CHAPTER VII

Summary, Conclusions and Policy Implications

I. Introduction

Increasing agricultural supply requires the use of appropriate price and non-price incentives. It is generally held that farmers are rational and respond to price and non-price incentives such as, the relative prices of agricultural commodities, their relative profitability, irrigation, risk, technology, availability and cost of different types of credit and the like. While a large number of studies have been conducted on response of farmers supply with respect to price factors, risk, technology, irrigation and weather, the role of credit factors in farmers' supply response has not been systematically studied. During the last 20 years, there has been a tremendous expansion in the institutional credit facilities. A large number of specially designed programmes for enhancing credit supply to agriculture such as the lead bank scheme, the service area approach, the priority sector lending, single window system of credit and a number of subsidised interest rate schemes have been implemented to augment credit supply to agriculture at reasonable rates of interest. In addition, there has been a phenomenal growth in the number of bank branches as well as in the amount of
credit supplied to the agricultural sector. Along with direct finance, the indirect finance or re-financing facility extended to the banks financing agriculture has also recorded a steep increase.

The changing price and non-price factors or incentives have had their influence on the cropping decisions of the farmers. Mobility of land from one crop to another has increased during the last 25 years. The increased irrigation and better seeds had promoted greater substitution between land and other inputs. The rapid improvements in the supply and direction of agricultural credit had made the farmers more dynamic in terms of inter-crop substitutability. The cropping decisions of the farmers have been affected by the changes in price and non-price incentives.

While a large number of studies have attempted to assess the impact of price incentives on farmers' cropping or supply decisions, the role of non-price factors, particularly institutional credit in cropping decisions' has not been systematically analysed in the Indian context. While some of the studies on supply response have assumed that there is no change in the institutional credit, some have totally ignored the effect of finance variables on supply decisions. Even those studies, which have
considered finance as a crucial determinant, ignored the inter-regional disparities and inter-farm group differences in supply response with institutional finance as a determinant. On the other hand, studies on different aspects of institutional finance have highlighted aspects of institutional finance like the crop-wise, region-wise and category wise demand for credit, the supply of credit and its impact on production productivity and employment. Some studies on the other hand have concentrated on the relative performance of the institutional and non-institutional sources. Their relative costs and benefits to different types of farmers have been examined. Some studies have examined the repayment behaviour of the farmers. While a few studies have examined the performance of the banks in advancing and recovery of the loans. Similar studies have been conducted for the co-operatives of different types.

Thus, the supply response studies as well as the studies on institutional finance to agriculture have ignored a major area of policy concern, namely, the role of non-price factors such as institutional finance to farmers in supply decisions. Even studies which have attempted to integrate the credit factor in the supply response models have failed to bring out the differences between the different regions and different farmer groups. The credit responsiveness of
farmers depends not only on the crop but also on the size group. The responsiveness varies from crop to crop and from sub-region to sub-region.

The agricultural scenario of the Chittoor District, one of the relatively prosperous districts in the semi-arid Rayalaseema region has shown a marked change in the cropping pattern during the last 10 years. Various Governmental programmes have been vigorously implemented to step up agricultural production in the district. The district has witnessed rapid expansion in the institutional finance during the last one decade. In the context of changing cropping scenario, the present study seeks to examine the net effect upon the crop production of institutional finance and other non-price incentives by homogeneous geographical sub regions as well as by size class of farmers.

II Objectives of Study:

The focus of the study is the assessment of the impact of credit and other factors on acreage under different crops in the Chittoor District. The specific objectives of the study are:

1) to analyse the factors affecting the agriculture production decisions under the changing institutional credit conditions;
The study was confined to the Chittoor District of Andhra Pradesh. It is based on three major crops, namely, paddy, groundnut and sugarcane. Sericulture is studied as a competing crop to paddy and groundnut. The study is based on data collected from a sample of 222 farmers drawn from three mandals belonging to three different agro-climatic regions of the district. The sample farmers have been selected at random from the three representative revenue villages from each mandal. Thus, nine villages from the three mandals were selected purposively. 25 farm households from each village were selected at random to generate a total sample of 222 households. The data relating to the agricultural operations, agricultural inputs and outputs for the crop year 1991 and 1992 have been collected through a well-structured questionnaire. The data relating to agricultural prices, input prices and agricultural credit have been collected from the institutional sources. The data have been subject to rigorous statistical analysis.

IV THE STUDY AREA

The Chittoor District, where the study was conducted is a predominantly agricultural district. About one-third of the total geographical area was put to agricultural use.
Most of the farmers (60%) were marginal owning less than one hectare each. But the marginal framers accounted for only 19% of the land holdings, indicating skewed distribution of land holdings. The average size of the holding was only 1.37 hectares. The principal source of irrigation are wells and tanks and they provide irrigation to about 30% of the gross cropped area. Groundnut is the principal crop of the district with 54% of the cultivable area under it. Paddy and sugarcane are other major crops. In recent years, plantation crops including sericulture, are gaining importance. The district is gaining importance in livestock and poultry as well. The number of poultry birds and milk cattle are growing in importance in recent years.

Along with a rapidly changing agricultural economy of the district, the agricultural credit sector has been undergoing rapid changes. First, the co-operative movement has taken deep roots in the district with credit co-operatives occupying an important place. The three tier credit system has been re-structured and a single window system which caters to both the short term and long term credit needs, has been introduced.

The network of commercial banks in the district has expanded rapidly since 1969. Along with the commercial
banks, the regional rural banks have been set up throughout the district. With the growing demand for credit for both short term and long term purposes, it had been rising continuously in the district. The demand for production credit has been rapidly rising. The banks and other institutions, however, meet only 55-60% of the total demand for credit. The maximum demand for credit comes from groundnut, paddy, sugarcane and plantation farmers. The share of paddy and sugarcane was estimated to be 25%, while groundnut accounted for 75% of the total demand. The commercial banks have been lending to the agricultural sector on a priority basis at relatively cheaper rates of interest. In the total bank loans to agriculture, crop loans accounted for nearly 70% of the credit. For various reasons, however, the banks were not able to reach their target in credit advanced. Of the three types of institutions, commercial banks are the principal lenders to the agricultural sector advancing about 85% of the total credit followed by rural banks with 4%. The relative share of the rural banks and co-operative in the total credit has been on the decline.

Though groundnut is the major crop of the district, sugarcane has been the principal beneficiary. Of the crop loan sanctioned by the commercial and rural banks among
plantation crops, mango and sericulture are the principal beneficiaries of the institutional credit. In the allied activities, loans for bullocks and cart was the main beneficiary. The term loans as a whole and those advanced to the dug wells shows a declining trend. Similarly loans advanced for land development show a declining trend. Under the category of loans for mechanisation, purchase of tractors is the main purpose. The recovery position of loans, however, showed a declining trend due to mounting overdues. This was due to willful default and misutilisation of loans. In order to co-ordinate the institutional credit efforts, the system of credit planning had been in operation in the district. The actual credit advanced vis-a-vis the credit targetted, for different sectors shows that most of the targets were not reached except in crop loans and allied activities till 1988. There after, the actual disbursement fell far short of the target.

V The Sample

Three sample mandals representing three different agricultural profiles, namely, Kamma Palle, Gudipalam and Santhipuram were selected. Kamma Palle is geographical smaller with a relatively small population but with the higher proportion of scheduled caste and agricultural labour. In terms of irrigation, Kamma Palle is better than
the other two mandals. The area under the cultivation of
groundnut and sugar cane per centage is the highest in Kamma
Palle. Kamma Palle is well connected by road. It has a good
credit infrastructure.

Gudipala is the biggest mandal in terms of area and
population. It has the highest proportion of SC population.
Wells and tanks are the principal sources of irrigation but
the extent of irrigation was lower than the other mandals.
Groundnut and sugarcane were the important crops and
sericulture was picking up gradually. In terms of area,
paddy was largely cultivated in Gudipala. In terms of roads
and communications Gudipala was better than the other
mandals. In animal husbandry, and cattle development,
Santhipuram was relatively better placed. But in poultry,
Kamma Palle was ahead of other mandals. In terms of co-
operative membership and borrowing, Santhipuram was ahead of
Gudipala and KammaPalle. In the matter of advances,
recoveries and overdue there were disparities. Thus the
three mandals represent three agricultural regions with well
marked differences.

An analysis of the socio-economic characteristics of the
sample farmer households revealed that small and medium
sized farmers constituted 60 per cent, marginal farmers
about 20 per cent, large farmers about 15 per cent of illiterate in the total sample was only 22 per cent and there were significant regional differences in literacy. The distribution of S.C., S.T. and B.C farmers in the sample was in line with the district and mandal population. The proportion of economically active population was relatively high around 85 per cent and the dependancy ratio was 33 per cent which was lower than the district average.

The distribution of sample land holdings indicated a very high concentration of the irrigated land in the hands of medium and large farmers. This was true of the total land also. The utilisation pattern of sample land indicated that large and medium farmers possessed most of the net and gross cropped area.

The cropping pattern of the sample household indicated a high degree of concentration of land, particularly the hands of the irrigated part, in the hands of medium and large farmers. The disparities were clearly visible when the value of land holding and house property was considered. This is true of the value of irrigation facility owned by the farmers as well as the value of agricultural implements. The disparities in the value of live stock assets are equally wide but with a difference. The small and marginal farmers own large number of animals as an
additional source of income. When the total value of household assets are considered, the disparities are even more pronounced. Most of the socio-economic characteristics of the farmers are truly representative of district and approximate the general features of the farming community.

**Impact of Institutional Credit on Supply Response**

The analysis of the impact of institutional credit and other factors on acreage decisions reveals the following.

1. The analysis of cross-section data with the help of correlation analysis, chi-square test and analysis of variance, showed according to their appropriateness reveals that the age of the farmer, education of the farmer, family type, occupational status of the farmer, extent of family labour and caste of the farmer have no statistically significant role in the allocation of the area between various crops. However, the analysis indicates the significance of the farm size, family income and asset holding of the farmers in their acreage decisions.

2. Family education had a positive and direct relationship with acreage under some crops. The relationship however not true of all crops.
3. Credit factors had a significant correlation with crop acreage. The long term and short term institutional emerged as a factor which had significant positive correlation with the crop acreage. This was true of all principal crops under study.

4. The cross section analysis reveals that the extent of irrigation, the amount of short-term credit and long term credit credit as well as the availability of the non-institutional had significant influence on the acreage decisions of the paddy growers. The results indicate that as irrigation increases the area under paddy increases. Similarly the non-institutional sources of credit had a significant stimulative impact on average under paddy. The short-term institution credit (crop loans) has a negative impact on acreage under paddy. The result is not significant in the three models employed. The negatives relationship, is indicative of the farmers' preferences for substitute crops as and when larger production credit is available.

5. The price of paddy and its relative profitability however were not significant in their influence on average. The price of the competing crop however was significant. In general, price response co-efficient looked weaker than the co-efficients of other factors.
6. The area under groundnut, the largest single crop in the district was found to be significantly influenced by the extent of irrigation, long term credit, relative profitability, irrigation emerged as an important factro effecting groundnut acreage decision. The negative co-efficient of irrigation expands, farmers would more away from groundnut. The negative impact of the competing price, in one of the models used shows that when the price of the competing crop goes up the area under groundnut would shrink and vice-versa.

7. Long term agricultural credit which promotes irrigation and mechanisation was found to have a negative effect on the groundnut acreage. This appears to be meaningful since an increase in agricultural investment would load to a change in the cropping pattern.

8. The short-term credit was significant in the first and third models but not in the second model. The positive sign of the co-efficient indicates that with an increase in the scale of institutional finance, the area under rainfed groundnut would go up. The non-institutional finance also had a significant impact on the area of rainfed groundnut in model-I. But it is not significant in other two models.
9. Area of irrigated groundnut was found to be significantly influenced by the extent of irrigation, long term credit, price of groundnut and the price of the competing crop. Irrigation was found to be exercising a negative and significant impact in all the three models. Short-term credit was found to be significant only in one model. Long-term credit had a negative impact on the area under irrigated groundnut implying that farmers with access to longer amount of credit would shift to sugar cane and paddy.

The direction of influence however was not consistent in all the models. If the price variables, the price of the competing crop had a significant impact on the area under irrigated groundnut. This is consistent with the actual behaviour of the farmers, as the price of the competing crop goes up alternative crops. Therefore, even in respect of irrigated groundnut the credit factors had a role in play.

10. The analysis of the factors of influencing sugar cane area indicate that long term and short term institutional credit were the important determinants of the area under sugarcane. Both the institutional credit factors were directly related to the credit increases the area under sugarcane would group. The price of sugar cane is
significant but not the price of the competing crop and the relative profitability of the crop. The extent of the irrigated area exercised a consistently strong influence over the area under sugarcane.

Thus, the cross-section analysis revealed varies response of farmers between crops. The credit factors had emerged as the significant factors, rainfed groundnut and paddy. The direction and the level of significance of the credit factors, however, varied from crop to crop. The relative importance of credit, vis-à-vis other factors also varied across the crops where irrigation had taken the primary role, the credit factors have taken the secondary role in influencing the area under different crops, and vice versa.

**Inter-Region and size class disparities in supply response**

The analysis made in chapter IV on inter-mandal disparities in supply response of the farmers reveals that credit factor played an important role in the farmers' acreage decision and that there were significant inter-mandal disparities in the impact of the credit factors. In respect of paddy, the short term of credit has a significant impact only in santhipuramk when sugarcane and sericulture were viewed on competing crops to paddy. The
long-term credit was not significant. Non-institutional credit was significant in its impact on paddy acreage in both Gudipala and Santhipuram. The price of the competing crop had a significant impact only in Santhipuram but in all mandals the co-efficient of the competing crop was negative. In Gudipala the price of paddy was mildly significant.

In respect of area under irrigated groundnut, the short term credit emerged as a significant variable in Kamapalle, Gudipala and Santhipuram. The area under rain fed groundnut was also found to be stimulate by short term credit in Kamapalle, Santhipuram but not in Gundipala. Long term credit had a significant impact only on rainfed groundnut in Kamapalle but not in other mandals. Non-institutional finance had a significant impact on the area under irrigated groundnut in Kamapalle, Gundipala and Santhipuram. The impact is negative which means that as non-institutional finance increased, the area under groundnut would decline. The price factors did not have a significant impact on groundnut except in respect of rainfed groundnut in Gundipala.

Short term credit had a significant impact, however on the area under sugarcane in Santhipuram and Kamapalle but the impact was mildly negative in Gudipala. The long run credit had a positive significant impact on sugarcane area.
in Kammapalle and Santhipuram while in Gudipala it was not significant. Non-institutional finance had a significant role in Kammapalle and Santhipuram but not Gudipala. The price factors were significant in Gudipala and Santhipuram, whereas, the price of the competing crop was significant only in Gudipala.

The average supply response of large and medium farmers to different credit and price factors varied from the response of small and marginal farmers in respect of three crops. While credit factors move pervasive and influential on the large farmers, they were relatively less influential in respect of small and marginal farmers for all crops.
Policy Implications:

The results of the study have important policy implications. The results of the study imply that it is possible to influence area allocation by manipulating the credit and the non-credit incentives.

The important policy implication of the present study is that the area under different crops can be increased by increasing the supply of short-term and long-term institutional credit. While formulating the district credit plan due to consideration needs to be given to the supply of the required level of institutional finance. But this may go against the logic of new economic policy which lays emphasis on better utilisation of credit rather than augmenting its supply.

Implementation of the financial sector reforms as recommended by Narasimham Committee may reduce the resources available to the agricultural sector and increase its costs to the farmers. Considering the paramount need to increase agricultural supply, it implies that the government should provide larger credit facilities to the agricultural sector through banks and co-operatives. This is not to argue against better targeting of bank loans or rationalising the inter-state structure consistent with the
on going financial reforms, the supply of bank credit can be increased, particularly the small and marginal farmers in relatively backward areas.

The banks and the co-operatives can lend more to the agricultural sector only if the recovery of loans is emphasized. The banks and the co-operatives must launch greater efforts to minimize willful default and misutilisation of bank finance.

The inter-mandal disparities in the impact of institutional credit underline the need for giving a regional orientation to the lending policies of banks and co-operatives. The financial institutions must devise appropriate strategies to account for the regional variations in credit supply.

Another important implication for the present study is that the area under different crops can be increased by increasing the total irrigated area. In the context of progressively declining public investment in irrigation projects, this conclusion assumes importance. While framing agricultural policy for development, due consideration may be given for irrigation development in the public sector. But given the state of Government finances, it may not be possible to undertake any larger investment in irrigation.
Therefore, private investment in irrigation needs to be encouraged through policy of liberal credit. Therefore, bank credit (long-term) assumes a crucial place in the context of increasing the extent of irrigation.

The disparities in the impact of credit factors on the area response of different size classes of farmers points to the need for augmenting the supply of credit to small and marginal farmers. This in turn requires expansion in the network of rural banks and credit co-operatives as well as an increase in the advances of these institutions to small and marginal farmers.

Another core policy implication of the study is that there is inter-regional and inter-crop differences in the price responsiveness of the farmers. The price policy should take into consideration the regional and crop variations in price response of the farmers.