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ABSTRACTS OF M.Sc. THESES

Ramesh, Nerella. 1990. A Study on Impact of Integrated Tribal Development Agency Programmes on Tribal Farming in Warangal District of Andhra Pradesh. Andhra Pradesh Agricultural University, Hyderabad. *Major Advisor:* J. Krishnaiah.

The population of the scheduled tribes in the country is 5.38 crores, constituting about 7.85 per cent of the total population. There is approximately one tribal for every thirteen Indians. For the seventh plan period, 40 lakh scheduled tribe families below the poverty line were targetted for providing economic assistance. During the first year of seventh plan, against a target of 8,43,537 scheduled tribe families, 8,73,000 families were assisted. At present, tribal sub-plan covers 184 integrated tribal development projects for economic betterment of 17.13 lakhs tribals constituting 5.93 per cent of the total population of the state. Warangal district has considerable tribal population of about 3 lakhs which constituted nearly 20 per cent of total population in the district. Integrated Tribal Development Agency has been operating in the district for more than 12 years and has implemented several developmental programmes. The evaluation of these programmes is useful for taking appropriate decisions regarding the extent of additional benefits accrued between beneficiaries and non-beneficiaries. Hence, the present study was undertaken in Warangal district of Andhra Pradesh to assess the impact of ITDA on the farming conditions, change in cropping pattern, income and employment. The specific objectives of the study were to (1) estimate cost and returns from tribal farming; (2) assess the resource use pattern and production efficiency and to suggest suitable resource adjustments; (3) compare the increase in income and employment of the beneficiaries of ITDA programme and non-beneficiaries; (4) identify the nature and extent of asset formation among tribal people; and (5) examine the change in cropping pattern and productivity of various crops due to various programmes of ITDA.

Four villages, 2 each from Mulug and Eturnagaram were selected. All the farmers in each selected village were grouped into three size groups viz.,

marginal (< 1ha), small (1-2 ha) and others (>2 ha). From these four villages, 16 farmers from each size for beneficiary and non-beneficiary groups were selected at random. Thus, one district, two mandals four villages and 96 farmers formed the sample for the study.

The average size of farm family for beneficiary and non-beneficiary categories was about 7. Though the difference in average size of holdings of the sampled beneficiary and non-beneficiary farms was marginal, beneficiary farms were found to be possessing more farm assets of high value when compared to the non-beneficiary farms. This is a reflection of the positive impact of ITDA finance on assets formation on beneficiary farms.

With respect to the cropping pattern, paddy was the predominant crop in all categories of sampled farms of beneficiaries and non-beneficiaries. The area under groundnut crop was more on beneficiary farms compared to non-beneficiary farms. The gross cropped area and cropping intensity were high on beneficiary farms.

It was observed that human labour employment per hectare for all the crops were high on beneficiary farms compared to the non-beneficiary farms. The size of human labour was inversely proportional to the farm size. The cattle labour utilization was more on beneficiary group compared to other group.

In general, the cost of cultivation per hectare for all the crops was more on beneficiary farms compared to non-beneficiary farms. This was due to the impact of ITDA reflected in intensive cultivation, growing of high yielding varieties, utilization of inputs like chemical fertilizers, seed, plant protection chemicals, etc.

The physical yields and gross returns from crop enterprises were higher on beneficiary farms. The same trend was observed in case of income measures like net income, family labour income, farm business income and farm investment income.

The results of functional analysis clearly indicated the significant use of labour, manures and fertilizers and plant protection chemicals. Further the ratios of marginal value products to opportunity costs indicated a high degree of resource-use inefficiency and the scope for reorganisation of resources so as to obtain maximum returns on beneficiary and non-beneficiary farms.

The opinion survey revealed that the Integrated Tribal Developmental programmes were useful in increasing the production and productivity of the farms. This was clearly exhibited in the socio-economic development of the beneficiaries.

The increasing of quantum of financial assistance, strengthening of existing extension facilities, increasing the availability of technical know-how, providing marketing facilities and preparing need based developmental plans in the region are the suggested policy measures emerging from the study.

Suhasini, K. 1990. Spatial Price Equilibrium Analysis of Rice Economy in Andhra Pradesh. Andhra Pradesh Agricultural University, Hyderabad. *Major Advisor* : J. Krishnaiah.

The present study assumes significance because the marketable surpluses of rice made possible though the continuous adoption of improved technology in the state may depress the producer's prices and may result in the diversion of current area under rice to other remunerative crops. From the welfare point of view also there is a need to match the growing demand caused by population explosion for rice with the available supplies.

The study has been undertaken with the general objective of developing a normative spatial price equilibrium and area allocation model in three different regions of Andhra Pradesh. The specific objectives are (i) to determine a set of equilibrium prices for each of the regions in Andhra Pradesh, (ii) to determine the optimum pattern of crop allocation, commodity flows and price outcomes consistent with optimal allocation of rice and (iii) to estimate the volume and direction of trade in each region.

The data for supply analysis, pertaining to production, area, prices of competing crops, price of the own crop, area under irrigation, area under high yielding varieties of rice and fertiliser prices were collected from Season and Crop reports for the period 1966-67 to 1986-87 and from Agricultural Situation published by BES, Government of Andhra Pradesh for the period from 1986-87 to 1988-89. Demand analysis was based on consumer expenditure data of the thirty eighth round (1983) of National Sample Survey. Transport costs for roadways were collected from private agencies and railway transport costs were obtained from Central Railways.

Based on this a transport cost function was fitted. The weighted average of roadways and railways is taken as the transport costs (the weight being the volume of commodity handled at present by these sources) between each pair of regions. The final solution for spatial price equilibrium analysis is obtained by applying quadratic programming technique on lines of Takayama and Judge.

The optimal solution revealed that the equilibrium (optimal) prices for each region were 5.49 million rupees per thousand tonnes in Coastal Andhra, 4.46 million rupees per thousand tonnes in Rayalaseema and 4.56 million rupees per thousand tonnes in Telangana regions. The solution revealed optimal demand of 2352.37 thousand tonnes and optimal supply of 3322.69 thousand tonnes for Coastal Andhra, with a surplus of 970.32 thousand tonnes. The optimal demand was 960.17 thousand tonnes and optimal supply was 391.97 thousand tonnes, with a deficit of 568.2 thousand tonnes in Rayalaseema region. Optimal demand was 2027.68 thousand tonnes and optimal supply was 1625.56 thousand tonnes, with a deficit of 402.12 thousand tonnes in Telangana region. This implies the flow of surplus production from Coastal Andhra to both Rayalaseema and Telangana regions.

The optimal area allocation revealed that 801.24 thousand hectares in Coastal Andhra, 88.81 thousand hectares in Rayalaseema, 307.75 thousand hectares in Telangana regions and 1257.81 thousand hectares in Andhra Pradesh may be diverted for non-food grains and other important crops. The production increased by 268.91 thousand tonnes, 47.65 thousand tonnes and 275.62 thousand tonnes in Coastal Andhra, Rayalaseema and Telangana regions respectively, because of inter regional trade between them. The economic surplus was of the order of Rs. 59734.39 millions.

The model assumes closed economy, flow of rice in and out of state is not allowed but inter regional trade is allowed. Hence the surplus production in Coastal Andhra flows to both Rayalaseema and Telangana regions. Thus, the gain in area allocation and production pattern is a result of inter regional trade.

Sankari, Sri. 1991. A Study of Demand for Pesticides at Farm Level for Cotton. Tamil Nadu Agricultural University, Coimbatore. *Major Advisor* : C. Ramasamy.

A study of demand for pesticides at farm level was undertaken in Gudimangalam block of Coimbatore district in Tamil Nadu. The objectives of the study were to (i) assess the demand for pesticides at farm level for cotton, (ii) study the farmers buying behaviour of pesticides and (iii) analyse the market structure for pesticides at retail level.

Since cotton consumes higher level of plant protection chemicals than many other crops, data were collected from 60 cotton growing farmers from five villages of the block for the year 1989-90. Apart from this, the whole set of 25 pesticides dealers in the block was considered. Among the cotton varieties MCU 5, DCH 32, Suvin and LRA 5166 were predominantly grown in this region. Hence these varieties were considered for the present study.

A Multinomial Logit Model was used to estimate a system of cost share equations for agricultural inputs and price elasticities of demand were derived. In order to ascertain the determinants of brand loyalty and dealer loyalty by the cotton farmers, a Logit Model was used. To evaluate the changes in the size distribution and to project the future distribution of dealer's pesticides sales volume, a Markov Chain Model was used. To rank the factors which determine the quantity of pesticides used, and to determine the important sources of information about brand and promotional methods adopted by sample dealers, Garrett's ranking technique was used.

The sample farmers stated *Heliothis* and *Whitefly* were the major pests and wilt was the major disease in cotton. Regarding the factors which determine the quantity of pesticides, type and intensity of pest and disease were the foremost factors. Most of the farmers owned power operated sprayers.

Cotton growers invested more on organo phosphorus, synthetic pyrethroids and organo chlorine group of pesticides. Plant protection expenditure accounts for 31 per cent of the cost of cultivation. Due to low water availability, the total cost and other cost components were low in LRA 5166 while there was no significant difference between the other three varieties.

An examination of adoption of Integrated Pest Management (IPM) revealed that adoption of crop rotation and avoiding the cultivation of alternate host plants were the dominant practices. The study suggests that as a long term strategy, the IPM should be promoted so that optimum combination of chemical and non-chemical methods may be adopted to achieve the twin objectives of increasing production and protecting environment.

The own price elasticity of demand for pesticides is inelastic. While considering the cross price elasticities, pesticides emerged as a complement with nitrogen and a partial substitute for all other inputs.

Peer group influence and personal contact of dealers were the major factors which helped cotton farmers to know more about pesticides dealers. Media advertisement was the major source of brand information.

Most of the farmers are loyal to dealers than brands. Credit availability, distance from farm to dealer location, price of the product, peer group influence and availability of preferred brand were found to be the significant factors contributing to the dealer loyalty. While considering the factors contributing to brand loyalty, price and efficiency of the brand were highly significant.

The market structure for pesticide at retail level was identified as moderately oligopoly. The projected number of dealers in different pesticides sales volume categories for the next four years over 1988-89 indicated that, the demand for pesticides will have an increasing trend in next four years.

Sravanthi, A. Padmasri. 1991. Land Use Pattern in Andhra Pradesh - A Spatial and Temporal Analysis. Andhra Pradesh Agricultural University, Hyderabad. *Major Advisor* : J. Krishnaiah.

The land utilisation pattern in Andhra Pradesh is not different from that of rest of India. The distribution of operational holdings is skewed and the inequalities continue to exist. The present study was undertaken to (1) study the structural changes in land use pattern in Andhra Pradesh over time; (2) find out the nature and extent of structural variations in the pattern of distribution of operational holdings; (3) examine the inequalities in the distribution of operational holdings; (4) suggest measures to maintain proper ecological balance with special reference to forest area, net cropped area, net irrigated area, gross irrigated area and fallow lands; and (5) suggest suitable policy measures based on the findings of the study.

The required data were drawn from the published reports of Bureau of Economics and Statistics, Hyderabad. The data on land utilisation pattern covered a period of 35 years (1955-56 to 1989-90) and that of operational

holdings covered four rounds, namely, 1970-71, 1976-77, 1980-81 and 1986-87. For studying structural changes in land use pattern, percentage analysis, Weaver's index (to quantify volume of change) and compound growth rates for different end use categories were taken up. Based on the results of compound growth rates, projections of land use pattern in Andhra Pradesh during 1995 and 2000 A.D. with 1989-90 as base were attempted. The inequalities in the distribution of operational holdings were examined using measures like Gini Concentration ratio (GCR), standard deviation of logs (SD of logs), coefficient of variation (CV) and Pareto index. Nature and extent of structural variations were observed through changes in the average holding size and percentage distribution of holdings.

Land use pattern study revealed that, at the state level, area under forests, land put to non-agricultural uses, miscellaneous trees and groves, current and other fallows and gross cropped area had shown an increase over time while barren and uncultivated land, culturable wastes, permanent pastures and grazing lands and net area sown had shown a decline.

Weaver's Index revealed that Srikakulam, East Godavari, West Godavari, Guntur, Nellore, Cuddapah, exhibited a dynamic change. A semi-dynamic change was observed in Krishna, Kurnool and Nalgonda. Three regions underwent a semi-dynamic change. Static change was noticed in Visakhapatnam, Ananthapur, Nizamabad, Medak, Khammam and Karimnagar districts. State as a whole exhibited a static change. When the growth pattern was observed for the overall period i.e., 1955-56 to 1989-90 considerable variation was observed. For different land use categories different growth trends were observed within a region among the districts and among the regions.

Spatial and temporal variations in average size of holding showed that there was a gradual decline in the size at the state level from 2.51 ha in 1970-71 to 1.72 ha in 1986-87.

Measures of inequality except Pareto Index reflected that maximum and minimum inequalities occurred in Rayalaseema and Coastal Andhra, respectively. All the measures except Pareto index have shown that inequalities in the State declined over time. An inter comparison of the measures of inequalities revealed a general lack of uniformity which is not inconsistent with economic theory. The present estimates are quite comparable with those of earlier studies.

Projected land use pattern for 1995 and 2000 A.D. revealed that in absolute terms, culturable wastes, permanent pastures and net area sown may show a decline while area under barren lands, non-agricultural lands and fallows is likely to increase.

The study concludes that the land use policy should be evolved taking into consideration the land capability, classification and alternative land use systems. Alternative land use systems should be evolved by taking into account agroclimatic and socio-economic conditions prevailing in the region. Systems approach must be adopted. Alternative farming systems such as agro-forestry, agriculture + horticulture, agriculture+silvi-pastoral system, agriculture+ pisciculture should be taken up based on the suitability of district or region. Rice+fish farming may be adopted around Kolleru (Krishna) and Pulicut (Nellore) tracts of Andhra Pradesh.

Land degradation should be avoided and minimised by following soil conservation and land reclamation measures. Integrated watershed management should be adopted for this purpose. The diversion of agricultural land for non agricultural purposes should be discouraged. Degrading forests will have to be improved through reforestation programmes. Afforestation, avoiding of grazing of animals on forests, etc. help in increasing area under forests. Pasture improvement programmes should be stepped up.

To reduce the pressure on land resource a change in man-land ratio is necessary and could be possible by controlling growth of population through education and family welfare measures.

The policies and programmes for expanding area under irrigation should be evolved and implemented on priority basis.

The Banjar lands should be distributed in less developed regions like Telangana and Rayalaseema to reduce inter-regional inequalities in land distribution.

The policy for further research should aim at evolving a clear cut methodology for projecting different land use categories and devising an optimal land use policy.

Vanisree, K. 1991. A Study on the Pattern of Consumers Demand in India. Andhra Pradesh Agricultural University, Hyderabad. *Major Advisor*: J. Krishnaiah.

The present study on the pattern of consumer demand in India was undertaken to (i) evaluate different Engel functions for different commodities among different income groups in rural and urban India; (ii) study the temporal variations in consumption pattern of rural and urban India; (iii) estimate future demand for various items of consumption; and (iv) study the inequality in consumer expenditure in rural and urban India.

The required data on monthly per capita expenditure for various items of consumption for 22nd round (1967-68), 27th round (1972-73), 32nd round (1977-78), 38th round (1983) and 42nd round (1986-87) were collected from the published reports of National Sample Survey Organisation. The data covered rural and urban population groups, 20 items of consumption, 20 states and union territories of India.

For studying the relation between income and consumption, Engel curves were fitted to the consumer expenditure data pertaining to 38th round of National Sample Survey Organisation and expenditure elasticities were estimated. For examining the temporal variations in consumption pattern of rural and urban India, conventional tabular and percentage analysis of monthly per capita consumer' expenditure on different items of consumption during various rounds were performed. To study the inequality in consumer expenditure in rural and urban India, different measures on inequality like the Pareto Index, Gini Concentration Ratio, the standard deviation of logarithms and coefficient of variation were estimated for 32nd and 38th rounds. To estimate the future demands for various items of consumption, the methodology adopted by the planning commission, was applied in the present study.

It was found that the inverse, double log and semilog gave the best fits among the two parameter Engel functions while log-log inverse and Lesser's forms were best among the three parameter Engel functions.

The two parameter Engel functions yielded higher elasticities compared to three parameter Engel functions. With increase in expenditure, the two parameter Engel functions exhibited opposite phenomenon for food items. With the increase in income, the expenditure on food items decreased. The

rural groups spent more on food items compared to non food items.

There are variations in the pattern of consumption between different expenditure classes of population over a period of time and between rural and urban classes. In case of rural population the percentage expenditure on cereals, gram, cereal substitutes, pulses, sugar and salt have declined while all other food items have shown an upward trend. Among non-food items, tobacco and intoxicants, fuel and light and clothing have shown an upward trend whereas foot wear, miscellaneous goods and services and durable goods have shown a slight decrease in the expenditure proportion. Even the total non food has declined from 42.93 percent to 34.33 per cent.

In case of urban population there was a decrease in expenditure proportion between 1967-68 and 1986-87 for total cereals, gram, cereal substitutes, pulses, sugar, salt, spices, beverages and refreshments while milk and milk products, edible oil, meat, egg and fish, vegetables, fruits and nuts have shown a perceptible increase. While total food has declined from 66.55 percent to 57.07 per cent, all items of nonfood have shown an upward trend. The total nonfood has increased from 33.45 percent to 42.93 percent.

The expenditure increases more or less cent percent over the base period during 1995 and a little over that during 2000 A.D. both in rural and urban areas for most of the items of consumption. Thus, the average expenditure is approximately doubled during 1995 and would be more than double during 2000 A.D.

The standard deviation of logarithms, coefficient of variation and Pareto Index revealed that the inequalities have increased between the period 1977-78 and 1983 for both rural and urban sections. But Gini Concentration Ratio revealed a reverse trend indicating that the inequalities have come down over a period.

Based on the results, the following implications emerge for further research and policy.

(1) The income is to be equitably distributed among different income classes by devising and implementing rigorous poverty alleviation programmes.

(2) The increasing trend in urbanisation and migration of rural people should be restricted by providing reasonable employment opportunities and better living conditions in the villages. This will necessitate housing and

employment programmes to be concentrated in rural and semi-urban areas. Emphasis should be placed on agrobased industries.

(3) To match the increasing trends in consumer expenditure the per capita income should be stepped up. This is possible only when the population growth is substantially reduced.

Babu, K. Sudhakar. 1992. An Economic Analysis of Cotton Marketing in Warangal District of Andhra Pradesh. Andhra Pradesh Agricultural University, Hyderabad. *Major Advisor* : J. Krishnaiah.

Cotton occupies 4.96 per cent and 9.35 per cent of total cultivated area in Andhra Pradesh and Warangal district, respectively. It is one of the important commercial crops in Warangal district.

The general objective of the investigation is to study cotton marketing in Warangal district of Andhra Pradesh. The specific objectives are: (i) to identify the marketing channels; (ii) to study the marketing costs, the market margins and price spread; (iii) to study the temporal and spatial variations of cotton prices and the factors responsible for the same; (iv) to work out the marketing efficiency/pricing efficiency in the selected markets; (v) to study the behaviour of market arrivals; and (vi) to identify the marketing problems faced by cotton growers, intermediaries, commission agents and market committees of the selected markets.

Three markets namely Warangal, Parkal and Jangaon were selected at random for an indepth analysis of cotton marketing. The required data was collected from both primary and secondary sources. The monthly average prices, arrivals and their values of the three market centres were collected from the respective market committee records and clock books. A total of 135 farmers, 45 middlemen and 15 commission agents were covered under the study. The required information and data were collected through personal interview of the respondents (producers, commission agents, middlemen and market yard personnel) by means of a specially devised and pretested questionnaire. The collected data was subjected to conventional tabular and functional analysis. The pricing efficiency was assessed through correlation and price-spread was worked out through lagged margins method. Opinion survey was conducted to study the marketing problems.

Seven channels of distribution were identified. They are 1. Channel I : Producer ———> Commission Agent ———> Miller ———> Consumer. 2. Channel II : Producer ———> Village Merchant ———> Commission Agent ———> Miller ———> Consumer. 3. Channel III : Producer ———> Trader ———> Miller ———> Consumer. 4. Channel IV : Producer ———> Trader ———> CCI ———> Miller ———> Consumer. 5. Channel V : Producer ———> CCI ———> Miller ———> Consumer. 6. Channel VI : Producer ———> Miller ———> Consumer. 7. Channel VII : Producer ———> Village merchant ———> Miller ———> Consumer.

The analysis of price spread and market margins from different channels indicated that the producers in channel V realised the highest share of 96.28 per cent of consumer's rupee followed by channel VI with 96.25 per cent. It is observed that the market margin received by the village merchant was highest with 81.20 per cent in the channel VII followed by traders with 27.90 in channel IV.

The fluctuations in prices of cotton in all the selected markets were found to be erratic and no specific trend was observed during the period 1987-88 to 1990-91. Correlation coefficients were calculated for the period 1987-88 to 1990-91. The range of correlation coefficients were 0.11 to 0.34. All the coefficients were positive, but not significant except the one between Parkal and Jangaon. In respect of market arrivals, Warangal emerged as the biggest cotton trading centre, followed by Parkal and Jangaon.

The important problems in the marketing of cotton in the study were the malpractices of commission agents and traders such as deferred payments, retention of empty gunny bags, controlling prices quoted by the purchasers with a prior agreement, etc. They also illegally control the storage facilities available in the market yard. More scrupulous administration and strong producers' unions are suggested to solve the problems. Further the bank functioning in the premises of the market yard should provide marketing loan facilities so that the farmers can overcome the practice of deferred payment. The Government agencies like Cotton Corporation of India, Marketing Federation of India, Cotton Advisory Board should enter the market freely in order to maintain a healthy competition. Adequate provision should be made for storage and other physical facilities in the market. The growers are to be educated in grading their cotton under each variety on scientific lines. The extension agency has to play a vital role in this. Ginning

and storage facilities should be provided at the village level which would elevate the farmers to a vantage position. It is still better if these are organised in the cooperative sector. There is need for a thorough overhauling of the marketing system of cotton. The current practice of trading in Kapas should be switched over to trading lint and seed separately. Market intelligence should be provided to the farmers through broadcast of the price bulletins and by displaying the information in all mandal headquarters.