.55	1.19
UDUMAL	13.70	14.23	17.39	22.76	2.55	4.32
VALPAR	4.67	5.04	15.22	15.38	----	.00

The tractor loans accounted for 82 percent of the total machinery loan . The remaining 18 percent was allotted for the purchase of power tiller and other miscellaneous implements. The loans were given only for large farmers. Hence, the accounts and coverage was less when compared to other schematic loans. The loan amounts are fixed according to the guidelines given by NABARD on unit cost of the projects.

The land as a factor of cultivation is important in the early stage of agricultural development, but land management and development practices are important in optimally making use of the lands with the other yield increasing inputs used in agriculture in the transformation stages. Land reclamation, soil conservation measures and watershed projects are some of the important measures of land development.

Tables XXI and XXII provide information on the share of the loans allotted for various land development measures with block wise schemes.

TABLE XXI

BLOCKWISE ALLOCATION OF LOANS FOR LAND DEVELOPMENT IN COIMBATORE DISTRICT 1992-93

Rs in '000s

Block	--Land Reclamation --				Bunding of soil and conservation				----- Water shed------				-- Water management--				--Land Development--				--------Misc. -------				Total	
	acc	%	amt	%	acc	%	amt	%	acc	%	amt	%	acc	%	amt	%	acc	%	amt	%	acc	%	amt	%	acc	amt
ANAMALA	45	56.96	610	70.11	3	3.80	20	2.30	---	---	---	---	3	3.80	45	5.17	10	12.66	45	5.17	18	22.78	150	17.24	79	870
ANNUR	---	---	---	---	30	88.24	50	26.32	---	---	---	---	---	---	---	---	---	---	---	---	4	11.76	140	73.68	34	190
AVINASI	14	16.47	82	14.96	19	22.35	68	12.41	20	23.53	74	13.50	12	14.12	57	10.40	4	4.71	22	4.01	16	18.82	245	44.71	85	548
GUDIMAN	9	27.27	135	23.68	2	6.06	60	10.52	3	9.09	110	19.29	---	---	---	---	10	30.30	130	22.80	9	27.27	135	23.68	33	570
KARAMAD	2	3.33	20	4.65	---	---	---	---	---	---	---	---	10	16.67	55	12.79	22	36.67	105	24.42	26	43.33	250	58.14	60	430
KINATHU	13	92.86	90	85.71	---	---	---	---	---	---	---	---	---	---	---	---	1	7.14	15	14.29	---	---	---	---	14	105
MADATHU	12	57.14	339	74.83	---	---	---	---	---	---	---	---	2	9.52	6	1.32	1	4.76	9	1.99	6	28.57	99	21.85	21	453
MADUKAR	8	25.00	40	28.57	4	12.50	20	14.29	---	---	---	---	---	---	---	---	---	---	---	---	20	62.50	80	57.14	32	140
PALLADA	5	62.50	25	45.45	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3	37.50	30	54.55	8	55
P.N.PAL	---	---	---	---	---	---	---	---	---	---	---	---	9	69.23	45	69.23	4	30.77	20	30.77	---	---	---	---	13	65
PERUR	5	100.00	15	100.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5	15
POLL.N	20	25.00	240	38.34	15	18.75	75	11.98	---	---	---	---	21	26.25	91	14.54	4	5.00	70	11.18	20	25.00	154	23.96	80	630
POLL.S	5	6.10	25	5.49	5	6.10	10	2.20	---	---	---	---	20	24.39	250	54.95	12	14.63	70	15.38	40	48.78	100	21.98	82	455
PONGAL	1	100.00	1	100.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	1
S.S.KUL	10	58.82	50	41.67	---	---	---	---	---	---	---	---	7	41.18	70	58.33	---	---	---	---	---	---	---	---	17	120
SUL.PET	5	100.00	50	100.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5	50
SULUR	3	7.69	30	14.71	---	---	---	---	---	---	---	---	---	---	---	---	3	7.69	24	11.76	33	84.62	156	73.53	39	210
THONDAM	8	80.00	40	28.57	---	---	---	---	---	---	---	---	---	---	---	---	2	20.00	100	71.43	---	---	---	---	10	140
TIRUPUR	18	62.07	45	23.08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	11	37.93	150	76.92	29	195
UDUMAL	26	29.55	1409	63.18	3	3.41	30	1.34	2	2.27	50	2.22	6	6.82	180	8.07	41	46.59	208	9.33	10	11.36	353	15.82	88	2230
VALPAR	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	100.00	1	100.00	1	1
TOTAL	209	28.40	3246	43.52	81	11.00	333	4.47	25	3.40	274	3.67	90	12.22	799	10.71	114	15.49	818	10.96	217	29.48	1776	23.81	736	7458

Note : Percentages are for row totals

TABLE XXII

PERCENTAGE SHARE OF BLOCKS IN LOANS FOR LAND DEVELOPMENT IN COIMBATORE DISTRICT 1992-93

Block	Land Reclamation		Bunding of soil and conservation		Water shed management		Water management		Land Development		Misc.	
	acc	amt	acc	amt	acc	amt	acc	amt	acc	amt	acc	amt
ANAMALA	21.53	18.79	3.70	6.01	----	----	3.33	5.63	8.77	5.50	8.29	8.39
ANNUR	----	----	37.04	15.02	----	----	----	----	----	----	1.84	7.38
AVINASI	6.70	2.53	23.46	20.42	80.00	31.62	13.33	7.13	3.51	2.69	7.37	13.72
GUDIMAN	4.31	4.16	2.47	18.02	12.00	47.00	----	----	8.77	15.89	4.15	7.55
KARAMAD	0.96	0.62	----	----	----	----	11.11	6.88	19.30	12.84	11.98	13.99
KINATHU	6.22	2.77	----	----	----	----	----	----	0.88	1.83	----	----
MADATHU	5.74	10.44	----	----	----	----	2.22	0.75	0.88	1.10	2.76	5.54
MADUKAR	3.83	1.23	4.94	6.01	----	----	----	----	----	----	9.22	4.47
PALLADA	2.39	0.77	----	----	----	----	----	----	----	----	1.38	1.68
P.N.PAL	----	----	----	----	----	----	10.00	5.63	3.51	2.44	----	----
PERUR	2.39	0.46	----	----	----	----	----	----	----	----	----	----
POLL.N	9.57	7.39	18.52	22.52	----	----	23.33	11.39	3.51	8.56	9.22	8.62
POLL.S	2.39	0.77	6.17	3.00	----	----	22.22	31.29	10.53	8.56	18.43	5.59
PONGAL	0.48	0.03	----	----	----	----	----	----	----	----	----	----
S.S.KUL	4.78	1.54	----	----	----	----	7.78	8.76	----	----	----	----
SUL.PET	2.39	1.54	----	----	----	----	----	----	----	----	----	----
SULUR	1.44	0.92	----	----	----	----	----	----	2.63	2.93	15.21	8.73
THONDAM	3.83	1.23	----	----	----	----	----	----	1.75	12.22	----	----
TIRUPUR	8.61	1.39	----	----	----	----	----	----	----	----	5.07	8.39
UDUMAL	12.44	43.41	3.70	9.01	8.00	21.36	6.67	22.53	35.96	25.43	4.61	5.32
VALPAR	----	----	----	----	----	----	----	----	----	----	0.46	0.06

The share of loans on land development measures was low in all the schematic term loans. More than 70 percent of the loans were allotted for land reclamation in six irrigated blocks of the district. Watershed technology is an emerging technology to preserve the rain water. Only in two blocks Avinashi and Gudimangalam, these projects were in operation and hence provided with loans.

The allocation of loans to plant and horticulture projects and the share of blocks are given in Tables XXIII and XXIV.

TABLE XXIII

BLOCKWISE ALLOCATION OF PLANTATION AND HORTICULTURE LOANS IN COIMBATORE DISTRICT 1992 -93

Rs in 000s

Block	pine apple				mango				coconut				tea				coffee			
	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%
ANAMALA	---	----	---	----	---	----	280	14.37	45	36.89	947	48.61	1	0.82	1	0.05	1	0.82	1	0.05
ANNUR	---	----	---	----	---	----	---	----	---	----	---	----	---	----	---	----	---	----	---	----
AVINASI	---	----	---	----	---	----	---	----	---	----	---	----	---	----	---	----	---	----	---	----
GUDIMAN	2	1.54	100	5.87	2	1.54	9	5.28	4	3.08	475	27.88	---	----	---	----	---	----	---	----
KARAMAD	---	---	---	----	1	2.22	27	4.27	3	6.67	73	11.53	---	----	---	----	---	----	---	----
KINATHU	---	---	---	----	5	1.92	78	5.78	129	49.43	425	31.48	---	----	---	----	---	----	---	----
MADATHU	---	---	---	----	4	8.51	47	3.84	1	2.13	71	5.81	---	----	---	----	6	12.77	710	58.05
MADUKAD	---	---	---	----	1	0.38	65	3.21	30	11.49	353	17.41	---	----	---	----	---	----	---	----
PALLADA	---	---	---	----	---	----	---	----	1	1.89	50	7.61	---	----	---	----	---	----	---	----
P.N.PAL	---	---	---	----	3	0.98	16	0.80	5	1.64	30	1.49	---	----	---	----	---	----	---	----
PERUR	---	---	---	----	2	1.87	15	1.20	1	0.93	87	6.97	---	----	---	----	---	----	---	----
POLL.N	---	---	---	----	7	3.35	35	2.00	41	19.62	571	32.55	---	----	---	----	---	----	---	----
POLL.S	---	---	---	----	22	16.92	270	24.22	28	21.54	410	36.77	---	----	---	----	---	----	---	----
PONGAL	---	---	---	----	---	---	---	----	4	5.97	400	33.93	---	----	---	----	---	----	---	----
S.S.KUL	---	---	---	----	1	0.93	35	3.21	3	2.78	20	1.83	---	----	---	----	---	----	---	----
SUL.PET	---	---	---	----	10	9.26	8	1.16	7	6.48	90	13.06	---	----	---	----	---	----	---	----
SULUR	---	---	---	----	2	2.82	108	23.95	2	2.82	50	11.09	---	----	---	----	---	----	---	----
THONDAM	---	---	---	----	---	---	---	----	10	5.35	300	13.07	---	----	---	----	---	----	---	----
TIRUPUR	---	---	---	----	---	---	---	----	---	----	---	----	---	----	---	----	---	----	---	----
UDUMAL	---	---	---	----	10	4.29	182	7.12	101	43.35	1501	58.70	---	---	---	----	---	----	---	----
VALPAR	--	---	---	----	---	----	---	----	80	22.66	120	4.72	1	0.28	1	0.04	2	0.57	80	3.14
TOTAL	20	0.68	100	0.36	70	2.36	1256	4.58	495	16.72	5973	21.76	2	0.07	2	0.01	9	0.30	791	2.88

Note: Percentages are for row totals

contd. .....

TABLE XXIII

BLOCKWISE ALLOCATION OF PLANTATION AND HORTICULTURE LOANS IN COIMBATORE DISTRICT 1992 -93

Rs in 000 s

Block	Grapes				Sericulture				Rubber				Spices				P.H. Misce		Total	
	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%	accs	amount
ANAMALA	--	---	---	---	27	22.13	284	14.58	---	---	---	---	5	4.10	55	2.82	43	35.25	380	19.51	122	1,948
ANNUR	--	---	---	---	32	43.24	239	49.90	---	---	---	---	--	---	---	---	42	56.76	240	50.10	74	479
AVINASI	--	---	---	---	27	40.30	227	60.21	---	---	---	---	--	---	---	---	40	59.70	150	39.79	67	377
GUDIMAN	--	---	---	---	60	46.15	423	24.82	---	---	---	---	--	---	---	---	62	47.69	616	36.15	130	1,704
KARAMAD	--	---	---	---	30	66.67	252	39.81	1	2.22	211	33.33	--	---	---	---	10	22.22	70	11.06	45	633
KINATHU	5	1.92	98	7.26	28	10.73	153	11.33	---	---	---	---	--	---	---	---	94	36.02	596	44.15	261	1,350
MADATHU	--	---	---	---	10	21.28	102	8.34	21	44.68	211	17.25	--	---	---	---	5	10.64	82	6.70	47	1,223
MADUKA	4	1.53	245	12.08	5	1.92	35	1.73	20	7.66	17	0.84	--	---	---	---	201	77.01	1,313	64.74	261	2,028
PALLAD	--	---	---	---	14	26.42	128	19.48	---	---	---	---	--	---	---	---	38	71.70	479	72.91	53	657
P.N.PAL	13	4.26	615	30.64	40	13.11	388	19.33	---	---	---	---	--	---	---	---	244	80.00	958	47.73	305	2,007
PERUR	1	0.93	165	13.21	---	---	---	---	1	0.93	6	0.48	1	0.93	25	2.00	101	94.39	951	76.14	107	1,249
POLL.N	--	---	40	2.28	64	30.62	298	16.99	20	9.57	20	1.14	--	---	---	---	77	36.84	790	45.04	209	1,754
POLL.S	--	---	---	---	60	46.15	288	25.83	---	---	---	---	--	---	---	---	20	15.38	147	13.18	130	1,115
PONGAL	--	---	---	---	15	22.39	150	12.72	---	---	---	---	--	---	---	---	48	71.64	629	53.35	67	1,179
S.S.KU	1	0.93	70	6.42	8	7.41	53	4.86	1	0.93	9	0.82	--	---	---	---	94	87.04	904	82.86	108	1,091
SUL.PET	2	1.85	50	7.26	12	11.11	104	15.09	---	---	---	---	--	---	---	---	77	71.30	437	63.43	108	689
SULUR	--	---	---	---	25	35.21	178	39.47	---	---	---	---	--	---	---	---	42	59.15	115	25.50	71	451
THONDAM	30	16.04	1,300	56.64	---	---	---	---	32	17.11	240	10.46	--	---	---	---	115	61.50	455	19.83	187	2,295
TIRUPUR	---	---	---	---	1	20.00	20	19.05	---	---	---	---	--	---	---	---	4	80.00	85	80.95	5	105
UDUMAL	---	---	---	---	32	13.73	295	11.54	10	4.29	100	3.91	--	---	---	---	80	34.33	479	18.73	233	2,557
VALPAR	8	2.27	340	13.36	12	3.40	114	4.48	---	---	---	---	--	---	---	---	250	70.82	1,890	74.26	353	2,545
TOTAL	64	2.16	2,923	10.65	502	16.95	3731	13.60	106	3.58	814	2.97	6	0.20	80	0.29	1687	56.97	11,766	42.88	2961	27,437

Note : Percentages are for row totals

TABLE XXIV

PERCENTAGE SHARE OF BLOCKS IN PLANTATION AND HORTICULTURE LOANS IN COIMBATORE DISTRICT 1992 -93

Block No	Pine Apple		Mango		Coconut		Tea		Coffee	
	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt
ANAMALA	---	---	---	22.29	9.09	15.85	50	50	1.11	0.13
ANNUR	---	---	---	----	----	----	---	---	---	---
AVINAS	---	---	---	----	----	----	---	---	---	---
GUDIMAN	100	100	2.86	7.17	0.81	7.95	---	---	---	---
KARAMAD	---	---	1.43	2.15	0.61	1.22	---	---	---	---
KINATHU	---	---	7.14	6.21	26.06	7.12	---	---	---	---
MADATHU	---	---	5.71	3.74	0.20	1.19	---	---	66.67	89.76
MADUKAR	---	---	1.43	5.18	6.06	5.91	---	---	---	---
PALLADA	---	---	---	----	0.20	0.84	---	---	---	---
P.N.PAL	---	---	4.29	1.27	1.01	0.50	---	---	---	---
PERUR	---	---	2.86	1.19	0.20	1.46	---	---	---	---
POLL.N	---	---	10.00	2.79	8.28	9.56	---	---	---	---
POLL.S	---	---	31.43	21.50	5.66	6.86	---	---	---	---
PONGAL	---	---	---	----	0.81	6.70	---	---	---	---
S.S.KUL	---	---	1.43	2.79	0.61	0.33	---	---	---	---
SUL.PET	---	---	14.29	0.64	1.41	1.51	---	---	---	---
SULUR	---	---	2.86	8.60	0.40	0.84	---	---	---	---
THONDAM	---	---	---	----	2.02	5.02	---	---	---	---
TIRUPUR	---	---	---	----	----	----	---	---	---	---
UDUMAL	---	---	14.29	14.49	20.40	25.13	---	---	---	---
VALPAR	---	---	---	----	16.16	2.01	50	50	22.22	10.11

contd .....

TABLE XXIV

PERCENTAGE SHARE OF BLOCKS IN PLANTATION AND HORTICULTURE LOANS IN COIMBATORE DISTRICT 1992 -93

Block No	Grapes		Sericulture		Rubber		Spices		P and H misce	
	accs	amt	accs	amt	accs	amt	accs	amt	accs	amt
ANAMALA	---	---	5.38	7.61	---	---	83.33	68.75	2.55	3.23
ANNUR	---	---	6.37	6.41	---	---	---	---	2.49	2.04
AVINASI	---	---	5.38	6.08	---	---	---	---	2.37	1.27
GUDIMAN	---	---	11.95	11.34	---	---	---	---	3.68	5.24
KARAMAD	---	---	5.98	6.75	0.94	25.92	---	---	0.59	0.59
KINATHU	7.81	3.35	5.58	4.10	---	---	---	---	5.57	5.07
MADATHU	---	---	1.99	2.73	19.81	25.92	---	---	0.30	0.70
MADUKAR	6.25	8.38	1.00	0.94	18.87	2.09	---	---	11.91	11.16
PALLADA	---	---	2.79	3.43	---	---	---	---	2.25	4.07
P.N.PAL	20.31	21.04	7.97	10.40	---	---	---	---	14.46	8.14
PERUR	1.56	5.64	----	----	0.94	0.74	16.67	31.25	5.99	8.08
POLL.N	---	1.37	12.75	7.99	18.87	2.46	---	---	4.56	6.71
POLL.S	---	---	11.95	7.72	---	---	---	---	1.19	1.25
PONGAL	---	---	2.99	4.02	---	---	---	---	2.85	5.35
S.S.KUL	1.56	2.39	1.59	1.42	0.94	1.11	---	---	5.57	7.68
SUL.PET	3.13	1.71	2.39	2.79	---	---	---	---	4.56	3.71
SULUR	---	---	4.98	4.77	---	---	---	---	2.49	0.98
THONDAM	46.88	44.47	----	----	30.19	29.48	---	---	6.82	3.87
TIRUPUR	---	---	0.20	0.54	---	---	---	---	0.24	0.72
UDUMAL	---	---	6.37	7.91	9.43	12.29	---	---	4.74	4.07
VALPAR	12.50	11.63	2.39	3.06	---	---	---	---	14.82	16.06

Out of the loans for plantation and horticulture, more loans were allotted for coconut (Rs. 59,73,000) followed by sericulture and grapes,these loans predominated in Pollachi Block,Kinathukadavu and Udumalpet. Loans for spices were provided to Anamalai and Perur. Twelve loans were allotted for sericulture in Valparai. Loans for coffee were allotted in Anamalai,Valparai, and Madathukulam. The Grape Growers Association is functioning in the district which facilitates the marketing of grapes also stabilises its price and protecting the grape growers from price fluctuations. There is a shift in cropping pattern towards perennial crops like coconut and grapes. This may be a cause for the dominance of these loans in the total loans for plantation and horticulture. Sericulture is an emerging enterprise in the district. Being a viable enterprise, it received the attention of the banking institutions in the district. The banking sector had a proposal to develop sericulture clusters for improving the economic status of Adi Dravida families.

d. Availability of Agricultural Credit.

One of the important aspects of the credit scenario is the quantum of credit available per hectare, per borrower, per capita and per bank office.

The data in Table XXV gives a comparative statement of the blockwise availability of farm credit in the district.

TABLE XXV

AVAILABILITY OF AGRICULTUTAL CREDIT IN COIMBATORE DISTRICT 1992-93

Rs. in '000s

BLOCK	CROP LOANS				INVESTMENT LOANS				TOTAL LOANS			
	per hectare	per borrower	per capita	per bank branch	per hectare	per borrower	per capita	per bank branch	per hectare	per borrower	per capita	per bank branch
ANNUR	1.51	4.49	0.33	2409.15	0.25	22.45	0.05	392.08	1.76	5.05	0.38	2801.23
AVINASI	1.64	7.07	0.36	3034.57	0.28	16.25	0.06	515.29	1.92	7.70	0.42	3549.86
GUDIMAN	1.40	6.47	0.20	2525.39	0.35	14.73	0.05	635.62	1.75	7.29	0.25	3161.00
KARAMAD	1.73	8.76	0.38	1993.67	0.38	17.59	0.08	433.87	2.11	9.63	0.46	2427.53
KINATHU	1.29	7.12	0.34	2448.25	0.23	12.45	0.06	431.00	1.52	7.61	0.40	2879.25
MADATHU	2.81	6.03	0.51	4806.55	0.37	17.83	0.07	630.55	3.18	6.53	0.58	5437.09
MADUKAD	1.52	7.16	0.21	1863.36	0.76	11.22	0.11	932.37	2.28	8.14	0.32	2795.73
PALLADA	1.39	5.81	0.16	1497.53	0.22	14.07	0.03	241.13	1.61	6.33	0.19	1738.67
P.N.PAL	3.07	5.91	0.19	2133.46	1.07	12.99	0.07	739.54	4.14	6.88	0.26	2873.00
PERUR	2.80	10.32	0.12	793.50	1.04	12.16	0.04	294.20	3.84	10.76	0.16	1087.70
POLL.N	1.14	4.47	0.32	1580.90	0.40	13.13	0.11	549.50	1.54	5.38	0.43	2130.40
POLL.S	1.70	4.50	0.46	1558.30	0.52	15.17	0.14	476.35	2.22	5.39	0.60	2034.65
PONGAL	1.71	6.68	0.36	2972.73	0.33	22.99	0.07	566.46	2.04	7.53	0.43	3539.18
S.S.KUL	1.36	7.45	0.17	1812.67	0.35	15.95	0.04	469.78	1.71	8.36	0.21	2282.44
SUL.PET	1.72	6.49	0.29	2140.39	0.38	19.37	0.06	476.85	2.10	7.38	0.35	2617.23
SULUR	1.34	4.47	0.16	1435.13	0.33	10.94	0.04	350.93	1.67	5.06	0.20	1786.07
THONDAM	1.48	5.61	0.28	2086.89	0.46	15.40	0.09	650.22	1.94	6.61	0.37	2737.11
TIRUPUR	0.65	11.64	0.08	862.78	0.92	11.23	0.12	1226.22	1.57	22.88	0.21	2089.00
UDUMAL	1.93	5.69	0.48	3353.30	0.54	21.03	0.13	932.70	2.47	6.76	0.61	4286.00
VALPAR	0.38	4.47	0.05	890.67	0.60	15.64	0.18	1402.17	0.98	7.94	0.13	2292.83
TOTAL	1.55	6.02	0.17	2201.20	0.43	16.37	0.05	604.52	1.98	6.96	0.022	2805.60

The following points emerged from the analysis of the Table XXV.

1) On an average, a borrower had been allotted an amount of Rs.6960 ; Crop loans averaged Rs.6,020 per borrower and investment loans Rs.16,386.
2) The average credit per hectare was Rs 1,980, crop loans per hectare Rs.1,553 and per hectare investment loan was Rs.427 The crop loan per hectare was more than the investment loan per hectare for the simple reason that only larger farmers borrow these loans. Regarding the adequacy of crop loans, the amount of crop loans per hectare in the district compares more than favourably with the credit requirement estimates of the National Commission on Agriculture of Rs.600 per irrigated and Rs. 400 per hectare of unirrigated land (Rangarajan,1990). When compared to the scale of finance of the various crops estimated by the District Level Consultative Committee (1993) , the amount of loans for all purposes was less. So, there existed a credit gap in the district.
3) The per capita credit for all purposes was less than Rs.1,000. Even though a crude measure of credit availability,the per capita credit appeared to be very low.
4) There were variations among the blocks in the quantum of total loans. Tirupur had the highest per borrower amount Rs.22,879, Rs.11,644 of production loans, and Rs.11,235 of

investment loans. Per hectare credit was higher in Perianaiken Palayam. Pollachi blocks had a higher share in credit for all purposes. The quantum of credit for all purposes was low in Annur in terms of per borrower amount. Per hectare credit for all purposes was very low in Valparai.

5) The number of accounts in a bank office and the coverage of loans was 366 and Rs.22,01,000 in the case of crop loans, 37 and Rs. 6,05,000 in the investment loans .In the case of total loans, the average number of accounts was 403 and the amount per bank office was Rs 28,05,000. In nine out of 21 blocks the number of accounts was more in crop loans. A similar trend was observed in the case of total loans. These facts indicate that the banking sector in the district had concentrated more on credit widening rather than on credit deepening.

e. Determinants of Credit allocation:

The public sector banks undertook a study on the impact of credit on the rural sector during 1987 in selected districts all over the country. On the basis of these studies, they have adopted a new strategy for rural lending - service area approach under which each semi urban and rural branch of the commercial bank was assigned a specific area comprising a cluster of villages within which it will operate. The rationale of the approach was to avoid duplication of efforts and scattered lending over wide areas. The bank branches have assessed the

potential for lending for different activities and prepared annual credit plans. Earlier studies on rural credit delivery system have identified the factors considered in the formulation of credit plans as the cropping intensity, the proportion of various types of operational holdings (Nair 1991,Patel 1991) etc. At the household level, the literacy level , the quantity and quality of land area (Iqbal 1986) have been considered in explaining the borrowing behaviour of farmers. On the basis of these factors this study specified a model to analyse the response of credit allocated to the various factors as follows:

$$Y = A\, x_1^{b1}\, x_2^{b2} \ldots\ldots\ldots x_{11}^{b11}\, e^{u}$$

$b1 , b2 ..... b11 > 0$ elasticity coefficents.

where Y = Credit allocation for the blocks Rs in 000s

x_1 = Number of cultivators

x_2 = Number of Agricultural labourers

x_3 = Number of marginal and small holdings

x_4 = Number of semi medium and medium holdings

x_5 = Number of large holdings

x_6 = Net area sown in hectares

x_7 = Area sown more than once in hectares

x_8 = size of Literate population

x_9 = Size of rural population

x_{10} = Size of SC /ST population

x_{11} = Number of Bank branches

U - error term

The Correlation matrix showing the inter relation among the selected independent variables, their means , standard deviations and the estimated regression coefficients for total agricultural loans, crop loans and investment loans are given in Tables. XXVI and XXVII.

The data used in the estimation of regression coefficients are given in Appendix V , VI , VII and VIII.

TABLE XXVI

MEAN , STANDARD DEVIATION AND CORRELATION MATRIX OF SELECTED VARIABLES DETERMINING BLOCKWISE CREDIT ALLOCATION

S.No	Variable	MEAN	STANDARD DEVIATION
1)	Cultivators	7390.429	3559.943
2)	Agl.labourers	20770.760	16186.960
3)	Small& marginal Holds	8075.381	3817.741
4)	Semi & Medium Holding	3491.619	1540.435
5)	Large holdings	170.095	107.442
6)	Net area sowm	16499.570	5686.878
7)	Sown more than once	2189.714	2846.079
8)	Literate population	56397.000	17830.630
9)	Rural population	78237.090	29076.540
10)	SC/ST population	23107.100	9922.662
11)	Number of Banks	13.190	3.698

CORRELATION MATRIX

1.000	-0.279	0.186	0.602	0.561	0.275	0.309	0.062	0.317	-0.229	0.498
	1.000	0.242	-0.052	-0.246	0.368	-0.170	0.083	0.424	0.681	-0.129
		1.000	0.541	-0.054	0.451	-0.196	-0.150	0.133	-0.215	0.185
			1.000	0.737	0.706	0.524	-0.227	0.461	-0.239	0.605
				1.000	0.594	0.801	-0.215	0.481	-0.163	0.525
					1.000	0.599	-0.266	0.748	0.176	0.539
						1.000	-0.092	0.595	-0.019	0.648
							1.000	0.047	0.422	-0.142
								1.000	0.531	0.515
									1.000	-0.244
										1.000

TABLE XXVII

DETERMINATION OF CREDIT ALLOCATION - ESTIMATED REGRESSION COEFFICIENTS

Variable	Regression Coefficients		
	Agricultural loans	Crop loans	Investment loan
constant (log A)	1.1522	0.9031	1.5158
1) Cultivators	-0.022 (0.025, 0.88)	0.125 (0.034, 3.64*)	-0.334 (0.038, 8.88*)
2) Agri.labourers	0.036 (0.052, 0.68)	0.026 (0.072,0.363)	0.117 (0.079, 1.48)
3) Marginal and Small farmers	0.329 (0.018,18.26*)	0.386 (0.025,15.51*)	0.239 (0.027, 8.76*)
4) Semi medium and medium farmers	-0.417 (0.040,10.44*)	-0.642 (0.055,11.64*)	-0.002 (0.060, 0.04)
5) Large farmers	0.106 (0.014,7.396*)	0.005 (0.020, 0.27)	0.344 (0.022,15.82*)
6) Net cropped area	0.246 (0.126,1.95**)	0.628 (0.174, 3.62*)	-0.669 (0.190, 3.51*)
7) Area sown more than once	0.122 (0.026, 4.62*)	0.161 (0.036, 4.43*)	0.082 (0.040, 2.06*)
8) Literacy	0.188 (0.152, 1.24)	0.038 (0.210,0.179)	0.541 (0.230, 2.35*)
9) Rural population	0.043 (0.091, 0.48)	-0.313 (0.126,-2.48*)	0.604 (0.138, 4.38*)
10) SC/ST population	0.080 (0.168, 0.47)	0.260 (0.232, 1.124)	-0.337 (0.254, 1.327)
11) Number of banks	0.424 (0.169,2.51*)	0.731 (0.233, 3.14*)	0.024 (0.255, 0.094)
Coefficient of determination	0.9096	0.8980	0.7467

* highly significant
** significant at 5 percent level

Figures in parenthesses are standard errors and 't' values respectively.

The explanatory variables chosen in the model explain 75 percent to 91 percent of variations in various types of credit at the block level. The factor of cultivators had a negative elasticity coefficient in total loans and investment loans but a positive coefficient for crop loans. This satisfies the assumption of the higher the number of cultivators the more will be the amount allotted for crop loans. Investment loans are given against security particularly to the large farmers. This explains the negative magnitude of the cultivator coefficient for investment loans.The factor agricultural labourers had a positive but insignificant relation with the quantum of credit as they were not directly considered by the planners in allotting credit. The size of holdings had a significant influence as a factor in credit plan formulation. The small and large farmers were given more preference than the medium farmers in credit allocation.Area under cultivation had a significant influence on plan formulation particularly the short term loans. The literate population had a significant relation with the credit particularly in the case of investment credit. The existence of lending agencies (the number of bank branches) has a significant and positive influence on credit planning in total loans and crop loans.In order to find out the predominant factors among the 11 independent variables which are to be considered in the plan formulation factor analysis was used.The eigen values and eigen vector pairs and the estimated factor loadings and rotated loadings for the selected four eigen values are presented in Tables XXVIII and XXIX.

TABLE XXVIII

EIGEN VALUES AND EIGEN VECTOR OF THE CORRELATION MATRIX OF SELECTED VARIABLES

EIGEN VALUES

4.470	2.383	1.592	1.079	0.540	0.434	0.210	0.130	0.083	0.060	0.019

EIGEN VECTOR

0.295	-0.182	-0.061	-0.538	-0.323	0.570	0.033	-0.312	-0.018	0.234	0.057
-0.009	0.569	0.249	0.088	-0.022	0.165	0.693	-0.141	0.279	0.020	0.009
0.144	0.038	0.695	-0.272	0.098	-0.249	-0.274	-0.073	0.175	-0.015	0.489
0.415	-0.082	0.221	-0.143	-0.214	-0.245	0.189	0.606	-0.018	0.315	-0.379
0.400	-0.125	-0.234	0.105	-0.429	-0.193	0.224	0.061	0.027	-0.583	0.378
0.395	0.239	0.190	0.176	-0.026	-0.176	-0.104	-0.492	-0.573	-0.073	-0.319
0.372	-0.012	-0.378	0.232	0.174	-0.309	0.002	-0.266	0.310	0.564	0.233
-0.110	0.213	-0.326	-0.712	0.192	-0.467	0.134	-0.114	-0.008	-0.156	-0.137
0.337	0.392	-0.119	-0.002	0.071	0.225	-0.489	0.104	0.489	-0.284	-0.305
-0.047	0.596	-0.216	-0.046	-0.193	0.087	-0.214	0.340	-0.402	0.235	0.414
0.372	-0.090	-0.048	-0.052	0.739	0.294	0.208	0.233	-0.256	-0.149	0.17 7

TABLE XXIX

FACTOR LOADINGS OF THE SELECTED VARIABLES

No. Variables	Estimated factor loadings				Rotated factor Loadings				Communalities
1) **Cultivators**	**0.623**	**-0.281**	**-0.077**	**-0.559**	**0.682**	0.010	0.400	-0.401	0.786
2) Agl.labourers	-0.019	0.878	0.315	0.091	-0.507	**0.787**	-0.026	-0.037	0.878
3) Small& marginal Holdings	0.305	0.058	0.877	-0.282	-0.316	0.182	**0.820**	-0.373	0.946
4) Semi & Medium Holdings	0.877	-0.126	0.278	-0.149	0.468	0.259	**0.774**	-0.033	0.885
5) Large holdings	0.845	-0.193	-0.295	0.109	**0.774**	0.184	0.346	0.313	0.850
6) Net area sowm	0.834	0.369	0.239	0.183	0.231	**0.688**	0.578	0.248	0.923
7) Area sown more than once	0.787	-0.018	-0.477	0.241	**0.767**	0.317	0.126	0.447	0.905
8) Literate population	-0.232	0.330	-0.411	-0.740	0.199	0.200	-0.539	**-0.713**	0.878
9) Rural population	0.713	0.606	-0.150	-0.002	0.377	**0.851**	0.148	0.095	0.897
10) SC/ST population	-0.100	0.919	-0.273	-0.048	-0.158	**0.790**	-0.524	-0.090	0.932
11) Bank branch	0.786	-0.139	-0.061	-0.054	**0.608**	0.208	0.470	0.101	0.646
cummulative proportion of total sample variance explained	0.260	0.511	0.757	0.866					
Eigen Value	4.470	2.383	1.592	1.079					

The rotated factor loadings grouped the eleven variables into four factors . The factor loading of a variable in a factor represented the correlation between the variables and the factor. The variables with the largest factor loading were grouped together to form the factor. The variables in the grouping of different factors are given as

Factor I	Factor II
1. Cultivators	2. Agricultural labourers
4. Large farmers	10. SC/ST population
5. Area sown more than once	6. Net area sown
11. Number of banks	9. Rural population
Factor III	**Factor IV**
3. Small and marginal farmers	8. Literate Population
4. Medium farmers	

These factors gave reasonable grouping. In the first factor, the variables which were responsible for the success of any credit system were grouped. These variables have special features in the context of plan formulation and hence it may be called as " strategic factor ". The second factor combined three population variables, agricultural labourers, SC/ST popluation and rural population and the important factor of production land, the net area sown . It can be called as " major factor ". The third factor group had two variables, namely, small and medium farmers and it may be named as " land holding related factor " . The fourth factor had only the literate population, which is essential for the effective implementation of any credit system and it can be termed as " literacy factor ", which was considered as an index of development.

The communality variance of the factors gave the variance of a variable that they share in common with the other variables. All the variables except number of bank branches had communality value of more than 0.786. It was 0.646 greater than the normal value of 0.3 for the number of bank branches.

The four variables representing the four factors were: large farmers in the first group , rural population in the second group, small and marginal farmers in the third group and literate population in the fourth group. These factors had emerged as the important ones to be considerd in credit allocation to the blocks.

2. Bankwise allocation of credit:

Bankwise allocation of credit is discussed under the subheads of total loans, crop loans, investment loan, availability of credit and determinants of credit allocation.

a) Total loans

Coimbatore district has a good network of banking sector. There are 43 banks and 315 branches serving a population of 35.08 lakhs and a rural population of 16.6 lakhs in the district. There are five state controlled banks, four cooperative banks, 19 public sector banks and 15 private sector banks. Out of these, only 27 banks had given loans to agricultural sector by way of short term and long term loans and all the 43 banks had covered the other priority sectors of Small Scale Industries sector and service sector. In the reference period of this

study, 1992-93, the credit allocation had been made to 27 banks of which two were State banks, three Cooperative Banks, 14 public sector banks and eight private sector banks. The credit plan is formulated on the basis of the performance of the banks in the past and also the recovery performance.The targets,achievements and the performance ofthe banks during 1987 -1991 are given in Appendix (IX). The details of credit allocation to agriculture and other priority sectors among the 27 banks are furnished in Tables XXX and XXXI) along with the share of each bank in the credit allocation.

TABLE XXX

BANKWISE ALLOCATION OF PRIORITY SECTOR CREDIT IN COIMBATORE DISTRICT - 1992-1993

Rs.in '000s

Bank	Agricultural Sector				--- Allied Sector---				---- Other Sectors---				Total Credit	
	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%	accs	amount
SBI	15803	77.04	130863	39.42	1785	8.70	9206	2.77	2926	14.26	191896	57.81	20514	331965
SBT	120	15.40	775	2.27	99	12.71	310	0.91	560	71.89	33011	96.82	779	34096
ALLAH	242	64.53	1334	29.01	25	6.67	110	2.39	108	28.80	3155	68.60	375	4599
BOI	806	47.33	5237	17.50	216	12.68	625	2.09	681	39.99	24060	80.41	1703	29922
BOM	25	22.94	500	4.42	0	0.00	0	0.00	84	77.06	10810	95.58	109	11310
CANARA	19428	77.46	130432	49.52	2901	11.57	18316	6.95	2751	10.97	114662	43.53	25080	263410
INDIAN	10561	84.42	43768	25.83	720	5.76	5500	3.25	1229	9.82	120186	70.93	12510	169454
IOB	9601	78.61	68334	30.70	986	8.07	5377	2.42	1627	13.32	148860	66.88	12214	222571
CBI	2556	75.71	13957	47.64	256	7.58	1172	4.00	564	16.71	14168	48.36	3376	29297
UNION	1215	53.36	12088	49.25	410	18.01	1742	7.10	652	28.63	10714	43.65	2277	24544
UCO	15	15.79	100	5.88	0	0.00	0	0.00	80	84.21	1600	94.12	95	1700
SYND	1139	45.54	10135	15.68	414	16.55	14138	21.87	948	37.90	40372	62.45	2501	64645
CORP	1129	66.65	6134	16.55	139	8.21	933	2.52	426	25.15	29995	80.93	1694	37062
NEWB	6	21.43	220	31.43	6	21.43	80	11.43	16	57.14	400	57.14	28	700
VIJ	22	13.97	650	13.03	3	1.31	225	4.51	194	84.72	4114	82.46	229	4989
BOB	3170	83.05	26496	56.99	125	3.27	1803	3.88	522	13.68	18190	39.13	3817	46489
MADU	509	42.99	6056	24.71	44	3.72	304	1.24	631	53.29	18150	74.05	1184	24510
CAYSY	421	45.07	4975	6.89	4	0.43	20	0.03	509	54.50	67226	93.08	934	72221
KVB	3292	89.48	22106	48.48	145	3.94	572	1.25	242	6.58	22920	50.27	3679	45598
LVB	545	76.44	3501	14.78	41	5.75	224	0.95	127	17.81	19970	84.28	713	23695
NEDUN	4	2.35	23	0.45	0	0.00	0	0.00	166	97.65	5099	99.55	170	5122
TMB	138	29.36	3218	9.66	32	6.81	315	0.95	300	63.83	29790	89.40	470	33323
SOUTH	1107	49.51	10160	17.50	312	13.95	2396	4.13	817	36.54	45513	78.38	2236	58069
VYSYA	34	47.89	780	5.91	1	1.41	100	0.76	36	50.70	12320	93.33	71	13200
SLDB	221	82.16	23771	96.01	28	10.41	274	1.11	20	7.43	715	2.89	269	24760
DCCB	41536	82.27	252907	83.76	750	1.49	5479	1.81	8201	16.24	43540	14.42	50487	301926
PLDB	988	34.53	25589	58.81	1726	60.33	11388	26.17	147	5.14	6532	15.01	2861	43509
Total	114633	76.24	804109	38.73	11168	7.43	80609	3.88	24564	16.34	1037968	57.39	150365	2075936

Note : percentages are for row totals

TABLE XXXI

PERCENTAGE SHARE OF BANKS IN PRIORITY SECTOR CREDIT ALLOCATION IN COIMBATORE DISTRICT 1992-1993

Bank	Agricultural Sector		Allied Sector		Other Sectors	
	accs	amount	accs	amount	accs	amount
SBI	13.78	16.27	15.98	11.42	11.91	18.49
SBT	0.10	0.10	0.89	0.38	2.28	3.18
ALLAH	0.21	0.17	0.22	0.14	0.44	0.30
BOI	0.70	0.65	1.93	0.78	2.77	2.32
BOM	0.02	0.06	0.00	0.00	0.34	1.04
CANARA	16.95	16.22	25.98	22.72	11.20	11.05
INDIAN	9.21	5.44	6.45	6.82	5.00	11.58
IOB	8.37	8.50	8.83	6.67	6.62	14.34
CBI	2.23	1.74	2.29	1.45	2.30	1.36
UNION	1.06	1.50	3.67	2.16	2.65	1.03
UCO	0.01	0.01	0.00	0.00	0.33	0.15
SYND	0.99	1.26	3.71	17.54	3.86	3.89
CORPO	0.98	0.76	1.24	1.16	1.73	2.89
NEWB	0.01	0.03	0.05	0.10	0.07	0.04
VIJAYA	0.03	0.08	0.03	0.28	0.79	0.40
BOB	2.77	3.30	1.12	2.24	2.13	1.75
MADURA	0.44	0.75	0.39	0.38	2.57	1.75
CAYSYN	0.37	0.62	0.04	0.02	2.07	6.48
KVB	2.87	2.75	1.30	0.71	0.99	2.21
LVB	0.48	0.44	0.37	0.28	0.52	1.92
NEDUNG	0.003	0.002	0.00	0.00	0.68	0.49
TMB	0.12	0.40	0.29	0.39	1.22	2.87
SOUTH	0.97	1.26	2.79	2.97	3.33	4.38
VYSYA	0.03	0.10	0.01	0.12	0.15	1.19
SLDB	0.19	2.96	0.25	0.34	0.08	0.07
DCCB	36.23	31.45	6.72	6.80	33.39	4.19
PLDB	0.86	3.18	15.45	14.13	0.60	0.63

The outlay on credit and accounts do not tally with those given in respect of block level totals.(Vide Table VI), because the former included the loans allocated to the five urban centres and in the later, loans allocated in the service area alone were taken into account.

The analysis of farm credit allocated to 27 banks in the district revealed the following facts:

1) Farm credit ranged between 13.7 percent and 89.48 percent and 2.27 and 96 percent in terms of account and amount respectively (except Nedungadi Bank). Out of 27 banks, in ten banks the percentage share of credit allotted to agriculture was more than 75 percent in account.The district average had been 76 percent and 38.7 percent in terms of accounts and amount respectively.
2) The State Bank of India and the Canara Bank together had a share of 30 percent in accounts and 32 percent in amount. Indian Bank also had been allotted a higher share, 9.2 percent in accounts but the quantum of credit was only 5.4 percent. The three banks Canara Bank, State Bank of India and Indian Bank had a place of eminence in credit allocation.

b) Crop loans and Investment loans:

The purpose wise breakup of agricultural loans and the share of banks are furnished in Tables XXXII and XXXIII.

TABLE XXXII

ALLOCATION OF CROP LOANS AND INVESTMENT LOANS TO BANKS IN COIMBATORE DISTRICT - 1992-1993

Rs in 000s

Bank	Crop loans				Minor irrigation				Land Development				Farm Machninery				Plant and Horticulture				Others				Total Credit	
	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%	accs	%	amount	%		
SBI	13702	86.71	95887	73.28	394	2.49	7536	5.76	31	0.20	520	0.40	130	0.82	15637	11.95	854	5.40	5523	4.22	692	4.38	5750	4.39	15803	130853
SBT	41	34.17	260	33.55	16	13.33	180	23.23	0	0.00	0	0.00	0	0.00	0	0.00	24	20.00	90	11.61	39	32.50	245	31.61	120	775
ALLAH	210	86.78	820	61.47	11	4.55	115	8.62	0	0.00	0	0.00	7	2.89	315	23.61	3	1.24	15	1.12	11	4.55	69	5.17	242	1334
BOI	530	65.59	3040	58.05	94	11.63	645	12.32	24	2.97	100	1.91	3	0.37	320	6.11	77	9.53	597	11.40	80	9.90	535	10.22	808	5237
BOM	20	80.00	300	60.00	5	20.00	200	40.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	25	500
CANARA	17166	88.36	95257	73.03	732	3.77	7466	5.72	267	1.37	3450	2.65	220	1.13	14579	11.18	256	1.32	2627	2.01	787	4.05	7053	5.41	19428	130432
INDIA	10213	96.70	36963	84.45	69	0.65	1265	2.89	18	0.17	221	0.50	13	0.12	2170	4.96	94	0.89	1728	3.95	154	1.46	1421	3.25	10561	43768
IOB	8706	90.68	50230	73.51	236	2.46	10391	15.21	68	0.71	391	0.57	33	0.34	3600	5.27	238	2.48	1409	2.06	320	3.33	2313	3.38	9601	68334
CBI	2346	91.78	10988	78.73	57	2.23	607	4.35	33	1.29	165	1.18	8	0.31	1175	8.42	18	0.70	355	2.54	94	3.68	667	4.78	2556	13957
UNION	1078	88.58	9722	80.43	38	3.12	615	5.09	28	2.30	280	2.32	6	0.49	875	7.24	0	0.00	0	0.00	67	5.51	596	4.93	1217	12088
UCO	15	100.00	100	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	15	100
SYND	663	58.21	4418	43.60	143	12.55	1295	12.78	94	8.25	438	4.32	20	1.76	2238	22.08	91	7.99	782	7.72	128	11.24	963	9.50	1139	10134
CORPO	1021	90.43	3760	61.30	41	3.63	955	15.57	2	0.18	20	0.33	9	0.80	905	14.75	38	3.37	332	5.41	18	1.59	162	2.64	1129	6134
NEWB	2	33.33	70	31.82	2	33.33	50	22.73	2	33.33	100	45.45	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	6	220
VIJAYA	5	22.73	150	23.08	0	0.00	0	0.00	0	0.00	0	0.00	1	4.55	150	23.08	16	72.73	350	53.85	0	0.00	0	0.00	22	650
BOB	2796	88.20	20571	77.64	74	2.33	1685	6.36	15	0.47	100	0.38	14	0.44	1980	7.47	181	5.71	1420	5.36	90	2.84	740	2.79	3170	26496
MADURA	258	50.59	1738	28.70	51	10.00	800	13.21	40	7.84	290	4.79	24	4.71	1525	25.19	122	23.92	1575	26.01	15	2.94	127	2.10	510	6055
CATSYN	342	81.24	4085	82.11	12	2.85	250	5.03	0	0.00	0	0.00	1	0.24	100	2.01	64	15.20	520	10.45	2	0.48	20	0.40	421	4975
KVB	2874	87.30	17340	78.44	53	1.61	449	2.03	26	0.79	80	0.36	17	0.52	2605	11.78	56	1.70	248	1.12	266	8.08	1384	6.26	3292	22106
LVB	508	93.21	2607	74.89	13	2.39	185	5.31	0	0.00	0	0.00	4	0.73	538	15.46	2	0.37	17	0.49	18	3.30	134	3.85	545	3481
NEDUN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	4	100.00	23	100.00	4	23
TMB	42	39.43	1600	49.72	73	52.90	1025	31.85	3	2.17	125	3.88	0	0.00	0	0.00	18	13.04	448	13.92	2	1.45	20	0.62	138	3218
SOUTH	817	73.80	6059	59.64	56	5.06	920	9.06	20	1.81	160	1.57	12	1.08	1800	17.72	122	11.02	590	5.81	80	7.23	631	6.21	1107	10160
VYSYA	20	58.82	160	20.51	1	2.94	20	2.56	0	0.00	0	0.00	2	5.88	300	38.46	7	20.59	280	35.90	4	11.76	20	2.56	34	780
SLDB	80	36.20	20000	84.10	12	5.43	296	1.24	0	0.00	0	0.00	9	4.07	1900	7.99	58	26.24	1023	4.30	62	28.05	562	2.36	221	23781
DCCB	40129	96.64	241092	95.37	0	0.00	0	0.00	0	0.00	0	0.00	13	0.03	690	0.27	395	0.95	2330	0.92	989	2.38	8695	3.44	41526	252807
PLDB	0	0.00	0	0.00	164	16.58	1833	7.18	72	7.28	1275	4.99	68	6.88	12685	49.67	475	48.03	7862	30.79	210	21.23	1883	7.37	989	25538
TOTAL	103584	90.36	627217	78.02	2347	2.05	38783	4.82	743	0.65	7715	0.96	614	0.54	66087	8.22	3209	2.80	30121	3.75	4132	3.60	34013	4.23	114629	803936

Note : percentages are for row totals

TABLE XXXIII

PERCENTAGE SHARE OF BANKS IN CROP LOANS AND INVESTMENT LOANS IN COIMBATORE DISTRICT - 1992-1993

Bank	Crop loans		Minor irri.		Land Develp.		Farm Mach.		Plant&Hort		Others	
	accs	amount	accs	amount	accs	amount	accs	amount	accs	amount	accs	amount
SBI	13.23	15.29	6.79	19.43	4.17	6.74	21.17	23.66	26.61	18.34	16.75	16.91
SBT	0.04	0.04	0.68	0.46	0.00	0.00	0.00	0.00	0.75	0.30	0.94	0.72
ALLAHA	0.20	0.13	0.47	0.30	0.00	0.00	1.14	0.48	0.09	0.05	0.27	0.20
BOI	0.51	0.48	4.01	1.66	3.23	1.30	0.49	0.48	2.40	1.98	1.94	1.57
BOM	0.02	0.05	0.21	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CANARA	16.57	15.19	31.19	19.25	35.94	44.72	35.83	22.06	7.98	8.72	19.05	20.74
INDIAN	9.86	5.89	2.94	3.26	2.42	2.86	2.12	3.28	2.93	5.74	3.73	4.18
IOB	8.40	8.01	10.06	26.79	9.15	5.07	5.37	5.45	7.42	4.68	7.74	6.80
CBI	2.26	1.75	2.43	1.57	4.44	2.14	1.30	1.78	0.56	1.18	2.27	1.96
UNION	1.04	1.55	1.62	1.59	3.77	3.63	0.98	1.32	0.00	0.00	1.62	1.75
UCO	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SYND	0.64	0.70	6.09	3.34	12.65	5.68	3.26	3.39	2.84	2.60	3.10	2.83
CORP	0.99	0.60	1.75	2.46	0.27	0.26	1.47	1.37	1.18	1.10	0.44	0.48
NBI	0.00	0.01	0.09	0.13	0.27	1.30	0.00	0.00	0.00	0.00	0.00	0.00
VIJAYA	0.00	0.02	0.00	0.00	0.00	0.00	0.16	0.23	0.50	1.16	0.00	0.00
BOB	2.70	3.28	3.15	4.34	2.02	1.30	2.28	3.00	5.64	4.71	2.18	2.18
MADURA	0.25	0.28	2.17	2.06	5.38	3.76	3.91	2.31	3.80	5.23	0.36	0.37
CAT.SY	0.33	0.65	0.51	0.64	0.00	0.00	0.16	0.15	1.99	1.73	0.05	0.06
KVB	2.77	2.76	2.26	1.16	3.50	1.04	2.77	3.94	1.75	0.82	6.44	4.07
LVB	0.49	0.42	0.55	0.48	0.00	0.00	0.65	0.81	0.06	0.06	0.44	0.39
NEDU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.07
TMB	0.04	0.26	3.11	2.64	0.40	1.62	0.00	0.00	0.56	1.49	0.05	0.06
SOUTH	0.79	0.97	2.39	2.37	2.69	2.07	1.95	2.72	3.80	1.96	1.94	1.86
VYSYA	0.02	0.03	0.04	0.05	0.00	0.00	0.33	0.45	0.22	0.93	0.10	0.06
SLDB	0.08	3.19	0.51	0.76	0.00	0.00	1.47	2.87	1.81	3.40	1.50	1.65
TCCB	38.74	38.44	0.00	0.00	0.00	0.00	2.12	1.04	12.31	7.74	23.94	25.56
PLDB	0.00	0.00	6.99	4.73	9.69	16.53	11.07	19.19	14.80	26.10	5.08	5.54

In 15 out of 27 banks, the share of short term loans was more than 80 percent in terms of accounts but the quantum of credit allotment was comparatively less.(77 percent). The crop loans were allotted on the basis of scale of finance prepared by the District Level Consultative Committee and investment loan on the basis of NABARD unit cost estimates. The State Bank of India, Canara Bank and Indian Bank had a larger share in crop loans. In investment loans, the amount of credit allotted for the purchase of farm machinery was more than the other loans. The banks with a lower share in crop loans had been allocated more number of accounts for minor irrigation. The State Bank of India had been allotted 854 accounts for plantation and horticulture. The district average had been 90.4 percent for agriculture and 9.6 percent for investment loans. The DCCB had a higher share (38.74 percent) followed by Canara Bank (16.57 percent) and State bank (13.23 percent) in crop loans.

The Canara Bank as the lead bank coordinated the credit programmes in the district. The bank branches had been planning the credit allocation on the basis of the size of the operations and the adequacy of their resources for handling the volume of work.

The details of bank groupwise allocation of credit to agriculture are furnished in Tables XXXIV and XXXV.

TABLE XXXIV
BANK GROUPWISE CREDIT ALLOCATION IN
AGRICULTURAL CREDIT IN COIMBATORE DISTRICT 1992-93
Rs. in '000s

Bank	crop loans				minor irrigation				Land development			
	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%
STATE	13743	86.31	96147	73.04	410	2.57	7716	5.86	31	0.19	520	0.40
PUBLIC	44771	89.69	236389	74.01	1502	3.01	25289	7.92	551	1.10	5265	1.65
PRIVATE	4867	80.33	33589	66.12	259	4.28	3649	7.18	89	1.47	655	1.29
CO-OP	40209	94.09	261092	86.42	176	0.41	2129	0.70	72	0.17	1275	0.42
TOTAL	103580		627217		2347		38782		743		7715	

Note : percentages are for row totals

Contd.....

Bank	---Farm machinery---				--Plant and Horti--				----- others ------				total	
	accs	%	amt	%	accs	%	amt	%	accs	%	amt	%	accs	a
STATE	130	0.82	15637	11.88	878	5.51	5613	4.26	731	4.59	5995	4.55	15923	131
PUBLIC	334	0.67	28307	8.86	1012	2.03	9615	3.01	1749	3.50	14519	4.55	49919	319
PRIVATE	60	0.99	6868	13.52	391	6.48	3628	7.24	391	6.44	2359	4.64	6051	50
CO-OP	90	0.21	15275	5.06	928	2.17	11215	3.71	1261	2.95	11140	3.69	42736	302
TOTAL	614		66087		3209		30121		4132		34013		114629	803

Note : percentages are for row totals

TABLE XXXV
PERCENTAGE SHARE OF BANK GROUPS IN CROP AND INVESTMENT LOANS IN COIMBATORE DISTRICT 1992-93

Bank Group	Crop loans		Minor irrigation		Land development	
	accs	amt	accs	amt	accs	amt
STATE BANKS	13.26	15.33	17.47	19.90	4.17	6.74
PUBLIC SECTOR	43.23	37.68	63.99	65.20	74.26	68.24
PRIVATE SECTOR	4.69	5.35	11.04	9.41	11.98	8.49
CO-OPERATIVES	38.82	41.62	7.50	5.49	9.78	16.53

Contd.....

Bank Group	Farm machinery		Plant & Hort.		others		Total	
	accs	amt	accs	amt	accs	amt	accs	amt
STATE BANKS	21.17	23.66	27.36	18.63	17.69	17.63	13.89	16.37
PUBLIC SECTOR	54.40	42.83	31.54	31.92	42.32	42.68	43.55	39.73
PRIVATE SECTOR	9.77	10.40	12.18	12.22	9.47	6.94	5.28	6.32
CO-OPERATIVES	14.66	23.11	28.92	37.23	30.52	32.75	37.28	37.58

The short term loan requirements were given priority in rural lending. It constituted more than 80 percent for all bank groups in terms of accounts but the quantum of loans ranged between 66 and 86 percent (86 percent for co-operatives). In the case of investment loans , the farm machinery had a major share in terms of amount , 11 percent for State Bank group and 13.5 percent for private sector banks and only five percent for cooperatives. Next in priority was the loans for minor irrigation.

Of the total short term crop loans, a major share was allotted to public sector banks (43 percent) followed by cooperatives (38.8 percent) in accounts.

The credit performance of the State Bank group had been good. The Cooperatives had a major share in the quantum of credit (41.6 percent) followed by public sector banks (37.68 percent). The Cooperatives were regional in character and they also get refinance facilities from NABARD and hence their share was more. In all other investment loans / long term loans, the share of public sector banks constituted a larger share compared to other bank groups. Out of the total institutional credit for agriculture , the cooperatives and public sector banks together had a major share of more than 77 percent.

Thus the analysis of credit allocation revealed that the banks had focussed only on short term loans , which was also the picture that emerged at the national level. However, the vast

potential to provide investment credit for developing the post farm business sector still remains to be tapped by the banks (Devarajan 1994).

Nearly 45 percent of the area in the district is rainfed. Hence , financial assistance may be increased to minor irrigation projects and also to conserve the water and application of biomass to enrich the soil in the rainfed areas. To achieve this, adequate energy sources and matching implements must be made available (Ohja , 1994).Modern methods of watering such as drip and sprinkler systems are in operation among the large farmers. Small and medium farmers are also to be encouraged to use these devices by providing more loans for such programmes particularly to the small farmers.

There is scope for increasing the loans for farm machinery. Most of the loans for farm machinery were given for the purchase of tractors and trailors particularly for the large farmers. The coverage may be extended to include more number of small farmers to purchase hand tools and other small implements.

c) Availability of credit:

Table XXXVI gives bank groupwise per account loans for all purposes.

TABLE XXXVI

BANK GROUPWISE PER ACCOUNT CROP LOAN AND INVESTMENT LOAN IN COIMBATORE DISTRICT 1992-93

in Rs.

Bank Group	CL	MI	LD	FM	P&H	Others	Total
STATE BANK	6996	18120	16774	120284	6392	8201	8266
PUBLIC SECTOR	5279	16836	9555	84751	9498	8301	6398
PRIVATE SECTOR	6909	14088	7359	114466	9406	6033	8394
CO-OPERATIVES	6993	12096	17708	169722	12085	8834	7069
TOTAL	6055	16524	10383	107633	9386	8231	7013

The average amount per account in the district for all banks accounted for Rs 6,055.The amount had been more than the district average for all the bank groups except the public sector banks in the case of crop loans. Regarding the loans for minor irrigation, per account amount was larger in State Banks and public sector banks than the district average. There is scope for involving cooperatives more in providing loans for irrigation and water conserving methods . The loans for land development were less for private and public sector banks compared to the district average. The amount per account of farm machinery loans was higher than the average for all bank groups except public sector banks. The average amount per account of total loan was higher for State Banks and private sector banks inspite of less coverage (number of accounts). Thus, the private sector banks had

concentrated on credit deepening rather than on credit widening.

d) Determinants of credit allocation:

The credit plans are formulated at the branch level on the basis of the size of operations (mobilisation of deposits, disbursement of advances the extent of recovery performances). Service area plans are formulated on the basis of the resource potentials of the service area and the repaying capacity of the farmers as discussed in the previous section. The determinants of plan outlay allocation as identified by the bank branches and the extent of relationship between the factors and plan outlay were estimated by using an exponential function of the form

$$Y = A \quad X_1^{b1} \quad X_2^{b2} \quad X_3^{b3} \; e^{u}$$

where

b_1 , b_2 , $b_3 > 0$ - elasticity coefficients.

Y = plan outlay to agriculture Rs. in 000s

X_1 = plan achievement in the previous year Rs in 000s

X_2 = recovery performance Rs. in 000s

X_3 = Deposits Rs in 000s

U - error term

The estimated coefficients are given in Table XXXVII.

TABLE XXXVII

DETERMINANTS OF CREDIT ALLOCATION AT THE BANK LEVEL

ESTIMATED ELASTICITY COEFFICIENTS

Bank Group	const.A	b_1	b_2	b_3	R^2
All Banks (22)	0.703	0.647 (0.112, 5.78*)	-0.039 (0.65,0.596)	0.156 (0.089,1.76)	0.7
Public Sector (14)	-0.067	0.694 (0.052,13.14*)	-0.812 (0.17,4.67*)	0.826 (0.08,9.23*)	0.76
Private Sector (8)	-0.251	0.420 (0.037,11.27*)	0.435 (0.08,4.88*)	0.183 (0.08,2.21*)	0.97

* highly significant
** significant at 5 percent level.

The explanatory power of the variables was 77 percent, 76 percent and 98 percent for all the banks,public sector banks and private sector banks respectively. The plan achivement in the previous year was crucial variable in determining the plan formulation of all banks taken together(statistically significant). The availability of funds was also an important factor in the process of plan outlay allocation. The recovery performance had a negative influence on credit allocation for the aggregate of all banks and public sector banks. It appeared that credit allocation was generally done without regard to their recovery performance. But the recovery did had a positive influence on outlay allocation for private sector sector banks. Higher level of deposits were expected to increase the outlay allocation. But the banks are required tc fulfil the statutory

requirements of RBI. The public sector banks have more obligation than the private sector banks. In general the factors, the past achievement and the availabilty of funds were given due importance in the plan formulation by the banks in view of the sustainability and economic viability.

B.Bankwise Credit and Recovery Performance:

This section on bankwise credit and recovery performance is discussed under the subheads of a) credit performance and b) recovery performance.

a) Credit performance:

The district credit planning machinery follows a rational and realistic approach in the formulation of the credit plans.This fact can be made clear by providing information on the performance of banks in terms of targets set and the achievement. The performance has been satisfactory since the formulation of annual credit plans , particularly after the implementation of service area approach in 1989.The Details of bankwise and bank groupwise performance are presented in Tables XXXVIII and XXXIX.

TABLE XXXVIII
BANKWISE CREDIT PERFORMANCE IN AGRICULTURE
IN COIMBATORE DISTRICT -1992-93.
Rs in 000s

BANK	Target	Achievement	Performance percentage
SBI	130863	140777 (14.77)	107.60
SBT	775	290 (0.003)	37.40
TOTAL	131638	141067 (14.8)	107.10
ALLAHA	1334	2890 (0.3)	216.60
BOI	5237	5457 (0.6)	104.20
BOM	500	400 (0.04)	80.00
CANARA	130432	262331 (27.4)	201.12
INDIA	43768	52562 (5.5)	120.09
IOB	68334	48539 (5.1)	71.00
CBI	13957	10308 (1.1)	73.86
UNION	12088	18291 (1.9)	151.32
UCO	100	0 -----	0.00
SYND	10135	7902 (0.8)	77.97
CORP	6134	5267 (0.5)	85.87
NBI	220	0 ----	0.00
VIJAYA	650	165 (.02)	25.35
BOB	26496	30286 (3.2)	114.30
TOTAL	319385	444398 (46.5)	139.14
MADURA	6056	4196 (0.4)	69.28
CAT.SY	4975	3480 (0.36)	69.95
KVB	22106	14620 (1.5)	66.13
LVB	3501	2821 (0.3)	80.57
NEDUN	23	0 -----	0.00
TMB	3218	6218 (0.7)	193.20
SOUTH	10160	1408 (0.1)	13.85
VYSYA	780	1176 (0.08)	150.76
TOTAL	50819	33919 (3.5)	64.74
Co-op	302167	336323 (2.0)	111.3

Note : Figures in parantheses are percentage share of banks to total achievement

TABLE XXXIX

BANK GROUPWISE PERFORMANCE IN AGRICULTURAL CREDIT IN COIMBATORE DISTRICT 1992-93

Rs in 000s

Bank Group	Target	%	Achievement	%
STATE BANKS	131638	16.3	141067	14.8
PUBLIC SECTOR	319385	39.81	444398	46.5
PRIVATE SECTOR	50819	6.31	33919	3.5
CO-OPERATIVES	302167	37.6	336323	35.2
TOTAL	804009		955707	

The performance is analysed only for public and private sector banks.(The information on performance is aggregate , purposewise loan disbursement is not available).

In six out of 14 public sector banks, the achievement exceeded the target, Allahabad Bank, Canara Bank, Indian Bank, Bank of India, Union Bank and Bank of Baroda ,the performance accounted for more than 100 percent. The performance of UCO bank and New Bank of India had been relatively poor and this may be due to poor recovery performance in these banks. The shortfall in achievement in the case of some banks was taken care by other banks, so that the overall performance of private sector banks had been satisfactory and it was 83.7 percent.(only two banks had exceeded the targets). Private sector banks had a share of only 3.5 percent in the overall performance. The public sector banks

and cooperatives had a larger share with 81.7 percent showing the obligatory nature of these banks to RBI and NABARD. The involvement of these banks in rural lending with a poor recovery performance may be a cause for the low profitability of these banks.

The private sector banks are careful in dispensing credit only to viable schemes. These banks are to fulfil the statutory requirements of the Reserve Bank of India , but they do not get any discriminatory treatment, like the cooperatives and the public sector banks from the RBI. The Narasimham Committee on Financial Reforms (1991), called for an effective closing of the credit gap in the rural areas. Hence, the commercial banks should segregate the operations of rural branches through the formation of subsidiaries. Such a strategy may improve the quality of rural lending by the private sector banks (Sinha,1992). The performance of State Bank of India has been very remarkable with 107.5 percent also the cooperative banks.

The credit plans are formulated on the basis of service area approach in the district. The performance of the banks in relation to the target set generally related to the size of operations (deposits), recovery performance and the achievement in the previous years. Hence, correlation coefficients were computed for these variables. The estimated correlation coefficients are given in Table XL.

TABLE XL.

CORRELATION COEFFICIENTS OF CREDIT PERFORMANCE WITH THE PERFORMANCE, RECOVERY AND DEPOSITS OF THE PREVIOUS YEAR

Item		All banks	Public Sector banks	Private Sector banks
Performance and	Past performance	0.953	0.969	0.574
"	Past Recovery	0.913	0.946	0.912
"	Past Deposits	0.821	0.793	0.893

The achievement of all banks in agricultural credit against the target set was highly related to the achievement, recovery and deposits of the previous year. This indicated the observance of a particular trend by the banking sector. For the private sector banks , achievement in the current year was not highly related to their previous year achievement. The banks are careful in viability consideration by taking into account the conditions of the current year rather than the previous years.

b. Recovery Performance:

There is a growing concern about the declining trend in the recovery of banks under priority sector advances. According to DCP (1992 -93) the recovery performance had declined from 61 percent in 1988 to 56 percent in 1992; but the recovery performance had been comparatively better in agriculture than in other priority sectors. In Coimbatore district, periodical recovery camps are organised and there had been cooperation among

the officials of rural development department and the people.With the directed rural lending programmes , the recovery of dues determines to a large extent the viability of the banks in rural areas. Tables XLI and XLII give information on the recovery performance of banks and share of bank groups in the district.

TABLE XLI

BANKWISE RECOVERY PERFORMANCE IN AGRICULTURE
IN COIMBATORE DISTRICT 92-93

Rs '000s

Bank	Demand	recovery	ratio
STATE BANK	124500	71000	57.0
ALLAHA	3773	1676	44.4
BOI	18733	10975	58.6
BOM	2048	369	18.0
CANARA	307391	233267	75.9
INDIA	62361	41764	67.0
IOB	190019	73345	38.6
CBI	23672	14487	61.2
UNION	29305	18968	64.7
UCO	3148	387	12.3
SYND	38706	16474	42.6
CORP	22951	12549	54.7
NBI	512	93	18.2
VIJAYA	2178	761	34.9
BOB	36136	26075	72.2
TOTAL	740933	451190	60.1
MADURA	7357	3227	43.9
CAT.SY	4012	507	12.6
KVB	12030	10537	87.6
LVB	1698	1253	73.8
NEDUN	14	1	7.1
TMB	2790	2687	96.3
SOUTH	10212	3699	36.2
VYSYA	0	0	0.00
TOTAL	38114	21911	57.48
CO-OP	362002	168240	46.47

TABLE XLII

BANK GROUPWISE RECOVERY PERFORMANCE
IN AGRICULTURE IN COIMBATORE DISTRICT 1992-93
Rs in 000s

Bank	Demand	%	Recovery	%
STATE BANKS	124500	9.80	71000	9.9
PUBLIC SECTOR	740933	58.54	451190	63.34
PRIVATE SECTOR	38114	3.01	21911	3.07
CO-OPERATIVES	362002	28.65	168240	23.6
TOTAL	1265549		712341	

The recovery performance of public sector banks was 60.08 percent followed by private sector banks 57.48 percent and State Bank of India, 57 percent. The recovery percentage was low for cooperatives(46.4), particularly the investment credit of Land development Banks. The financial discipline imposed on the banks in the matter of eligibility to undertake fresh lending is likely to affect adversely the quantitative and qualitative growth of credit operations. To some extent the banks are also to be blamed for this predicament due to faulty loaning policies, inadequate supervision and ineffective measures of recovery. The argument of Kahlan (1991) may be noted here that the banking institution have to ensure that lending and recovery procedure themselves do not lead to investment failures and therefore non repayment by borrowers. It seems necessary that using sensitivity

analysis considerable flexibility is introduced by NABARD and financial institutions in the application of unit cost concept, projected levels of income from investment and fixation of maturity periods for the repayment of loans.

The share of current demand of public sector banks and cooperatives was 87 percent and the recovery performance also was 87 percent. In the case of private sector banks , the share of recovery was higher (3.07 percent) than the share of current demand (3.05 percent) and this may be due to higher recovery performance of the private sector banks. Among other factors, the type of loans and loans given for government sponsored schemes appeared to be the major influences on the recovery performance of the banks(Rajasekar 1991). The regression model used in the study to relate the factors determining the recovery performance at the bank level was

$$Y = A \; X_1^{b1} \; X_2^{b1} \; X_3^{b3} \; e^{u}$$

where

b1 , b2 and b3 are elasticity coefficients

Y = the recovery of current demand

X_1 = the amount given for crop loans

X_2 = the amount given for term loans

X_3 = the amount given for government schemes

U - error term

The estimated coefficients are given in Table XLIII

TABLE XLIII

DETERMINANTS OF RECOVERY OF LOANS -ESTIMATED ELASTICITY COEFFICIENTS

Bank Group	Constant log A	b_1	b_2	b_3	R^2
All Banks (22)	-0.144	0.566 (0.205,2.75*)	0.149 (0.428,0.346)	0.434 (0.235,1.84)	0.893
Public Sector (14)	0.2064	0.785 (0.05,13.14*)	-0.015 (0.173,4.67*)	0.286 (0.08,9.23*)	0.956
Private Sector (8)	-0.746	0.171 (0.423,0.403)	1.045 (0.49,2.13**)	0.0135 (0.339,0.039)	0.778

* highly significant
** significant at 5 percent level.

The type of loan had a positive relation with the recovery of all banks taken together.Crop loans had a positive and significant relation. In the case of investment loans the coefficient had a negative sign in public sector banks indicating the fact that many of the schemes financed by them have not taken off. The opposite trend was observed in private sector banks. The investigator found from the personal interview with a branch manager that in the case of investment loans, the term of repayment generally ranged between three and nine years. The repayment may be lumpsum in one year and less in another year. The loans for government sponsored scheme was not significant in private sector banks and in others, this factor had a positive and significant influence on recovery which was different from the findings of earlier studies (Rajasekar , 1991). This

may be attributed to the apparent success of the efforts made by the banks in recovery camps. The recovery aspect of the banks is very important because the incidence of overdues impairs their capacity to obtain refinance from NABARD as the drawals of their credit limit are subject to the discipline of non-overdue cover.

C. Inequality in the Allocation of Credit:

Research studies on financial intermediation in agriculture (Patel ,1991; Gadgil,1988; Desai, 1988) have shown that the benefits of the innovation in rural credit system have not been even among the backward and progressive regions and among the various groups of banks. Gadgil group (1970) pointed out that " Uneven distribution of credit existed not only between regions but also between sectors and the categories of farmers". Hence, to find out the extent and magnitude of inequality in the allocation of credit among the blocks and banks, Theil's indices have been computed (Subramanian, 1991).This method was used in preference to Gini concentration ratio in view of its decomposability into between groups and within group indices. The results are presented in Table XLIV.

TABLE XLIV

THEIL'S INDICES OF TOTAL LOANS , CROP LOANS AND INVESTMENT LOANS BLOCK LEVEL - 1989 -93

Year	Crop loan acc	amount	Investment loan accs.	amount	Total loan accs.	amount
1989-90	0.032	0.0445	0.020	0.025	0.0289	0.0037
1990-91	0.035	0.0439	0.034	0.052	0.032	0.041
1991-92	0.059	0.0635	0.038	0.026	0.049	0.040
1992-93	0.068	0.0562	0.091	0.043	0.061	0.042

Note:Computed from the data collected from Annual action Plans Coimbatore district , 1989-93.

The review of agricultural credit policy in India showed that there has been a change from three year credit plan to annual credit plan after the adoption of service area approach in 1989. Hence,to find out the impact of service area approach in improving the quality of rural lending and its role in bringing an even distribution of credit among the regions, the inequality indices have been computed for four years from 1989-93. In all the years the extent of inequality was relatively less in terms of account than the amount. Upto 1991-92 there had been an increase in the extent of inequalities in credit allocation among the regions. During 1992-93 it was reduced as evidenced from the reduction of index value from 0.0635 to 0.0562 indicating the credit deepening aspect of the credit system. In all the years there was a less degree of inequality in investment loan when compared to total loans. The reason may be

the security based lending. The lower values of Theil's indices for the blocks indicated the rationality approach used at the bank branch level to take account of the economic conditions of the regions on the basis of resource endowment, irrigation potential and the status of the farmers.

D. Estimation of credit gap:

The credit gap estimation is discussed under the sub-heads of a) estimation of credit gap and b) optimum allocation of credit.

a.Estimation of credit gap

The cropping pattern of the district is dominated by four crops, paddy, sugarcane, groundnut and cotton.(70.7 percent of the net area sown). In credit allocation also, these crops have a major claim of 55.7 percent of the total plan outlay. Hence,to estimate the credit gap, the four crops and the cost of cultivation requirements were taken.

As for the procedure used for estimating the credit gap, vide Chapter III. The area covered on the basis of scale of finance, the credit requirement and the credit gap are presented in Table XLV.

TABLE XLV

CROPWISE AREA COVERED AND THE ESTIMATED CREDIT GAP UNDER THE CREDIT PLAN IN COIMBATORE DISTRICT- 1992 -93

Crop	Area covered according to Scale of finance (in hectares) (a)	Credit allotted Rs in 000s (b)	Credit required (Rs in '000s) (c)	Credit gap (Rs. in '000s) (c-b)
Paddy	6956 (25.7)	40707	81773	41066
Sugarcane	7686 (86.3)	109908	191381	81478
Groundnut	12109(25.7)	53811	101118	47237
Cotton	13990(83.0)	89253	153890	64637

Note : Figures in parantheses are the percentage area covered to the total area under cultivation.

The figures in column (a) were derived by dividing the credit allocated to the crops by their respective scale of finance. The figures in column (c) were derived by multiplying the figures in column (a) with their respective cost of cultivation requirements (excluding the own labour cost).

At the district level,the area covered under credit was more for sugarcane(86.3 percent) followed by cotton (83 percent). Only 25 percent of the area under cultivation of groundnut and paddy were covered by the bank credit. In spite of the wide coverage, the credit gap was found to be more for sugarcane and cotton.The relatively larger credit gap observed in sugarcane and cotton crops were accounted for by their high cost of cultivation. The planners are allotting only 12.5 percent of the

total advances to crop loans sector. If the allotment is raised to 14 to 18 percent either more area can be covered or the credit gap can be reduced:

b Optimum allocation of credit :

The banks are constrained by many factors in allocating credit to agriculture among the blocks. According to the directed lending programme, the planners are expected to allot 18 percent of the priority sector advances to agriculture. During the reference period, the amount allotted to crop loans was only 12.5 percent. The credit gap was estimated as Rs. 234.42 millions. If the percentage of outlay to agriculture is raised, to 14 , 16, and 18 the increase in the credit availability will be as given in Table XLVI.

TABLE XLVI
CREDIT AVAILABILITY WITH INCREASED PERCENTAGE OF AGRICULTURAL CREDIT IN COIMBATORE DISTRICT
Rs. in '000s

S.no	Percentage loans to agrl.sector	Agricultural credit	Crop loan	The share of four crops in crop loan
1)	12.56	7,77,194	6,09,742	2,93,676
2)	14.00	8,04,420	6,31,067	3,27,328
3)	16.00	9,90,056	7,76,699	3,74,089
4)	18.00	11,13,813	8,73,867	4,20,850

An important factor that directly affected the availability of credit was the recovery performance. The recovery

percentages of the four majors crops, paddy, sugarcane, groundnut and cotton were 60, 90, 70 and 80 respectively. The banks charged a fixed interest rate of 12 percent for loans below Rs.10,000 and 14 percent for loans above Rs.10,000. Given these conditions using linear programming technique , the optimum allocation of credit among the four crops was found out:

i) For optimising the area under the four crops

maximize x1 + x2 + x3 + x4

with the constraints

s1 x1 + s2 x2 + s3 x3 + s4 x4 < p * crop loans

(p = 14 , 16 ,18 percent)

r1 x1 + r2 x2 + r3 x3 + r4 x4 < r * crop loans

(r = 60 percent)

and

x1 , x2 , x3 , x4 < area covered under four crops

x1 , x2 , x3 , x4 > area under cultivation

ii) For optimising the recovery from the four crops

maximize r1 x1 + r2 x2 + r3 x3 + r4 x4

with the constraint$

s1 x1 + s2 x2 + s3 x3 + s4 x4 < p * crop loans

(p = 14 , 16 ,18 percent)

and

x1 , x2 , x3 , x4 < area covered under four crops

x1 , x2 , x3 , x4 > area under cultivation

With the scale of finance Rs.5,830, Rs.14,300, Rs.4,400 and Rs.6,400 for the four crops and with recovery percentage of 60, 90, 70, 80 for paddy , sugarcane , groundnut and cotton respectively, the optimum area that can be covered and maximum amount that can be recovered are given in Tables XLVII and XLVII.A.

TABLE XLVII

OPTIMUM AREA COVERED UNDER THE FOUR MAJOR CROPS

S.NO	Item	Percentage of Crop loans 14	16	18
1)	Amount allotted (Rs. in 000s)	327328	374089	420850
2)	Optimum area (in hectares)	48447	59075	67148
3)	Area covered (in hectares)			
	i) Paddy	6956	6956	6956
	ii) Sugarcane	7686	7686	7686
	iii) Groundnut	19815	30443	30762
	iv) Cotton	13990	13990	13990
4)	Percentage increase in area covered	18.90	45.00	64.82

TABLE XLVIII

OPTIMUM RECOVERY FROM THE FOUR MAJOR CROPS

S.NO	Item	Percentage of Crop loans 14	16	18
1)	Amount allotted (Rs. in 000s)	327328	374089	420850
2)	Optimum recovery (in Rs.'000)	294540	331404	367000
3)	Area covered (in hectares)			
	i) Paddy	6956	6956	8452
	ii) Sugarcane	8903	8903	8903
	iii) Groundnut	12109	22124	30762
	iv) Cotton	16569	16990	16990
4)	Total area covered	44537	54973	65107
5)	Percentage increase in area covered	9.3	34.9	59.8
6)	Percentage increase in recovery	12.46	26.53	40.13

There are two alternative policies suggested by using the optimising technique. First the credit widening policy by increasing the area under cultivation and second improving the viability of banks by optimising the recovery. With an increase in the percentage of crop loans to 14 percent from the existing 12.5 percent the optimum area under the four major crops will increase by 18.9 percent.This will be 45 percent and 64.8 percent for 16 and 18 percent of credit to agriculture. This policy is expected to lead to a credit widening policy of the bankers. If

the planners want to optimise the recovery, the area covered under the sugarcane will increase more than the other crops. The expected increase in recovery for 14, 16 and 18 percent of the agricultural credit will be 12.46, 26.5 and 40.1 percent respectively. The corresponding increase in the area covered will be 9.3, 34.9 and 59.8 percent.

To sum up, public sector banks, State Bank group and cooperatives had a greater share in agricultural credit particularly in crop loans. The deposits, recovery and the achievement in the previous years were among the important factors, considered by the bankers in the plan formulation. In case of any change in assigning responsibilities to various groups of banks, investment loans may be specially assigned to private sector banks. The banks had equally allocated credit to all the blocks in terms of number of accounts. Equal allocation may also be done in amount for improving the quality of lending. The credit allotted for the major crops was found to be inadequate in relation to their actual credit requirements. The percentage of agricultural credit may be raised to the stipluated level of 18 for reducing the existing credit gap in the district.

E. Profile of Borrower farmers:

The performance of the banks at the district level had highlighted their overall performance and their problems of functional structure and delinquency. But there are a set of variables influencing the borrowing behaviour of farm households

which are to be considered by the bankers in identifying the potential borrowers. Hence, to examine how the farm households responded to the banks' lending programmes and to assess the determinants of borrowing behaviour of farm households, field level data were collected and analysed. For the procedures in the selection of blocks, banks and farmer borrowers(vide ChapterIII.c)

The results bearing on the profile of the farmer borrowers are discussed under the subheads of :

a) Socio economic profile of the selected borrower farmers

b) Block level distribution of loans

c) Availability of credit

a) Socio Economic Profile of the Selected Borrower Farmers:

Thondamuthur revenue village in Thondamuthur Block is served by the State Bank of India, Ganapathy Branch. During 1992-93, the State Bank of India dispensed credit to 120 farmers of which 20 were IRDP loans. Of the 80 sample borrowers selected, only 10 percent were illiterate, 10 percent of them were literate (who know only reading and writing), 16 percent had higher education (degree, diploma and professional degree), and the remaining had either primary or post primary education. The average size of the household in the large farmer group was 5.2 and for medium and small farmer group it was 3.7 and 4.5 respectively. Eighty eight percent of the small farmers had income from non-farm activities, and it was 32 percent among medium farmers and 50 percent among large farmers. More than 50

percent of the large farmers had performing assets in the urban areas. The percapita consumption expenditure was Rs. 14,042 among large farmers, it was Rs. 7,518 p.a in the medium farmer group and only Rs. 2,480 p.a among small farmers. Ten percent of the households in the small farm group managed to have some surplus as savings and they deposited their saving with the bank located in the area. All other households in the medium and large farmer groups also saved and the large farm group saved in the banks located in Coimbatore city. Naicken Palayam is a revenue village in Perianaicken Palayam Block served by the Lead Bank, Canara Bank through Gudalore Branch located in Perianaicken Palayam. During the year under study the Canara Bank had given 126 fresh loans of which 26 were IRDP loans. Only five percent were illiterate, 21 percent literate, 68 percent had primary and post primary education and six percent of the farmers had higher education. Twenty percent of the small farmers had income from non-farm activities, it was 50 percent among households in the large farmer category. The avearge size of family was 4.4 for large farmers, 5.2 for medium and 4.3 for small farmers. The average percapita consumption expenditure of the small farmer group was Rs. 3491, it was Rs.10,570 for the large farmers. The households in the medium farmer group spent Rs. 9,566 annually for consumption. Twenty five percent of the small farmers saved either in banks or in chit funds. The medium and large farmers had saved in banks and created assets. Twenty percent of the

large and medium farmers had availed overdraft facilities for farm expenses.

Bank of Baroda, located in Kinathukadavu dispensed forty seven loans during the financial year 1992-93 and also 780 jewel loans for agricultural purposes. One of the unique features of the block is the proposed wind mill project. This has resulted in disposing of the lands and the deposits of the banks have suddenly increased in the last two years. The CD ratio in the Bank of Baroda was only 49 percent. Of the selected 40 households of all farmer categories, eight percent were illiterate, 28 percent were literate, 52 percent had primary and post primary education and only 12 percent had higher education. The average size of the household was 4.3 in small farmer group, 4.6 in medium farmer group and 5.6 in large farmer group. The relatively large household size among large farmers was due the existence of joint family system. The average annual consumption expenditure of the small farmer group was Rs. 4,321 and for medium and large farmer groups it was Rs. 8,433 and Rs. 14,102 respectively. More than 50 percent in all households saved in the banks, 20 percent of the large farmers were engaged in non-farm business.

The area operated by the borrower farmers and the cropping pattern are furnished in Tables XLVIII and XLIX.

TABLE XLVIII

AREA OPERATED , AVERAGE FARM SIZE AND IRRIGATION INTENSITY OF SAMPLE BORROWER FARMERS

Farmer Group	No. of farmers	Average size in hect.	Irrigated area in hect.	Unirrigated area in hect	Total area in hect	Irrigation intensity (%)
Small	100	1.13	107	6	113	94.7
Medium	67	4.67	273	40	313	87.2
Large	33	10.90	317	44	361	87.8
All	200	3.93	697	90	787	88.6

TABLE XLIX

CROPPING PATTERN AMONG THE SAMPLE BORROWER FARMERS

in hectares

S.No	Crops	---Thondamuthur--			--Kinathukadavu--			Perianaicken Palayam			Total
		Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	
1)	Grapes	36	12	---	---	---	---	---	---	---	48 (6.1)
2)	Sugarcane	57	18	20	---	---	---	28	63	20	206 (26.2)
3)	Banana	57	30	1	11	11	7	---	---	---	117 (14.9)
4)	Turmeric	2	9	4	11	8	1	---	---	---	35 (4.4)
5)	Cotton	2	2	---	---	---	---	15	23	9	51 (6.5)
6)	Coconut	20	7	---	31	27	---	---	---	---	85 (10.8)
7)	Groundnut	---	8	2	11	11	9	14	8	8	71 (9.0)
8)	Vegetables	4	6	20	9	9	1	11	20	11	91 (11.6)
9)	others	19	---	---	10	13	---	13	28	---	83 (10.5)
	Total	197	92	47	83	79	18	81	142	48	787

The total area operated was found to be 787 hectares of which 697 hectares were under assured water conditions and 90 hectares under rainfed conditions with an irrigation intensity of 88.6 percent. The small farmers accounted for about 14.4 percent, medium farmers 39.8 percent and large farmers 45.8 percent of the operated area. The average farm size of small farmers was 1.13 hectares, 4.67 hectares for medium farmers and for the large farmers it was 10.9 hectares. Thondamuthur had cent percent irrigation intensity and it had a very unique irrigation facility with canals assuring year round irrigation for an area of 464 hectares(DSO records).

The cropping pattern among the borrower farmers was dominated by sugarcane (26.2 percent) followed by banana (14.9 percent). This trend was reflected in the credit structure. The cropping pattern showed a distinctive bias towards the remunerative crops and horticulture (grapes and coconut). In Thondamuthur, there was a growing awareness among all categories of farmers regarding grape cutltivation. It was found in the field survey that paddy cultivation was highly unremunerative. In Kinathukadavu, the cropping pattern was dominated by coconut particularly among the large farmers.

b. Block level distribution of loans :

At the district level the crop loans dominated the credit system. But a different trend was observed at the farm level. The details of loans distributed across the farmer groups and across the blocks are shown in Tables L and Ll.

TABLE L

FARMER GROUPWISE DISTRIBUTION OF AGRICULTURAL LOANS

in Rs.

Farmer Group	-- Crop loans - accs.	Amount		Investment loans accs.	Amount		Total accs.	Amount
Small	82	4,85,000	(23.7)	21	1,20,500	(5.4)	103	6,05,500
Medium	67	6,89,000	(33.7)	3	3,60,000	(16.7)	70	10,49,000
Large	33	8,70,000	(42.6)	10	17,60,000	(77.9)	43	26,30,000
Total	182	20,44,000		34	22,40,500		216	42,84,500

Note : Figures in parantheses are percentages to column totals.

TABLE LI

BLOCKWISE DISTRIBUTION OF AGRICULTURAL LOANS TO SAMPLE BORROWER FARMERS

in Rs

Block	Crop loans accs.	Amount		Investment loans accs.	Amount		Total accs.	Amount
Thondamuthur	76	7,66,500	(29.9)	14	17,26,500	(70.1)	90	24,93,000
Kinathukadavu	30	3,99,000	(65.1)	11	2,14,000	(34.9)	41	6,13,000
P.N.Palayam	76	8,78,500	(74.5)	9	3,00,000	(25.5)	85	11,78,500
Total	182	20,44,000	(47.7)	34	22,40,500	(52.3)	216	42,84,500

Note: Figures in parantheses are percentages to row totals

Irrigation intensive area Thondamuthur was also a credit intensive area where the percentage of investment loan was higher which differed from the conditions prevailing at the district level. The horticulture is an emerging project in this block. The amount of loans sanctioned for the erection of grape plants ranged between Rs.1.0 lac and Rs.1.6 lacs. The area operated by large farmers in this block was relatively more than in other blocks. The resource endowment, irrigation potential, the economic conditions and high level technology had been very conducive for viable farm enterprises in this block . In all the large holdings under grape cultivation drip irrigation sets had been installed.

One of the innovations in rural lending namely programme lending was in operation in Canara Bank. The bank provided agricultural credit cards to selected borrowers in the service area of the Perianaicken Palayam block. Even though the number was negligible (20) the trend is certainly positive. When a general line of credit is given to the farmers, they would be able to modify their portfolio efficiency by shuffling resources from one enterprise to another, depending upon the exigency of the situations. Since, farming in this area was mostly diversified, the working capital requirements were also continuous. Under such conditions cash credit system is expected to improve the allocative efficiency of the banking system and strengthen the enterprise efficiency of farming system. This

system can be extended by all banks to all regions to those borrowers who have maintained healthy accounts for several years.

It was observed in the field survey that borrowers in Kinathukadavu were not cooperative with the banks particularly in recovery camps. In this block, the share of crop loans was more than investment loans, 65.1 percent. The distribution of loans to all categories of farmers showed the dominance of crop loans among small and medium farmers. But the share of investment loans was high among large farmers. This is due to the inclusion of loans for horticulture and for purchase of tractors which require huge amount. The share of large farmers had been higher in both crop loans and investment loans.

c. Availability of Credit

In order to understand the coverage and quantum of credit, the per account and per hectare loans for all purposes and for all categories of farmers were computed. The results are presented in Tables LII and LIII.

TABLE LII

PARAMETERS OF CREDIT AVAILABILITY AMONG THE SAMPLE BORROWER FARMERS-BLOCKWISE

in Rs.

BLOCK	--Per account Credit-			-Per hectare Credit			--Per farmer credit		
	Crop.	Inves.	Total	Crop.	Inves.	Total	Crop.	Invest.	Total
Thondamuthur	10,085	1,23,321	27,700	2,281	5,138	7,419	9,581	21,581	31,163
Kinathukadavu	13,300	19,454	14,951	2,216	1,189	3,405	9,975	5,350	15,325
P.N.PALAYAM	11,559	33,333	19,836	3,241	1,107	4,346	10,981	3,750	21,606
Total	11,230	65,897	19,836	2,597	2,846	5,443	10,220	11,203	21,423

TABLE LIII

PARAMETERS OF CREDIT AVAILABILITY AMONG THE SAMPLE BORROWER FARMERS-GROUPWISE

in Rs.

Farmer Group	---Per account Credit---			Per hectare Credit			Per farmer credit		
	Crop.	inves.	Total	Crop.	Inves.	Total	Crop.	Invest.	Total
Small	5,915	5,738	5,878	4,292	1,066	12,882	4,850	1,205	6,055
Medium	10,283	1,20,000	14,985	2,201	1,150	3,351	10,283	5,373	15,656
Large	26,363	1,76,000	61,162	2,410	4,875	7,285	26,363	53,333	69,484

The following points emerged from the analysis of the tables:

1) On an average per account credit amount was Rs.11,230 in crop loans. In Kinathukadavu it was Rs. 13,300 and this may be due to less number of loans given.
2) The average investment loan given was more Rs.1,23,321 in Thondamuthur, higher than the overall average of Rs.65,897. The area operated by large farmers in Thondamuthur was more than the other groups of farmers. This fact was reflected in the higher amount of investment credit availed by the farmers.
3) The per hectare availability of credit was more(Rs. 3.241) in Perianaicken Palayam than the overall average of Rs.2,597.
4) On an average, each farmer borrower obtained a loan amount of Rs. 10,220 as crop loan, Rs. 11,203 as investment loan and Rs. 21,423 as total agricultural loans, the amounts were higher for crop loans than the district average.
5) The per hectare availability of crop loans was relatively more Rs 4,292 for small farmers than the medium and large farmers, while the investment loan amount was high (Rs.4,875) for large farmers. The medium farmers received relatively a smaller amount for all purposes (Rs 3,351) than large and small farmers. On an average the large farmers had obtained Rs. 69,484 for all purposes. In this

context the argument of Kahlan(1991) and Gupta (1991) may be noted. The large farmers generally are engaged in diversified and commercial farming operations. Their working capital requirements are higher than the other groups of farmers. It appears that banks are concentating on large farmers to improve their own viability because of the pervasive declining trends in recovery.

The details of purposewise loans given to the various groups of farmers are furnished in Tables LIV and LV.

TABLE LIV

PURPOSEWISE DISTRIBUTION OF CROP LOANS TO SAMPLE BORROWER FARMERS -BLOCKWISE

in Rs

Block	Sugarcane		Banana		Groundnut		Total	
	Accs.	Amount	Acc.	Amount	Accs.	Amount	Accs.	Amount
Thondamuthur	52	4,95,000(64.5)	22	2,61,500(34.2)	2	10,000(1.3)	56	7,66,500
Kinathkadavu	--	------ ----	15	2,27,000(57.0)	15	1,72,000(43.0)	30	3,99,000
P.N.PALAYAM	76	8,78,500(100)	--	------ ----	--	------ ----	76	8,78,500
Total	128	13,73,500(67.2)	37	4,88,500(23.9)	17	1,82,000(8.9)	182	20,44,000

Note: Figures in parantheses are percentages to row totals

TABLE LV

PURPOSEWISE DISTRIBUTION OF INVESTMENT LOANS TO SAMPLE BORROWER FARMERS

in Rs

Block	Grapes		Tractor		Bullock Cart		Milch Animal		Total	
	Accs.	Amount	Accs.	Amount	Accs.	Amount	Accs.	Amount	Accs.	Amoun
Thondam	5	960000(55.6)	5	750000(43.3)	4	16500(0.1)	--	-----	14	1726500
Kinathu	-	----------	1	150000(70.0)	4	28000(13.1)	6	36000(16.9)	11	214000
P.N.Pal	-	----------	2	260000(86.6)	4	24000(8.0)	3	16000(5.4)	9	300000
Total	5	960000(42.8)	8	1160000(51.8)	12	68500(3.0)	9	52000(2.4)	34	2240500

Note : Figures in parantheses are percentages to row totals

The crop loans were given only for three crops - two cash crops, banana and sugarcane and one non-food crop groundnut. The sugarcane growers were the major receivers of crop loans (67.2 percent). In Perianaicken Palayam all the loans were disbursed for the sugarcane growers. The amount disbursed as sugarcane loans were high because its cost of cultivation was higher when compared to other crops. The crop was also very remunerative. In Kinathukadavu, turmeric loans were not separately given and hence the banana growers and cotton growers in the medium and large farmer groups availed some loans for turmeric cultivation along with loans for banana, cotton and groundnut.

Regarding investment loans, grape growers obtained 42.8 percent of loans in Thondamuthur. It is an emerging enterprise in this block . The large farmers obtained tractor loans (51.8 percent) and small farmers, for the purchase of milch animals and bullock carts. These loans were given to small farmers on less stringent terms without security. In the field survey it was found that the small farmers were also in favour of grape cultivation but they were not able to meet the initial expenses towards the errection which required more than a lakh of rupees. They availed the tractor facilities by hiring from the large farmers.

F. Farmers' Borrowing Behaviour :

The factors determining the demand for bank credit at the household level had been identified on the assumption that the households try to maximise their utility subject to their time and budget constraints.(vide Chapter III).

The banking institutions treat the small farmers as an exclusive group because they are prone to high degree of risks due to their poor land endowment and low self financing capacity to purchase other inputs. The medium and large farmers are not treated as distinct groups. Hence , in this analysis small farmers were considered as one sub group with all others forming the next sub group.

The summary statistics of the variables namely their means, standard deviations and the correlation matrix are given in Table LVI. The coefficients of the identical borrowing functions for all the 200 sample borrower farmers and for the farmer groups are presented in Table. LVII. The data set used in the estimation of farm household borrowing function is given in Appendix X.

TABLE LVI
SELECTED SAMPLE MEANS, STANDARD DEVIATIONS AND CORRELATION MATRIX OF THE DETERMINANTS OF FARM HOUSEHOLD BORROWING FUNCTION

S.No.	variable	Small	Medium and Large	All Farmers
1.	Area operated in hectares	1.130(0.385)	6.740(3.24)	3.935(3.63)
2.	Capital expenses Rs. in '000s	4.177(2.743)	85.267(108.86)	44.722(87.02)
3.	Variable expenses Rs. in '000s	15.845(6.815)	145.290(120.98)	80.567(107.38)
4.	Farm income Rs. in '000s	14.918(7.860)	129.225(98.19)	72.072(90.10)
5.	Age	41.160(6.997)	40.610(10.91)	40.885(9.17)
6.	Family size	4.370(1.246)	4.720(1.30)	4.545(1.29)
7.	Education (dummy)	1.390(0.747)	2.180(0.48)	1.785(0.74)
8.	Non-farm income (dummy)	0.560(0.496)	0.500(0.50)	0.530(0.50)
9.	Family Labour (number)	2.200(0.894)	1.690(0.90)	1.945(0.93)
	Bank Credit (Rs in '000s)	4.850(2.141)	15.540(8.32)	10.195(8.09)

Note : Figures in Parantheses are standard deviations

CORRELATION - MATRIX

1	2	3	4	5	6	7	8	9
1.000	0.665	0.880	0.861	-0.002	0.176	0.461	-0.027	-0.201
	1.000	0.910	0.872	-0.122	0.048	0.402	-0.037	-0.122
		1.000	0.947	-0.084	0.127	0.442	-0.028	-0.170
			1.000	-0.089	0.123	0.437	-0.048	-0.183
				1.000	0.356	-0.182	0.070	0.374
					1.000	0.002	0.126	0.536
						1.000	-0.016	-0.277
							1.000	0.020
								1.000

TABLE LVII
DETERMINANTS OF FARM HOUSEHOLD BORROWING FUNCTION
ESTIMATED REGRESSION COEFFICIENTS

S.No. variable	Small households	Medium and Large households	All households
Constant	2.326	-3.938	-0.606
1. Area operated	1.324 (0.46, 2.91**)	1.519 (0.12, 13.27*)	1.357 (0.006,23.28*)
2. Capital expenses	-0.179 (0.066,2.72**)	-0.028 (0.002,16.96*)	-0.033 (0.0001,37.8*)
3.Variable expenses	0.043 (0.034, 1.288)	0.054 (0.003,17.01*)	0.006 (0.0002,37.4*)
4.Farm income	-0.030 (0.029, 1.036)	-0.024 (0.002,16.59*)	-0.028 (0.0001,19.3*)
5.Age of the borrower	0.045 (0.030, 1.541)	-0.001 (0.037, 0.03)	0.002 (0.003 ,0.080)
6.Family size	0.197 (0.163, 1.208)	1.086 (0.308, 3.53*)	0.076 (0.018,4.219*)
7.Education	0.310 (0.233, 1.332)	0.496 (0.815, 0.608)	0.035 (0.029, 1.204)
8.Non-farm income	-1.621 (0.358, 4.53*)	0.998 (0.790, 1.267)	-0.491 (0.044, 1.127)
9.Family Labour	-0.3129 (0.198,1.5776)	0.1164 (0.434, 0.268)	-0.476 (0.023, 2.04*)
R^2	0.412	0.809	0.86

** Significant at 5 percent level

* Highly significant

Figures in paranBeses are standard errors and 't' values respectively.

The model tried to explain the variations in the borrowing behaviour of the farmers using a set of four economic variables, land representing the initial endowment of productive capital of the farmers (x_1), on farm investment (x_2), variable cost of cultivation (x_3), income generated by farming operations (x_4), a set of two life cycle variables, age of the borrower farmer(x_5) and his family size (x_6) and a set of social variables representing the institutional and developmental factors influencing farmers' decision making, namely, a dummy variable for the level of education (x_7), a dummy variable for the presence or absence of non-farm income (x_8) and the employment on the family farm(x_9). These variables explained 86 percent of the variations in the demand for bank credit of the farmers in the aggregate. They explained 81 percent of the variations existing in the medium and large farmer group while in the small farmer group they could explain only 41 percent of the variations. The low explanatory power of the model in respect of the small farmer group was explained by considerations other than viability on which credit was extended to them by the banking institutions. In the priority sector lending, banks are expected to set aside 20 percent of the advances to small farmers. This target directed approach explains the anxiety of the banks to reach them without regard for prudential considerations. In respect of other farmers, banks assessed their credit worthiness very carefully against their interest in farming, their initial

endowment of land and capital and their social circumstances which determine their goals in farming. Among the set of nine explanatory variables other than the fixed costs all variables had theoretically consistent magnitudes and many of them were highly significant with a high 't' value. Since the fixed costs were independent of the immediate cropping pattern of the farmers, they came up with inconsistent signs in the case of aggregate group and in the case of sub groups. By and large, the model was having good explanatory power and the assumptions behind the model were realistic.

Among the various factors considered, the results indicated that land representing the initial endowment of productive capital of the farmer was the most dominant variable explaining the changes in the demand for bank credit. The general presumption in the literature (Pani , 1968) was that of a negative relationship. But most studies have tended to find a positive sign for this effect. In the study (Iqbal, 1986) it was found as positive for small farmer group. He suggested that land ownership may not affect the demand for credit noticeably until a sort of threshhold farm size is reached after which self financing capacity improves and external borrowing needs lessen. Non-farm income and employment on the family farm emerged as the most important non-land factor influencing borrowing of small farmers. This means the less the non-farm income, the less the reliance on own family labour in farming operations, the more was

the amount borrowed by these farmers. Among the two life cycle variables considered in the model, family size had a theoretically consistent magnitude which was also statistically significant in respect of the aggregate group of farmers and the sub group of medium and large farmers. In the case of small farmers, it was consistent with the expectation but insignificant; the age of the farmers apparently did not have any significant influence on the decision about borrowing.

The hypothesis of a positive relationship between the variable cost of cultivation and the amount of bank credit was substantiated in respect of the aggregate group of farmers and sub group of medium and large farmers.

The variable, farm income also turned up with the expected negative magnitude in the case of all the three groups and it was statistically significant in the case of medium and large farmer group. The result was consistent with the expectation that the lower the farm income, the more the need for bank credit.

The dummy for education had the expected sign but it was not a significant factor on the farmers' decision to borrow from the banks. It implies that all farmers have access to bank credit regardless of their educational status. It is not as if the educated people only availed of the bank credit facilities.

Some of the numerical outcomes of the key factors are given below:

1) An increase of one hectare area operated is expected to increase the demand for bank credit by Rs.1,357 for the aggregate group of farmers, Rs. 1,324 for small farmer group and Rs. 1,519 for the medium and large farmer group.
2) The coefficient of variable cost of cultivation implied that for every 1,000 rupees increase in variable costs,the bank credit is expected to increase by six rupees for the aggregate farmer group, Rs. 43 for small farmer group and Rs. 54 for the sub group of medium and large farmers.
3) An increse of Rs.1,000 of farm income is expected to reduce the demand for bank credit by Rs. 30 for small farmer group and Rs. 24 for the subgroup of medium and large farmers, it was very nominal for the aggregate group of farmers.
4) For every one person increase in the family size, the bank credit is expected to increase by Rs. 76, Rs.200 and Rs.1,086 for the aggregate farmer group, small farmer group and the medium and large farmer group respectively.
5) The existence of non-farm income is expected to decrease the amount of borrowed funds by Rs. 491 , Rs.1,621 and Rs. 998 for the aggregate group of farmers , small farmer group and for the large and medium farmer group respectively.

6) The involvement of own family labour on the farm will reduce the amount of bank credit by Rs.476 for the aggregate group, it was Rs.312 for the small farmer group and Rs.116 for the subgroup of medium and large farmers.

The elasticity coefficients of the demand for bank credit with respect to the key determinants of area operated, farm expenses and farm income were evaluated at mean level using the point estimation technique (Koutsoyiannis , 1985). The formula used to derive the elasticity coefficients is given as:

$$e = \hat{b} \bar{X} / \bar{Y}$$ where

e - elasticity coefficient

$\hat{b}$ - estimated regression coefficient

$\bar{X}$, $\bar{Y}$ - means

The elasticity coefficients of the key factors determining the demand for bank credit are given in Table LVIII.

TABLE LVIII
ESTIMATED ELASTICITY COEFFICIENTS OF THE KEY DETERMINANTS OF FARM HOUSEHOLD BORROWING FUNCTION

S.NO	Variable	Farmer Groups		
		Small	Medium and Large	All
1)	Area operated	0.308	0.658	0.523
2)	Fixed Costs	-0.154	-0.153	-0.144
3)	Variable Costs	0.140	0.505	0.047
4)	Farm income	0.092	0.199	0.198

The elasticity coefficient of area for the medium and large farmer group was found (0.658) to be stronger than for the small farmer group (0.308) indicating the need for more borrowed funds for the medium and large farmer group.

The elasticity coefficients for fixed costs were negative and less strong for all farmer groups because fixed costs were not crop specific.

The elasticity coefficient of variable costs for medium and large farmer group (0.505)was found to be higher and stronger indicating the need for more credit requirements for this group.

The demand elasticity with respect to farm income was not strong because the bankers extended financial support to the farmers on the basis of scale of finance. It is a supply side problem. This may be the cause for the relatively inelastic nature of the factors in determining the demand for bank credit at the farm household level.

G. Determinants of Overdues:

In the flow of institutional credit to agriculture overdues at any level of the credit system constitutes a leakage. The mounting overdues of the credit institutions not only restrict their borrowing capacity from higher financing agency but also affects the recycling of funds and viability. The defaulters are also affected because they will become

ineligible to avail of fresh loans which in turn may affect the agricultural production system. If the financing agencies are to continue to provide adequate financial support to agriculture, the regular repayment of loans by the borrower becomes very important. Hence, the causes for overdues were analysed with respect to the socio - economic characteristics of the borrowers which will help the bankers to understand the credit worthiness of the borrowers. Several studies on overdues have been carried out in different parts of the country. Nevertheless , region specific studies are more relevant in identifying the causes peculiar to each region.

The results of the analysis on overdues are discussed under:

a) Extent of overdues and

b) Determinants of overdues

a) Extent of Overdues :

There is cooperation among the borrowers and the bankers in the conduct of recovery camps in Coimbatore. In Thondamuthur, the recovery performance is reported as 85 percent for all loans . In Perianaicken Palayam the recovery performance was relatively less. In Kinathukadavu , the recovery performance was poor in general but the recovery in the Bank of Baroda was satisfactory because the bank dispensed credit to irrigated hamlets and villages. Out of the two hundred borrowers

covered for the study , only 39 were identified as defaulters. The distribution of defaulters among the regions is given in Table LIX.

TABLE LIX

BLOCK WISE DISTRIBUTION OF DEFAULTERS

Block	Small	Medium	Large	Total
Thondamuthur	8	----	----	8
Kinathukadavu	4	2	----	6
Perianaicken Palayam	10	10	5	25
Total	22	12	5	39

In Thondamuthur, there were only eight defaulters in the small farmer category, the medium and large farmers were regular in repaying the loans. In the opinion of the branch manager of the State Bank of India , the success of recovery in Thondamuthur was mainly due to the efforts of the field officer. The branch manager of the Canara Bank pointed out that due to lack of infrastructure and inadequacy of managerial staff, the bank was unable to recover the loans given in the service area. There were 25 defaulters in Perianaicken Palayam comprising 10 small farmers, 10 medium farmers and five large farmers.

The distribution of overdues across the blocks is given in Table LX.

TABLE LX

BLOCKWISE DISTRIBUTION OF OVERDUES AMONG SAMPLE BORROWER FARMERS

in Rs

Block	Crop loan	Demand	Recovery	overdue
Thondamuthur	7,66,500	80,000	53,628 (67.0)	26,372 (33.0)
Kinathukadavu	3,99,000	70,000	24,960 (35.6)	45,040 (64.4)
P.N. Palayam	8,78,500	3,25,000	10,242 (3.5)	3,14,758 (96.5)
Total	20,44,000	4,75,000	88,830 (18.7)	3,86,170 (81.3)

Note : Figures in parantheses are percentages to demand.

The total crop loans disbursed in the blocks was Rs.20,44,000. In Thondamuthur the amount to be collected (demand) was found to be Rs. 80,000 , of which 67.0 percent was recovered and the overdue was 33.0 percent. In Kinathukadavu it was 64.4 percent. In Perianaicken Palayam the demand was high in relation to the loan amount and recovery was only 3.5 percent. As reported in the earlier studies (George et al , 1984; Rajasekar, 1991) drought can not be the cause for the poor recovery as the reference year was a normal year. The Canara Bank also operated credit card system in the area and this was possible only with the borrowers who were regular in repayment. Hence, a probe into the overdue position in this area became necessary. The details of the overdues in terms of partial and full amount to be paid are presented in Table LXI.

TABLE LXI

FARMER CATEGORYWISE DISTRIBUTION OF OVERDUES AMONG SAMPLE BORROWERS IN PERIANAICKEN PALAYAM BLOCK

in RS.

Farmer Group	Demand to be fully paid		Demand to be partially repaid		Total	
	Amount	Due	Amount	Due	Amount	Due
Small	10,000	13,096	60,000	35,275	70,000	48,371
Medium	85,000	1,01,569	45,000	10,732	1,30,000	1,12,301
Large	1,25,000	1,54,086	---	-----	1,25,000	1,54,086
Total	2,20,000	2,68,751	1,05,000	46,007	3,25,000	3,14,758

The poor recovery in Periaicken Palayam was mainly due the non repayment of loans by the large farmers. Out of 12 medium farmers seven had also not repaid the amount. This fact indicates the existence of wilful default in this area.

In order to understand whether land area operated had any influence on the repaying capacity of the borrowers, farmer categorywise overdues were calculated and the details are presented in the Tables LXII, LXIII and LIV.

TABLE LXII

PERCENATGE SHARE OF FARMER GROUPS IN DEMAND AND OVERDUES AMONG SAMPLE BORROWER FARMERS

in Rs

Farmer Group	Demand	Overdue
Small	1,80,000 (38)	91,223 (24.6)
Medium	1,70,000 (36)	1,40,861 (36.4)
Large	1,25,000 (26)	1,54,086 (39.0)
Total	4,75,000	3,86,170

Note : Figures in parantheses are percentages to column totals.

TABLE LXIII.

FARMER CATEGORY WISE DISTRIBUTION OF OVERDUES AMONG SAMPLE BORROWER FARMERS

in Rs.

Farmer Group	Number	Demand	Recovery	Overdue
Small	22	1,80,000	88,777 (49.3)	91,223 (50.7)
Medium	12	1,70,000	29,139 (11.7)	1,40,861 (88.3)
Large	5	1,25,000	------	1,54,086(100.0)
Total	39	4,75,000	1,17,916	3,86,170

Note : Figures in parantheses are percentages to demand.

TABLE LXIV

BLOCKWISE PER ACCOUNT OVERDUES AMONG SAMPLE BORROWER FARMERS
in Rs

Block	Small	Medium	Large
Thondamuthur	3297	-------	------
Kinathukadavu	4120	14,280	-----
Perianaicken Palayam	4837	11,230	30,817
Total	4147	10,061	30,817

The share of large farmers in the total overdue amount was more (39 percent) than the other groups. But the share of the large farmers in demand was less (26 percent). This fact indicated the wilful defaulting of large farmers in repayment. The percentage of overdues was higher among medium farmer group also. Since the entire amount of loans are not repaid by the large farmers the overdue amount exceeded the demand. The excess of due over demand was due to the inclusion of interest amount with the principal amount. The per account overdue in Perianaicken Palayam (Rs 4,837) for small farmers followed by small farmers in Kinathukadavu(Rs 4,120).

b. Determinants of Overdues:

The causes for overdues and the factors that discriminated the wilful and non-wilful defaulters were identified on the basis of the findings of earlier studies.

The actual defaulters were classified on the basis of farm income. That is, those who do not repay on time as wilful and those who are not able to pay due to low income as non-wilful. In order to classify the defaulters as wilful or non-wilful linear discriminant function was used. The data set used in the estimation of linear discriminant coefficients are given in Appendix XI.

The Z function obtained to discriminate the wilful and non-wilful defaulters was

$$Z = -0.403 X_1 + 6.545 X_2 + 1.862 X_3 + 2.441 X_4 + 3.025 X_5 + 3.569 X_6 + 2.253 X_7 - 3.625 X_8 - 4.665 X_9 - 2.731 X_{10}$$

The values of D^2 and F were 71.5 and 51.9 respectively. The function was found to be significant. This means that the ten characteristics considered together to classify the defaulters had a significant discriminatory power. This also implies that the socio-economic characteristics were useful in classifying the defaulters into two groups of wilful and non-wilful defaulters. The higher score of Z value means wilful default. On the basis of the Z scores , the number of wilful and non-wilful defaulters were obtained as :

Discriminating Score for non wilful defaulters	Discriminating Score for separating group	Discriminating Score for wilful defaulters
- 23.5 ---------->	12.28 ---------->	48.066

On the basis of these Z scores 24 defaulters were classsified under wilful and 15 under non-wilful category. The derived classification analysis of the defaulters into wilful or non-wilful groups was done in order to understand the degree of accuracy of the predictive power of the equation.

The derived classification of defaulters into non wilful as per the discriminant function is shown against the assumed defaulters as given below:

Classification	wilful	non wilful	total
Derived	24	15	39
Assumed	22	17	39

By and large almost all the wilful defaulters were found to be in the small farmer group and only one each from large farmer and medium farmer group was located in this category.

To examine the relative importance of the characteristics based on the power to discriminate between the two groups, the percentage contribution of each character to the total distance measured was calculated and are furnished in Table LXV.

TABLE LXV

PERCENTAGE CONTRIBUTION OF THE INDIVIDUAL CHARACTERISTIC TO THE TOTAL DISTANCE MEASURED

	Mean difference d	Discriminant Coefficient L	L X d	Percentage of L X d
1) Area operated	0.321(0.359)	-0.403	-0.129	-0.181
2) Fixed costs	1.066(1.920)	6.545	6.974	9.745
3) Variable costs	4.164(4.58*)	1.862	7.755	10.836
4) Age	4.735(5.28*)	2.441	11.557	16.149
5) Family Size	-0.495(1.441)	3.025	-1.496	-2.091
6) Education (dummy)	-0.246(0.970)	3.569	-0.878	-1.227
7) Non-farm income (dummy)	0.134(0.588)	2.253	0.301	0.421
8) Family labour	-0.013(0.047)	-3.265	0.044	0.061
9) Consumption expenditure	-10.297(7.53*)	-4.665	48.039	67.123
10) Region (dummy)	0.219(0.995)	-2.730	-0.599	-0.836
Total			71.568	100.00

* Highly significant

The significant factors characterising the wilful defaulters were the area operated (9.745), capital expenses (10.836), the age of the borrower (16.149) and consumption expenditure (67.123). Similar results were obtained while calculating the 't' statistic for testing the mean difference for these variables except that of area operated. Hence, it is

recommended that while giving loans, the financial institutions may take into consideration the characteristic features of the borrowers namely, the age, area operated, capital expenses on the farm and their level of consumption expenditure so that the default in repayment can be minimised and the credit worthiness of the borrower ensured.

Summary and Conclusion

V. SUMMARY AND CONCLUSION

The current study on " Financial Intermediation in Agriculture with Reference to Banking Sector in Coimbatore District " was undertaken on the basis of the following assumptions:

1) Credit flow to agriculture is important in view of the need for expanding the cereal economy , to accelerate capital formation and increase the use of yield increasing inputs in agriculture.
2) The credit planning machinery at the district level has to decide the credit absorptive capacity of the regions while allocating the available funds for various agricultural activities.
3) Borrowing behaviour of farm households is conditioned by their resource potentials , education and the application of technology in agricultural operations.

Therefore, the analysis of the plan formulation and the borrowing behaviour of farm households had been attempted within the theoretical context. The results of the analysis are expected to give some important pointers to the credit planners to understand the strengths and weaknesses of the rural credit delivery system. The area of the study was Coimbatore district and three revenue villages with different agro -climatic conditions. The reference period of the study was 1992 -93.

The specific objectives of the study were to :

1) assess the structure of farm credit across the blocks and the banks;

2) identify the factors determining the extent of credit allocation based on feasibility of area interms of population, size of holdings, bank offices and area operated;

3) examine whether credit allocation has been equal among the blocks;

4) assess the demand for short term credit and the credit gap;

5) find out the optimum area to be covered under major crops within the credit structure and to determine the optimum level of recovery;

6) identify the factors determining the recovery performance of the banks;

7) evaluate the model framework for understanding the borrowing behaviour of farm households, and

8) analyse the extent and causes for overdues at the farm household level.

The hypotheses tested in the study were:

1) The credit allocation across the blocks is independent of their resource potentials.

2) There is an even allocation of credit among the blocks.

3) The funds are optimally allocated among the various crops.

4) The recovery performance of the banks is not affected by the types of loans and loans for government sponsored schemes.

5) The borrowing behaviour of farm households is independent of their income, expenditure, area operated, education and technology.

6) There is no association between the extent of overdues and the social and economic conditions of the borrowers.

The data used in the study were from both primary and

secondary sources. Data from the records maintained in DSO at Coimbatore on the profiles of the blocks, Season and Crop Reports, Credit Plan documents of the Lead Bank of the district Canara Bank , Scale of finance prepared by the District level Consultative Committee , cost of cultivation estimates prepared by Tamil Nadu Agricultural University Coimbatore , RBI Bulletins, Tamil Nadu -An Economic Appraisal and Census Report on Final Population of Tamil Nadu 1991 had been used to formulate a credit plan model at the district level. Household Primary data were collected from 200 borrower farmers to find out the factors governing the borrowing behaviour of farm households. The data were analysed with percentages, ratios, regression analysis, factor analysis, Theil's inequality index, linear programming and linear discriminant function. The household borrowing model had been specified on the basis of the utility maximisation approach.

The summary of the major findings that emerged from the analysis are given as follows:

A. Blockwise Allocation of credit :

1) At the block level , the credit structure was dominated by agricultural credit in the priority sector lending with 81.95 percent in terms of accounts and 73.5 percent in amount. The irrigated block Udumalpet had the highest share (11.36 percent) and Valparai , the lowest share in the total agricultural credit.

2) The agricultural credit had been dominated by short term crop loans both in terms of account and amount (76 percent to 97 percent and 41 percent to 86 percent). The only exception to this trend was Valparai due to its different agro climatic conditions.
3) The average amount per account had been Rs. 6,960 for loans for agriculture, Rs. 6,017 for crop loans , Rs. 16,386 for investment loans at the district level higher than the national average of Rs 470 in the case of crop loans.
4) Sixty five percent of crop loans have been allotted for paddy, followed by vegetables (14 percent) and pulses 10.7 percent.
5) The highly irrigated blocks and the blocks with more small operational holdings had a larger share in the loans for vegetables.
6) Among the non-food crops, sugarcane had a larger share, 21 percent followed by cotton. The highly irrigated blocks had been the credit intensive blocks. Of the total agricultural loans , more than 80 percent had been allotted for cash and commercial crops.
7) The minor irrigation projects had been allotted 22 percent of the total investment loans (term loans) and only 4.8 percent for land development purposes. The share of farm machinery loans had been only 5.8 percent in terms of accounts but it accounted for 38 percent of amount.

8) Udumalpet, the irrigated block had a large share in the farm machinery loans , and Valparai had been allotted a higher share of investment loans.

9) In the plant and horticulture loans, coconut and grapes had a major share.

10) The average credit availability per hectare was Rs. 1980 for total loans ,Rs. 1553 of crop loans Rs. 427 for investment loans.

11) Regarding the adequacy of crop loans, the amount of crop loans per hectare in the district compared more than favourably with the credit requirement estimates of NCA but less with scale of finance of the District level Consulative Committee and cost of cultivation estimates.

12) Tirupur had the highest per borrower loan amount of Rs.22, Rs.879 of all loans, Rs 1,1644 of crop loans and Rs.11,235 investment loans and it was low for Valparai.

13) The average amount of crop loan per bank office was Rs.2,201,000, Rs. 6,05,000 in the case of investment loans and Rs.28,05,000 for total agricultural loans.

14) The estimated model to identify the determinants of credit allocation in the formulation of plan had revealed that the number of cultivators had a positive impact on crop loans and negative impact on the investment loans. The size of holdings as also the area operated , had a significant influence on credit allocation. The literate population had

a positive elasticity coefficient with respect to investment credit. The number of agricultural labourers and SC/ST population had only an insignificant influence on credit allocation.

15) The factor analysis result had indicated the prodominance of large holdings , small holdings , rural population and literate population as key factors to be considered in the credit plan formulation.

B. Bankwise Allocation of Credit:

16) Of the 43 banks in the district only 27 had been allotted credit for agricultural purposes: two from State Bank of India group, three cooperative banks, eight private sector banks and 14 public sector banks.

17) In the share of agricultural credit in the total priority sector credit, the accounts had ranged between 13.7 percent and 89.48 percent and in amount it had ranged between 2.27 and 96 percent. The State Bank of India and Canara Bank together had a major share in the agricultural credit, the cooperatives had a share larger than in other banks. The share of crop loans had been 90.4 percent and investment loans 9.6 percent. The lead bank,Canara Bank had a major share of 16.57 percent allotted for agricultural purposes.

18) In investment loans, the allotment had been more (11 percent) for State Banks , 13.5 percent for private sector banks and only five percent for cooperatives. Of the total

agricultural loans, the cooperative and public sector banks had a major share of more than 77 percent.

19) The credit plan had focussed on short term credit requirements of the district. For the aggregate of all the banks, the per account availability of all agricultural loans had been Rs.7,013. It was more than the district average in the State Bank of India group (Rs 8,266) and private sector banks (Rs.8,394). They had apparently concentrated more on credit deepening policy than on credit widening.

20) The deposits and past performance emerged as crucial determinants of credit allocation in the plan. The recovery of loan had a positive influence in credit plan outlay allocation in the case of private sector banks.

C. Credit and Recovery performance:

21) On six out of 14 public sector banks, achievement exceeded the target. The overall performance had been 83.7 percent. The cooperatives and public sector banks had a larger share in performance with 89.7 percent and it was only 3.5 percent for the private sector banks.

22) The credit performance of the banks had shown a trend similar to the achievement, recovery and deposits of the previous year for all the banks and public sector banks. For the private sector banks the correlation between the

performance and the achievement of the previous year had been less.

23) The recovery percentage had been more for public sector banks (60.08 percent), followed by private sector banks (57.5 percent) and 46.4 percent for cooperatives.

24) The type of loan had a positive relation with the recovery of all banks. In the case of investment loans the coefficient had a negative sign in private sector banks. The loans for government sponsored schemes had a positive relation with recovery performance , a finding different from the earlier studies.

D. Inequality in the Allocation of Credit :

25) Theil's Indices computed for the four year data (1988-92) on number of accounts and amount suggested that the degree of inequality had been lower in amount than in account in crop loans (0.068 and 0.0562) whereas in investment loans it had been relatively higher in accounts (0.091) than amount(0.043). In the last year under consideration the extent of inequality in loan amounts had declined slightly.

E. Estimation of Credit Gap:

26) The financial support given by the banks had been adequate to cover only 50 percent of the farm expenses and the gap was wider for the crops,sugarcane and cotton.

27) As per the scale of finance, the area covered by credit

has been only 36.3 percent for the four major crops, paddy, sugarcane, groundnut and cotton.

28) The area covered under credit had been more for sugarcane crop and less for groundnut.

29) The advances allocated to agriculture constituted 12.5 percent of the total advances to priority sector which was, however, less than the statutory requirement of the RBI (18 percent). If this proportion were raised to the stipulated level either more area under the crops can be covered or adequate loans may be covered.

30) The linear programming results indicated that the increase in credit allocation percentage to 14, 16 and 18 the optimum area covered under the four major crops (paddy, sugarcane, groundnut and cotton) were expected to raise by 18.9 percent, 45 percent and 64.82 percent respectively.

31) With the increase in the percentage of credit allocation (14,16 and 18) the optimum recovery levels were expected to improve by 12.46 percent, 26.53 and 40.13 percent respectively.

F. Distribution of Credit among Farm households:

32) The socio-economic profiles investigated in the study did not show much difference in the irrigated and less irrigated villages of the three blocks served by the three banks (SBI, Canara Bank and Bank of Baroda) in terms of size of family and educational status but there was

difference in consumption expenditure.

33) The area operated by the borrower farmers in the small farmer category had been 1.13 hectares,it was 4.67 hectares for medium farmer group and 10.9 hectares for large farmer group. The average irrigation intensity was 88.5 percent and it was 100 percent in Thondamuthur.

34) The cropping pattern of the villages had been dominated by sugarcane and banana in the irrigated villages with grape cultivation emerging as a new enterprise in Thondamuthur.

35) Irrigation intensive area Thondamuthur had been the credit intensive area where the share of investment loans had been higher than the crop loans. The share of large farmers had been more(42.6 percent) than for medium farmers and the share of small farmer category was only 23.7 of the total loans.

36) Per account loans were more Rs.13,330, Rs.1,9454 for crop loans and investment loans respectively in Kinathukadavu. Per hectare credit was more or less the same in all loans in all the three blocks. The credit availability in general was far better than the district average.

37) The per hectare loan availability of small farmers was more than that of other farmer groups indicating the uncovered gap in the credit system.

38) The sugarcane accounted for about 66.14 percent of the loans and had been availed mostly by the lar ge farmers.

G. Farmers' Borrowing Behaviour :

39) Land as a proxy for initial productive capital was the most dominant variable accounting for changes in the demand for bank credit for the aggregate of all farmers. Land, variable cost of cultivation, farm income, age, family size and the educational status of the farmers had theoretically consistent coefficients,thereby explaining the borrowing behaviour of farm households in the aggregate and also in the sub group of medium and large farmers.

40) For the small farmer group the life cycle variables of age and family size, non-farm income and family labour had been the important factors that influenced the demand for bank credit.

H. Determinants of Overdues :

41) The incidence of overdues had been more in Perianaicken Palayam than in other two blocks, the share of large farmers in overdues had been more than in other farm groups.

42) Per account overdue had been higher in Perianaicken Palayam and more among the large farmers.

43) Twenty two small farmers, one large and one medium farmer had been classified as wilful defaulters and 15 as non-wilful among the medium and large farmers.

44) The area operated, capital expenses, age of the borrower and consumption expenditure were the factors that

discriminated the wilful from non-wilful defaulters.

Recommendations :

The recommendations emerging from the study are:

1) There is need to restructure the credit system by identifying the potential borrowers of investment loans so as to accelerate capital formation in agriculture. The assistance of the international funding agencies may be used to develop the agro - business units particularly to generate more value added products from agriculture.
2) There is scope for introducing programme lending in the place of conventional project based lending. In the context of diversified agriculture in the district with working capital needs continuing throughout the year , the cash credit system may be extended to bring all potential borrowers into the general line of credit cover. Similarly all the banks are to be directed towards programme lending. The transaction costs and the costs of recovery will be reduced by this type of lending policy.
3) The establishment of subsidiaries in the rural areas as recommended by the Narasimham Committee may improve the coverage of farmers by the banks particularly the marginalised farmers in the district.
4) There is scope for increasing the percentage of credit to agriculture from the existing 12.5 percent to 18 percent. The busy season credit policy 1994 announcing

improvement in the infrastructure of banks will help the bankers in providing managerial staff and effective monitoring of the projects.

5) Mandatoriness on CD ratio is to be imposed on banks with low CD ratio so as to bring the uncovered area under cultivation of major crops.
6) Loans may be given to farmers on the basis of cost of cultivation rather than on the scale of finance to reduce the existing credit gap.
7) To facilitate scientific studies on financial intermediation data base on activity wise distribution of credit and purposewise overdues at the bank level and at the block level are to be created and maintained.

Suggested Areas for Further Research:

1) Case studies to evaluate the impact of credit programme at the farm household level.
2) The role of credit in capital formation in agriculture.
3) Viability of rural banking in the hill areas.
4) Inter regional studies on overdues from borrowers' angle.
5) Transaction costs and scale economies in rural banking.

Conclusion :

The study had extended the theoretical framework of utility maximisation to capture the borrowing behaviour of farm households. It had developed the guidelines for the banks regarding the characteristics of borrower farmers which they

should look for while trying to reach them with credit. The study had also delineated the characteristics of wilful defaulters which will help the bankers in better selection of borrower farmers and stringent credit supervision. The selection of borrowers on scientific guidelines will enable the banks to improve their credit and recovery performance; strengthen the recycling of funds and ultimately improve their financial health. The banking institutions should create an awareness among the farmers conducive to the generation of repayment ethics through demonstration and propaganda. Towards better credit planning the study had highlighted the relatively greater need for credit deepening as against credit widening to effectively support agricultural production efforts of the farmers. As part of the financial intermediation policy, it recommends that evaluation of service area plan must be its integral part to ensure better financial discipline among the banks.

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Appendices

APPENDIX. I

AVINASHILINGAM INSTITUTE FOR HOMESEIENCE AND
HIGHER EDUCATION FOR WOMEN
(DEEMED UNIVERSITY)
COIMBATORE-641043

INTERVIEW SCHEDULE TO ELICIT INFORMATION ON FINANCIAL INTERMEDIATION IN AGRICULTURE IN COIMBATORE DISTRICT FROM FARMERS AVAILED BANK LOANS DURING 1992-93.

I. GENERAL INFORMATION:

a) Name of the Head of the family :

b) Address :

c) Caste and Religion :

d) Type of family :

II) Family Background

a) Information about family members:

S.No	Name	sex	age	education	occupation	Income per month

b) Assets :

S.No	Item	quantity / area	Value
i.	Land	area	value
	wet		
	dry		
	garden		
	fallow		
ii.	Farm Buildings	nos/area	value
	cattle shed		
	Vehicle shed		
	Pump shed		
	Storage godown		

iii.	House	nos/area	value	
iv.	Livestock	nos	value	
	cows			
	buffalloes			
	sheep/goats			
	poultry			
	others			
v)	Farm equipments	nos.	value	year of purchase
	Tractors			
	Tillers			
	Ploughs			
	Trailors			
	Processing equipments			
	others			
vi.	Vehicles	value	year of purchase	
vii.	Consumer durables	value	year of purchase	

c) Other sources of income

i) Business earnings

ii) Receipt from properties

iii) Income from investment

iv) Other earnings

d) Consumption Expenditure

S.no	item	amount spent per year
i.	Food	
ii.	Non-food	
	clothing	
	medicine	
	fuel	
	education	
	others	

e) Capital expenditure

S.No	item	amount spent per year
i.	Land development	
ii.	Livestock	
iii.	Agricultural machines	
iv.	Other items	

f) Savings pattern

S.No	item	amount
i.	Banks	
ii.	Postal	
iii.	L I C	
iv.	Chit fund	
v.	Private money lending	

SCHEDULE B :

I. Information about Agriculture :

a. Land

S.No	item	Area wet	dry	garden	fallow
	Leased in Land				
	Leased out land				

b) Irrigation

S.No	item	area
1)	Type of farming	
	i) dry farming	
	ii) irrigated	

2) Source of irrigation

i) Well
ii) river
iii) canal
iv) tank
v) bore well
vi) others

3) Type of irrigation

i) drip
ii) jet
iii) lift
v) Sprinkle
iv) others

---

c. Cropping pattern

S.No	Name of the crop	area under each crop	season	period of crop

---

d. Farm inputs:

1) Farm labour for each crop

Operation	No. of persons employed		Type of Family	Labour hired	Days employed	hrs employed per day	wage per
	Male	Female					
Land pre-paration							
Ploughing							
Sowing							
Nursery plant							
Nursery transplant							
Manuring							

weeding

harvesting

thrushing

packing

---

2) Seeds :

i) Conventional seeds

Crop	own/purchased	area	qty	cost

ii) High yielding variety

crop	own / purchased	qty used (per hect)	price

3) Farm equipments used:

Farm equipments	own/hired	no. days used	hired charges per daY
i) Iron plough			
ii) Tractor			
iii) Tiller			
iv) Levelling pad			
v) Sprayer			
vi) Processing equipments			
vii) Others			

4) Fertiliser and Pesticides

i) Fertiliser

Name of the crop	Fertiliser used	Place of Purchase	qty per hect	price

ii) Pesticides:

Name of the crop	Pesticides Weedicides Fungicides used	Place of Purchase	qty per hect	price

5. Farm Subsidy

Type of subsidy	actuals	subsidy price
i) Electricity		
ii) Seeds		
iii) Fertilizers		
iv) Pesticides		
v) Waiving of loans		

e) Farm output :

S.no	item	qty/nos	price/ cost per unit
i)	Crop production		
ii)	Sale of livestock / product		
iii)	Income from farm equipments		
iv)	By products		
iv)	others		

f) Marketing:

Name of the crop	qty consumed	qty sold	price	place

g) Sources of Information :

i) Television / Radio / Newspapers

ii) Training Programe (attended)

iii) Demonstration

II Information on Credit

a) Crop loans

Crop	Source	Amount	rate of interest	mode of repayment

b) Investment loans:

Year	purpose	source	amount required	amount received	interest rate and mode of repayment	source of balance amount own/borrowed

c) Overdues

Year	type of credit	demand	repaid	overdue	reason

d) Loan from private lenders:

Purpose	Amount	number of years	rate of interest	mode of repayment

e) Scheme Loan - IRDP/NREP

Purpose	Source	Amount	number of years	rate of	mode of payment

f) Problems faced in the present credit system:

i) Adequacy

ii) Delay

iii) Interest burden

iv) Commision

v) Security individual/ group

vi) Accessability

vii) Others

g) Membership

1) Farmers Association

2) Crop Growers Association

3) Cooperative Society

4) Green card system

APPENDIX II

MATHEMATICAL DERIVATION OF THE FARM HOUSEHOLD BORROWING FUNCTION

The general household utility function is

$$U = U(C,L) \qquad (1)$$

The consumption expenditure constraint is

$$C = Y + B - I$$

where the overall income is

$$Y = p\, f(K,H) + w\, M$$

The consumption expenditure function can be written as

$$C = b_1 K + b_2 H + b_3 L + B - I \qquad (2)$$

The households' time constraint is

$$M = T - L - H \qquad (3)$$

The general form of the household utility function can be assumed as

$$U = a_1 B^2 + a_2 K^2 + a_3 H^2 + a_4 B K + a_5 B H + a_6 K H + a_7 L + a_8 I$$

The optimum utility function with the constraints given in equations (2) and (3) , using Lagrange Multipliers , will become

$$U = a_1 B^2 + a_2 K^2 + a_3 H^2$$

$$+ a_4 B K + a_5 B H + a_6 K H$$

$$+ a_7 L + a_8 I$$

$$+ \lambda (C - b_1 K - b_2 H - b_3 L - B + I)$$

$$+ \beta (M - T + L + H)$$

Where λ and β are the Lagrange Multipliers.

To solve for the optimal amount borrowed interms of K , L , H and I , the partial derivatives are

$$\partial U / \partial B = 2 a_1 B + a_4 K + a_5 H - \lambda = 0 \quad (4)$$

$$\partial U / \partial K = 2 a_2 K + a_4 B + a_6 H - \lambda b_1 = 0 \quad (5)$$

$$\partial U / \partial H = 2 a_3 H + a_5 B + a_6 K - \lambda b_2 = 0 \quad (6)$$

$$\partial U / \partial L = a_7 - \lambda b_3 + \beta = 0 \quad (7)$$

$$\partial U / \partial I = a_8 + \lambda = 0 \quad (8)$$

$$\partial U / \partial \lambda = C - b_1 K - b_2 H - b_3 L - B + I = 0 \quad (9)$$

$$\partial U / \partial \beta = M - T + L + H = 0 \quad (10)$$

Solving the equations (4) -(10) and imposing linearity , the optimal amount borrowed can be written as

$$B = c_0 + c_1 K + c_2 H + c_3 L + c_4 I$$

Where the constants c_0 , c_1 , c_2 , c_3 and c_4 are given by the coefficients of the Utility function and constraints.

APPENDIX III

SCALE OF FINANCE FOR PADDY, SUGARCANE , GROUNDNUT AND COTTON ESTIMATED BY DISTRICT LEVEL CONSULTATIVE COMMITTEE IN COIMBATORE DISTRICT 1992-93

Rs. per hectare

Crop	Fixed cost	Material cost			
		Fertilizer	Pesticides	Seed	Total
Paddy	2914	2300	374	242	5830
Sugarcane	4625	4000	975	4700	14300
Groundnut	1929	792	363	1316	4400
Cotton	2970	1760	1430	240	6400

APPENDIX VI

BLOCKWISE DISTRIBUTION OF SMALL , MEDIUM AND LARGE HOLDINGS IN COIMBATORE DISTRICT 1992-93

Block	Small Holdings	Medium Holdings	Large Holdings
ANAMALAI	6613	4430	292
ANNUR	16168	4066	26
AVINASI	17184	4950	113
GUDIMANGALAM	8490	4280	279
KARAMADAI	10139	4800	126
KINATHUKADAVU	5714	6635	422
MADATHUKULUM	5823	1680	175
MADUKARAI	6176	3137	217
PALLADAM	8514	4173	203
PERIANAICKEN PALAYAM	7929	2021	60
PERUR	2233	1090	22
POLLACHI.N	5534	3976	269
POLLACHI.S	5071	2817	149
PONGALUR	9703	3206	149
SARKAR SAMAKULUM	7385	1897	45
SULTANPET	7355	4028	200
SULUR	11002	3494	114
THONDAMUTHUR	8151	2475	109
TIRUPUR	10724	4522	224
UDUMALPET	9673	5642	349
VALPARAI	2	5	29

APPENDIX IV

COST OF CULTIVATION ESTIMATED BY TAMIL NADU AGRICULTURAL UNIVERSITY, COIMBATORE - 1992-93

S.No.	Item	Amount in Rs/Hectare Paddy	Sugarcane	Groundnut	Cotton
A.	OPERATIONAL COST				
I.	Human Labour				
	Casual	5,635.03	11,161.01	3,090.75	5,679.64
II.	Bullock Labour				
	1. Hired	345.92	205.20	317.86	139.53
	2. Owned	217.19	218.15	120.36	230.94
	Total cost of Bullock Labour	563.11	423.35	438.22	370.47
III.	Machine Power				
	1. Hired	985.24	442.48	261.17	447.20
	2. Owned	162.87	-	100.17	107.76
	Total cost of Machine Power	1,148.11	442.48	361.34	554.96
IV.	Seed	773.45	5,711.15	2,817.47	294.26
V.	Fertiliser and Manure				
	1. Fertiliser	2,920.54	5,100.68	962.94	2,473.43
	2. Manure	165.43	265.16	228.83	257.54
	Total	3,085.97	5,365.84	1,191.77	2,730.97
VI.	Insecticides	245.23	25.16	114.53	1,037.43
VII.	Irrigation	56.82	343.15	78.52	47.07
VIII.	Interest on	239.74	1,467.50	252.89	334.83
	Total Operational Cost	11,747.46	24,939.64	8,345.49	11,049.01

Contd.....

B. FIXED COST				
1. Rental Value of Owned land	3,383.71	4,349.18	2,306.43	2,935.08
2. Rent paid for leased in land	-	229.36	-	-
3. Land Revenue and other taxes	38.78	55.60	22.65	14.64
4. Depreciation of Farm Buildings and Implements	557.43	265.42	313.96	357.99
5. Interest on Fixed Capital	333.06	321.28	302.44	529.06
6. Total Fixed Cost	4,312.98	5,220.84	2,945.48	3,836.77
Total Cost	16,060.44	30,160.48	11,290.97	14,885.78
ADD				
1. Provision for Managerial Functions over total cost @15%	2,409.07	4,524.07	1,693.65	2,232.87
2. Provision for Risk over total cost @10%	1,606.04	3,016.05	1,129.10	1,488.58
3. Total cost of cult-	20,075.55	37,700.60	14,113.72	18,607.23
DEDUCT				
4. Value of By Product/ Hectare in Rs.	2,502.59	-	723.20	269.43
5. Net cost of cultivation per hectare	17,572.96	37,700.60	13,390.52	18,337.80
6. Yield/Hectare (in	46.98	952.64	15.05	13.72
7. Cost of Production	374.79	39.57	889.74	1,336.57

APPENDIX V

BLOCKWISE DISTRIBUTION OF GROSS CROPPED AREA ,NET AREA SOWN AND AREA SOWN MORE THAN ONCE IN COIMBATORE DISTRICT 1992-93

area in hectares

Block	Gross cropped area	Net area Sown	Area sown more than once	Net area irrigated
ANAMALAI	31303	24825	6478	20752
ANNUR	20757	20494	263	3133
AVINASI	25951	25445	506	3777
GUDIMANGALAM	23498	20767	2731	15770
KARAMADAI	17290	15778	1512	5187
KINATHUKADAVU	30379	21325	9054	10563
MADATHUKULUM	18831	14966	3865	14441
MADUKARAI	13462	12734	728	4305
PALLADAM	16201	16126	75	2918
PERIANAICKEN PALAYAM	9024	8920	104	2958
PERUR	2836	2826	10	2115
POLLACHI.N	27660	20870	6790	14724
POLLACHI.S	18366	14454	3912	11672
PONGALUR	19161	18510	651	7467
SARKAR SAMAKULAM	12017	11914	103	1819
SULTANPET	16145	15833	312	6995
SULUR	16034	15669	365	3320
THONDAMUTHUR	12725	11876	849	5424
TIRUPUR	11966	11940	26	1564
UDUMALPET	34790	27141	7649	25737
VALPARAI	14079	14078	1	0

APPENDIX VII

BLOCKWISE DISTRIBUTION OF TOTAL , RURAL , LITERATE AND SC/ST POPULATION IN COIMBATORE DISTRICT 1992-93

Block	POPULATION TOTAL	Rural	Literate	SC/ST
ANAMALAI	137470	119874	66513	29894
ANNUR	95375	80497	44355	22814
AVINASI	117180	94096	53132	26321
GUDIMANGALAM	67200	67200	31334	15597
KARAMADAI	142828	108692	71825	29976
KINATHUKADAVU	90326	90326	44427	17972
MADATHUKULUM	89185	89185	44803	18605
MADUKARAI	95803	61889	52584	18665
PALLADAM	98376	66305	50710	20651
PERIANAICKEN PALAYAM	163115	64757	98777	23867
PERUR	116281	7325	78517	16841
POLLACHI.N	94593	94593	48945	19120
POLLACHI.S	96279	96279	54420	17955
PONGALUR	65644	65644	83661	26254
SARKAR SAMAKULUM	79491	33943	44283	13879
SULTANPET	67142	67142	31399	14024
SULUR	143149	70000	25744	16307
THONDAMUTHUR	104174	42086	54336	19685
TIRUPUR	137087	76706	69034	23102
UDUMALPET	140004	140004	69476	32914
VALPARAI	106636	106636	66062	60806

APPENDIX VIII

BLOCKWISE DISTRIBUTION OF CULTIVATORS , AGRICULTURAL LABOURERS AND BANK BRANCHES IN COIMBATORE DISTRICT 1992-93

Block	Cultivators	Agricultural Labourers	Number of Bank Branches*
ANAMALAI	8801	28793	14
ANNUR	5186	52505	13
AVINASI	3144	52400	14
GUDIMANGALAM	9596	20876	13
KARAMADAI	13151	15424	15
KINATHUKADAVU	9185	7872	16
MADATHUKULUM	6700	6200	11
MADUKARAI	5600	25000	11
PALLADAM	14451	21698	15
PERIANAICKEN PALAYAM	10000	20000	13
PERUR	1200	1300	10
POLLACHI.N	8250	9464	20
POLLACHI.S	7638	23787	20
PONGALUR	7450	14645	11
SARKAR SAMAKULUM	3250	3850	9
SULTANPET	9835	14205	13
SULUR	4447	3707	15
THONDAMUTHUR	7459	15770	9
TIRUPUR	9136	12809	9
UDUMALPET	10719	23468	20
VALPARAI	1	62413	6

* The Bank Branches in the Urban Blocks are not included.

APPENDIX IX

PERFORMANCE OF BANKS IN COIMBATORE DISTRICT 1987-91

Rs. in '000S

	1987		1988		1989		1990		1991	
	Target	Achieve-ment	Target	Achieve-ment	Target	Achieve-ment	Target	Achie-vement	Target	Achie-vement
SBI	893.33	1050.87	1054.57	1406.59	1305.34	931.06	130330	118894	140253	156602
SBT	13.46	16.86	22.40	11.54	44.51	0.93	3815	1181	3158	1498
ALLA	22.06	33.49	18.20	27.66	28.35	26.75	1946	1141	1820	1090
BOB	189.05	200.34	226.70	151.30	132.30	199.32	18187	15628	24972	38191
BOI	79.71	127.34	99.51	77.33	75.83	34.34	10728	3920	14748	3999
BOM	19.31	16.67	12.50	9.79	19.97	2.13	----	404	500	848
CAN	914.75	842.11	1085.11	915.12	1197.42	898.07	136635	108576	124340	171713
CBI	98.01	95.83	133.05	137.16	158.87	74.07	13709	8980	15457	10950
COR	143.89	59.32	148.83	52.21	184.61	78.42	14838	4405	9111	7553
IND	230.13	359.03	256.05	261.01	353.52	243.08	51492	44987	71583	73163
IOB	892.43	1028.82	1029.51	728.01	891.35	308.57	86470	36120	83791	58969
NBI	----	0.49	----	----	----	0.74	----	----	25	15
SYND	----	11.42	3.40	3.34	----	----	----	----	----	----
UNI	101.88	71.83	94.21	78.17	83.60	58.69	11262	10219	11365	19006
UCO	36.23	39.64	41.31	30.56	12.00	4.93	1650	261	----	98
VIJA	10.54	4.94	13.00	16.20	13.40	0.85	2050	120	1150	169
MADU	87.66	64.42	46.88	55.67	56.51	54.28	----	----	----	----
CATSY	31.50	53.90	43.37	17.08	53.95	12.79	4830	2394	4069	7281
KVB	2.70	12.56	79.20	114.42	63.51	92.53	13105	3381	----	----
LVB	30.34	28.55	44.20	27.62	33.05	20.19	3565	1280	3728	2376
NEDUN	2.70	0.32	3.35	0.83	1.21	----	----	18	----	5
SOUTH	56.79	168.34	78.70	145.04	112.07	84.76	15073	6510	13363	5533
TMB	9.30	4.35	12.63	6.94	12.72	7.57	1294	2991	745	3867
VYSH	18.13	75.67	17.33	28.8	12.50	9.40	1235	318	1255	202
CCCB	1212.17	1865.72	1293.40	1641.05	1488.35	3242.17	197040	202325	211891	517107
TNC	289.97	158.62	217.19	399.01	216.70	31.84	30165	29375	57705	32741

APPENDIX X

DATA SET USED IN THE ESTIMATION OF FARM HOUSEHOLD BORROWING FUNCTION

A. SMALL FARMERS

S.NO	Crop Loan Rs. in '000s	Area in hect.	Fixed costs Rs. in '000s	Variable Costs Rs. in '000s	Farm income Rs. in '000s	Age	Family Size	Education (dummy)	non farm income Rs. in '000s (dummy)	own labour
1	4.0	1.5	4.5	14	12.0	40	4	2	0	2
2	4.0	2.0	3.0	47	41.0	47	4	1	0	2
3	2.5	1.0	3.2	11	10.5	50	5	1	1	3
4	3.0	1.0	3.4	10	11.0	38	3	2	1	2
5	2.0	1.0	3.2	12	10.0	38	3	2	1	2
6	3.0	1.0	3.3	11	10.0	52	6	1	1	3
7	3.0	1.0	3.4	12	10.4	38	4	0	1	2
8	3.0	1.0	3.4	11	10.4	50	4	1	1	2
9	3.0	1.0	3.3	12	10.5	45	7	0	1	4
10	5.0	1.0	3.0	14	10.0	50	4	0	1	2
11	2.5	1.5	4.0	18.5	20.0	36	4	1	1	2
12	3.0	1.5	4.5	11	15.0	33	4	1	1	2
13	2.0	1.0	3.3	13	11.0	40	6	1	1	3
14	3.0	1.0	3.2	9	11.0	33	2	0	0	2
15	3.0	1.0	3.2	8	9.0	33	3	2	0	1
16	3.0	1.5	4.3	20	15.0	40	5	2	1	3
17	3.0	1.5	4.2	22	15.0	40	4	2	1	2
18	3.0	1.5	4.2	20	18.0	50	6	1	1	4
19	3.0	1.0	4.0	12	6.0	55	7	2	1	4
20	4.0	2.0	4.0	25	38.0	55	8	0	1	5
21	4.0	1.0	7.5	14	5.0	40	6	2	1	3
22	3.0	1.0	8.2	10	11.0	40	6	2	1	3
23	4.0	1.0	7.2	9	4.0	40	4	0	1	2
24	2.0	0.5	4.2	9	2.1	40	5	0	1	2
25	3.0	0.5	2.2	4	2.2	43	5	2	1	3
26	3.0	0.5	2.2	4	2.2	45	3	2	1	2
27	3.0	0.5	2.2	4	2.0	40	4	2	1	2
28	4.5	1.0	3.5	7	2.0	45	4	2	1	2
29	3.0	1.5	10.0	4	18.0	45	5	2	1	3
30	3.5	2.0	10.2	34	21.0	36	4	2	1	2
31	5.0	1.5	4.2	22	18.0	39	5	2	1	2
32	4.0	2.0	10.2	23	21.0	50	5	0	1	2
33	3.0	1.5	4.2	21	18.0	35	4	2	1	2
34	3.0	2.0	4.2	22	18.0	40	4	2	1	2
35	4.0	2.0	8.2	30	22.0	47	3	2	0	2
36	3.0	0.5	1.2	19	13.0	45	3	2	1	1
37	3.0	0.5	2.2	4	5.0	38	3	2	1	1
38	4.0	0.5	2.2	4	5.0	38	4	2	1	1
39	3.0	1.0	1.2	13	42.0	42	2	2	1	2
40	4.5	1.0	4.2	15	10.0	40	5	2	1	2

Small Farmers contd .....

S.NO	Crop Loan Rs. in '000s	Area in hect.	Fixed costs Rs. in '000s	Variable Costs Rs. in '000s	Farm income Rs. in '000s	Age	Family Size	Educ-ation	non farm income Rs. in ,000s	own labour
41	7.0	1	2.2	17	15.5	50	5	1	1	3
42	6	1	2.2	17	9.5	45	3	1	0	1
43	5.5	1	2.1	17	15.0	40	5	2	0	2
44	7	1	2.3	14	14.5	42	4	2	0	2
45	8	1	2.5	14	10.5	30	3	2	0	1
46	9	1	2.5	15	14.0	45	5	1	0	3
47	10	1.5	3.7	16	15.5	50	5	2	1	2
48	9	1.5	3.5	15	17.0	55	5	1	0	2
49	7	1	2.2	16	16.0	28	4	2	0	1
50	5	1	2.3	16	16.5	32	3	2	1	1
51	8	1	2.5	13	14.0	50	5	2	1	3
52	5	1	2.4	13	9.5	28	3	2	0	1
53	9	1.5	2.3	22	10.0	32	4	2	0	2
54	10	1.5	2.5	20	9.0	50	7	1	0	5
55	5	1	1.0	15	10.0	50	4	1	0	2
56	7	1	1.0	17	9.0	52	6	2	0	2
57	6	1	2.1	18	14.5	45	4	2	1	2
58	9	2	3.6	22	17.5	45	4	2	0	1
59	7	1	2.5	30	21.0	50	5	2	0	3
60	8	1	2.7	17	14.0	55	6	2	0	3
61	10	2	3.3	21	10.0	28	3	2	1	1
62	8	1.5	2.2	29	16.0	50	2	2	0	1
63	10	1.5	2.4	20	17.0	48	6	1	0	3
64	9	1.5	2.4	19	18.0	40	4	2	0	2
65	10	1.5	2.4	21	15.5	35	3	2	0	1
66	5	2	3.7	31	24.5	28	4	0	0	1
67	8	1.5	2.0	22	17.0	40	4	1	1	2
68	7	1.5	2.5	16	18.0	45	3	1	0	1
69	6	1	2.2	15	18.0	45	6	1	1	3
70	5	1	2.3	16	14.0	40	4	2	0	2
71	7	1	2.4	16	14.5	40	4	2	0	2
72	6	1	2.5	15	13.5	30	2	2	0	1
73	5	1	2.5	12	12.5	35	6	1	0	4
74	5	1	2.1	12	12.5	40	4	0	0	2
75	5	1	2.4	15	13.5	37	3	0	0	1
76	3	1	2.3	11	14.5	40	5	1	0	3
77	6	1	2.4	17	11.0	35	2	1	0	1
78	5	1	2.7	9	10.5	40	5	0	0	3
79	5	1	3.0	10	9.5	45	3	2	0	1
80	5	1	2.4	10	10.5	40	8	2	0	2

Small Farmers contd .....

S.NO	Crop Loan Rs. in '000s	Area in hect.	Fixed costs Rs. in '000s	Variable Costs Rs. in '000s	Farm income Rs. in '000s	Age	Family Size	Educ-ation	non farm income Rs. in ,000s	own labour
81	3.5	1	7.3	18	28	30	4	1	1	2
82	4.0	1	8.3	18	29	50	5	1	0	2
83	3.0	1	16.0	15	40	30	3	1	0	1
84	3.5	1	9.2	22	31	45	5	2	1	3
85	5.0	1	9.5	15	28	50	6	2	0	4
86	4.0	1	6.8	16	25	35	4	2	0	2
87	3.5	1	7.3	15	25	35	5	2	0	3
88	3.0	1	7.7	19	25.5	45	6	2	1	3
89	4.0	1	7.7	18.5	23.5	35	5	3	1	3
90	4.0	0.5	3.2	8	8.5	35	4	1	0	2
91	3.5	0.5	3.3	11	9.0	35	4	1	0	2
92	3.0	1	7.2	19.5	25.5	30	3	0	1	2
93	4.0	1	8.3	18.0	27.5	35	4	1	1	2
94	5.0	1	8.3	18.0	22.0	45	5	1	1	3
95	4.0	1	9.3	16.0	30.0	40	4	1	1	2
96	4.0	2	13.0	15.0	8.0	50	6	0	1	4
97	4.0	0.5	3.2	9.0	9.0	40	3	0	1	2
98	4.0	0.5	3.3	7.0	8.0	40	4	1	1	2
99	3.0	1	5.3	10.0	7.0	30	3	1	1	2
100	4.0	2	3.4	1.0	16.0	35	4	1	1	2

DATA SET USED IN THE ESTIMATION OF
FARM HOUSEHOLD BORROWING FUNCTION

B. MEDIUM AND LARGE FARMERS

S.NO	Crop Loan Rs. in '000s	Area in hect.	Fixed costs Rs. in '000s	Variable Costs Rs. in '000s	Farm income Rs. in '000s	Age	Family Size	Educ-ation	non farm income Rs. in ,000s	own labour
1	8	7	217.8	256	229.0	33	3	3	0	1
2	10	6	264.2	221	386.0	35	4	2	0	1
3	10	6	278.0	233	207.0	32	3	2	0	2
4	6	4	41.8	58	79.0	30	3	3	1	1
5	7	5	211.4	199	146.0	30	4	2	1	0
6	7	5	172.4	146	172.0	45	4	2	0	3
7	5	3	40.7	56	120.0	48	5	2	0	3
8	7	5	171.1	150	132.0	50	4	3	0	2
9	6	3	43.3	32	103.0	30	4	2	1	0
10	5	3	38.4	31	57.0	30	4	2	0	2
11	6	4	131.4	133	124.0	30	4	2	1	1
12	7	3	43.4	44	63.0	35	4	2	0	1
13	6	4	53.4	70	70.0	25	3	3	0	1
14	7	4	55.8	60	70.0	28	3	2	0	1
15	5	4	53.4	65	72.0	30	2	2	0	2
16	5	3	45.0	48	61.0	40	4	3	1	2
17	6	5	170.6	128	156.0	42	4	2	0	3
18	5	4	76.8	42	91.0	45	5	2	0	5
19	7	4	89.5	83	58.0	96	5	2	1	1
20	5	3	77.0	39	80.0	37	4	2	0	2
21	5	4	129.0	106	104.0	43	4	2	0	2
22	5	3	76.0	39	80.0	25	3	2	1	2
23	15	4	11.0	68	61.0	50	6	1	1	2
24	15	3	11.0	43	38.0	25	5	3	1	1
25	18	3	14.0	44	36.0	30	5	2	1	1
26	15	5	10.0	69	55.0	35	4	2	1	0
27	12	6	9.0	98	112.0	55	3	2	1	1
28	14	4	7.0	69	60.0	33	7	2	1	3
29	20	5	15.0	85	64.0	35	8	3	1	2
30	15	3	6.0	41	41.0	55	3	2	1	2
31	16	3	5.0	40	38.0	50	4	2	0	1
32	22	6	6.0	84	91.0	45	6	2	0	1
33	22	5	6.0	80	77.0	35	5	3	0	1
34	8	4	8.0	57	44.0	50	6	2	1	2
35	8	4	8.0	36	38.0	50	4	2	1	3
36	10	6	11.0	84	88.0	40	4	2	0	2
37	10	5	12.0	64	58.0	45	5	2	0	2
38	11	3	11.0	41	38.0	42	5	3	1	2
39	11	3	7.0	40	40.0	40	6	2	1	1
40	10	4	6.0	42	40.0	38	5	2	0	2

MEDIUM AND LARGE FARMERS contd...

S.NO	Crop Loan Rs. in '000s	Area in hect.	Fixed costs Rs. in '000s	Variable Costs Rs. in '000s	Farm income Rs. in '000s	Age	Family Size	Educ-ation	non farm income Rs. in ,000s	own labour
41	10	5	17.0	66	59.0	37	5	2	0	1
42	10	6	10.0	84	62.0	30	6	1	0	1
43	10	7	6.0	105	89.0	30	5	2	1	1
44	10	3	6.0	32	24.0	57	4	2	1	2
45	11	3	6.0	33	24.0	55	5	2	1	1
46	10	4	4.0	56	52.0	40	3	2	1	1
47	10	4	7.0	58	56.0	42	6	2	1	1
48	10	4	7.0	52	56.0	28	6	2	1	2
49	10	5	11.0	57	57.0	28	5	2	0	2
50	10	6	12.0	90	88.0	42	6	2	0	3
51	10	5	10.0	68	71.0	45	5	2	0	1
52	10	6	9.0	84	76.0	42	4	2	1	1
53	10	4	7.0	59	55.0	40	5	2	0	2
54	10	4	4.0	52	39.0	40	5	2	0	2
55	16	7	31.9	121	120.5	50	5	2	0	2
56	15	9	37.0	175	181.0	50	3	2	0	1
57	15	6	39.5	114	129.5	30	4	3	0	1
58	15	5	37.4	110	65.0	35	4	2	0	1
59	10	4	16.9	48	29.0	50	7	2	1	2
60	10	3	21.0	48	28.0	52	5	2	1	2
61	15	7	42.4	152	150.0	32	5	2	0	2
62	10	8	57.0	156	167.0	35	3	2	0	1
63	10	6	37.0	77	61.0	50	6	2	0	2
64	10	5	25.4	59	55.0	32	4	2	0	1
65	10	6	28.4	69	57.5	35	4	2	0	1
66	10	5	26.5	43	44.0	50	7	3	1	3
67	10	8	39.0	156	138.0	30	3	2	1	1
68	30	14	514.0	590	461.0	34	4	3	0	0
69	25	12	359.0	463	368.0	25	3	3	1	0
70	25	10	71.0	227	199.0	40	5	2	0	2
71	30	10	222.0	319	212.0	45	5	2	0	5
72	30	10	230.0	277	307.0	50	7	2	1	3
73	30	10	332.0	324	150.0	30	5	3	1	2
74	25	12	353.0	445	400.0	42	6	3	1	1
75	25	11	330.0	357	286.0	38	4	3	1	1
76	30	13	469.0	545	463.0	28	5	3	1	2
77	25	11	265.0	323	168.0	50	5	2	0	2
78	25	10	166.0	300	243.0	45	4	2	0	2
79	30	10	180.2	358	198.0	40	6	2	0	3
80	25	10	51.1	170	160.0	48	5	2	0	2

MEDIUM AND LARGE FARMERS contd...

S.NO	Crop Loan Rs. in '000s	Area in hect.	Fixed costs Rs. in '000s	Variable Costs Rs. in '000s	Farm income Rs. in '000s	Age	Family Size	Educ-ation	non farm income Rs. in ,000s	own labour
81	30	11	238.0	375	352.0	50	7	2	0	3
82	25	10	227.0	270	145.0	55	7	2	0	3
83	30	11	212.0	340	304.0	25	8	3	1	1
84	25	11	231.0	380	174.0	30	4	3	1	2
85	25	11	212.0	382	295.0	35	4	2	1	1
86	28	10	23.0	144	116.0	50	5	2	1	2
87	25	11	19.0	151	116.0	55	4	2	0	2
88	28	10	18.0	111	84.0	35	4	2	1	1
89	22	10	21.0	116	88.0	25	2	3	0	1
90	27	10	22.0	140	127.0	45	5	2	1	2
91	24	10	25.0	136	131.0	50	4	1	1	1
92	27	10	23.0	148	125.0	60	8	1	0	3
93	27	10	26.0	160	138.0	35	3	2	1	1
94	25	12	75.8	229	216.0	25	6	3	0	2
95	25	13	84.8	241	234.0	55	5	2	1	2
96	22	10	55.0	172	143.0	50	7	2	1	3
97	25	11	65.4	196	189.0	30	4	3	1	1
98	25	12	75.4	206	215.0	57	6	2	1	2
99	20	12	63.0	172	120.0	50	4	2	1	1
100	25	13	69.0	214	283.0	50	7	2	1	2

APPENDIX XI

DATA SET USED IN THE ESTIMATION OF LINEAR DISCRIMINANT COEFFICIENTS

Size of Loan Rs.in '000s	Area in hect.	Capital Expenses Rs. in '000s	Age	Family Size	Educ-ation (dummy)	non farm income (dummy)	own labour	consum-ption expendi-ture Rs. in '000s	irrigated/ unirrigated block (dummy)
4.0	1.5	4.5	40	4	2	0	2	10	1
5.0	1.0	3.0	50	4	0	1	2	10	1
5.0	1.0	3.5	45	4	2	1	2	6	1
5.0	1.5	4.2	39	5	2	1	2	12	1
4.0	2.0	10.2	50	5	0	1	2	12	1
4.0	2.0	8.2	47	3	2	0	2	7	1
4.0	0.5	2.2	38	4	2	1	1	7	1
4.5	1.0	4.2	40	5	2	1	2	10	1
7.0	1.0	2.2	50	5	1	1	3	15	0
8.0	1.0	2.5	30	3	2	0	1	12	0
9.0	1.0	2.5	45	5	1	0	3	18	1
10.0	1.5	3.7	50	5	2	1	2	20	1
9.0	1.5	3.5	55	5	1	0	2	15	0
8.0	1.0	2.5	50	5	2	1	3	18	0
9.0	1.5	2.3	32	4	2	0	2	16	0
10.0	1.5	2.5	50	7	1	0	5	20	0
6.0	1.0	2.1	45	4	2	1	2	15	0
10.0	2.0	3.3	28	3	2	1	1	20	0
4.0	1.0	8.3	50	5	1	0	2	20	0
5.0	1.0	9.5	50	6	2	0	4	25	0
4.0	1.0	6.8	35	4	2	0	2	18	0
4.0	0.5	3.2	35	4	1	0	2	18	0
15.0	4.0	11.0	50	6	1	1	2	50	0
18.0	3.0	14.0	30	5	2	1	1	45	0
14.0	4.0	7.0	33	7	2	1	3	60	0
20.0	5.0	15.0	35	8	3	1	2	60	0
16.0	3.0	5.0	50	4	2	0	1	45	1
22.0	6.0	6.0	45	6	2	0	1	50	1
22.0	5.0	6.0	35	5	3	0	1	45	1
8.0	4.0	8.0	50	6	2	1	2	60	1
10.0	6.0	11.0	40	4	2	0	2	40	0
10.0	5.0	12.0	45	5	2	0	2	50	0
28.0	10.0	23.0	50	5	2	1	2	60	0
25.0	11.0	19.0	55	4	2	0	2	60	0
28.0	10.0	18.0	35	4	2	1	1	35	0
27.0	10.0	22.0	45	5	2	1	2	40	0
27.0	10.0	23.0	60	8	1	0	3	60	0
16.0	7.0	31.9	50	5	2	0	2	50	0
15.0	7.0	42.4	32	5	2	0	2	32	0

APPENDIX XII
ACCEPTED ABBREVIATIONS USED IN THE STUDY

S.No.	Abbre-viation		Expansion
1.	APS	-	Agricultural Production System
2.	AIS	-	Agricultural Input Sub System
3.	AMPS	-	Agricultural Marketing and Production System
4.	ARC	-	Agricultural Refinance Corporation
5.	ACRC	-	Agricultural Credit Review Committee
6.	CD	-	Credit Deposit
7.	CRR	-	Cash Reserve Ratio
8.	DCCB	-	District Central Co-operative Bank
9.	DLCC	-	District Level Consultative Committee
10.	DSO	-	District Statistical Office
11.	FSS	-	Farmers Service Society
12.	GLP	-	Group Lending Programme
13.	NABARD	-	National Bank for Agriculture and Rural Development
14.	NCA	-	National Commission on Agriculture
15.	NCAER	-	National Commission for Applied Economic Research
16.	PACS	-	Primary Agricultural Credit Society
17.	PLDB	-	Primary Land Development Bank
18.	RBI	-	Reserve Bank of India
19.	RCS	-	Rural Credit Survey
20.	RFI	-	Rural Financial Institutions
21.	RRB	-	Regional Rural Bank
22.	SLR	-	Statutory Liquidity Ratio
23.	SLDB	-	State Land Development Bank

APPENDIX. XIII

LIST OF BANKS EXTENDED FINANCIAL ASSISTANCE TO FARMERS IN COIMBATORE DISTRICT

S.No.	Abbreviation	Name of the Bank
1.	SBI	State Bank of India
2.	SBT	State Bank of Travancore
3.	ALLAH	Allahabad Bank
4.	BOI	Bank of India
5.	BOM	Bank of Maharashtra
6.	CANARA	Canara Bank
7.	INDIA	Indian Bank
8.	IOB	Indian Overseas Bank
9.	CBI	Central Bank of India
10.	UNION	Union Bank of India
11.	UCO	Union Commercial Bank
12.	SYND	Syndicate Bank
13.	CORPO	Corporation Bank
14.	NEWB	New Bank of India
15.	VIJAYA	VIJAYA Bank
16.	BOB	Bank of Baroda
17.	MADURA	Bank of Madura
18.	CATSYN	Catholic Syrian Bank
19.	KVB	Karur Vysya Bank
20	LVB	Lakshmi Vilas Bank
21.	NEDUNG	Nedungadi Bank
22.	TMB	Tamil Nadu Mercantile Bank
23.	SOUTH	South Indian Bank
24.	VYSYA	Vysya Bank
25.	SLDB	State Land Development Bank
26.	DCCB	District City Cooperative Bank
27	PLDB	Primary Land Development